Seit > 5 Jahren nicht aktualisiert, Leitlinie zur Zeit überarbeitet

Leitlinienreport

der S3 Leitlinie „Prävention und Therapie der Adipositas“

AWMF-Register-Nummer (050-001)

Version 1.0 (April 2014)

1. Aktualisierung 2011-2014

DEUTSCHE ADIPOSITAS GESELLSCHAFT

äzq

Impressum

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Herausgeber

Deutsche Adipositas Gesellschaft e. V. (DAG)

(Präsident: Prof. Dr. M. Wabitsch)

Federführende Fachgesellschaft

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INHALTSVERZEICHNIS

1. Informationen zur Leitlinie

S3-Leitlinie zur Prävention und Therapie der Adipositas, Version 2.0, 1. Aktualisierung 2011-2014 (AWMF-Registrierungsnummer: 050-001)

- Ersterstellung 2007
- 1. Aktualisierung 2011-2014

Die S3-Leitlinie “Prävention und Therapie der Adipositas“ sowie das Dokument mit Leitlinienreport und Evidenztabellen zur Leitlinie sind über die Internetseiten der beteiligten Fachgesellschaften sowie über die folgenden Internetseiten zugänglich:

- http://www.adipositas-gesellschaft.de/
- http://www.awmf.org/leitlinien/detail/ll/050-001.html

2. Geltungsbereich und Ziele

2.1. Zielsetzung

Die interdisziplinäre Leitlinie der Qualität S3 zur Prävention und Therapie der Adipositas ist ein evidenz- und konsensbasiertes Instrument, um Prävention und Therapie von Übergewicht und Adipositas zu verbessern. Ärztinnen und Ärzte sowie alle an der Prävention und Therapie von Übergewicht und Adipositas beteiligten Berufsgruppen sollen durch die Leitlinie bei der Entscheidung zur Prävention und Therapie unterstützt werden. Die Leitlinie soll dazu beitragen, eine angemessene Gesundheitsversorgung sicherzustellen. Eine weitere Aufgabe der Leitlinie ist, den Patientinnen und Patienten mit Übergewicht bzw. Adipositas angemessene, wissenschaftlich begründete und aktuelle Maßnahmen in der Prävention und Therapie anzubieten. Dadurch sollen die Morbidität und Mortalität von Patientinnen und Patienten mit Übergewicht und Adipositas gesenkt und die Lebensqualität erhöht werden.

2.2. Adressaten

Die folgenden Empfehlungen richten sich an alle Betroffenen und alle Berufsgruppen, die mit der Prävention und Therapie von Übergewicht und Adipositas befasst sind. Weitere Adressaten dieser Leitlinie sind übergeordnete Organisationen (z. B. Krankenkassen, Rentenversicherung, Sozialrichter, Einrichtungen der ärztlichen Selbstverwaltung) und die interessierte Fachöffentlichkeit.

3. Zusammensetzung der Leitliniengruppe

3.1. Beteiligte Autoren und Mitglieder der Leitliniengruppe

Die bei der Ersterstellung der Leitlinie 2007 beteiligten Personen sowie die bei der 1. Aktualisierung 2011-2014 beteiligten Personen können Tabelle 1 entnommen werden.

Tabelle 1: Mitglieder der Leitliniengruppe

Name	Organisation	Auflage
Berg, Prof. Dr. med. Aloys	DGSP	1. Aktualisierung
Bischoff, Prof. Dr. med. Stephan C.	DGEM	1. Aktualisierung
Buchholz, Gabriele	DDB	Ersterstellung
Colombo-Benkmann, Prof. Dr. med. Mario, MHBA (ab 06.2012)	DGAV (CAADIP)	1. Aktualisierung
Ellrott, PD Dr. Thomas	DGE	1. Aktualisierung
Hamann, Prof. Dr. med. Andreas	DAG, DDG, DGEM	Ersterstellung
Hauner, Prof. Dr. med. Hans	DAG	Ersterstellung und 1. Aktualisierung
Heintze, PD Dr. Christoph, MPH	DEGAM	1. Aktualisierung
Husemann, Prof. Dr. med. Bernhard	DAG	Ersterstellung
Kanthak, Ute	AcSDeV	1. Aktualisierung
Koletzko, Prof. Dr. med. Berthold	DGEM	Ersterstellung
Kunze, Prof. Dr. med. Detlef	DAG	1. Aktualisierung
Liebermeister, Prof. Dr. Hermann	DAG, DDG, DGEM	Ersterstellung
Shang, Prof. Dr. med. Edward (bis 05.2012)	DGAV	1. Aktualisierung
Stefan, Prof. Dr. med. Norbert	DDG	1. Aktualisierung
Teufel, Dr. med. Martin	DGPM, DKPM, DGESS	1. Aktualisierung
Wabitsch, Prof. Dr. med. Martin	DAG	Ersterstellung und 1. Aktualisierung
Westenhöfer, Prof. Dr. Joachim	DAG	Ersterstellung
Wirth, Prof. Dr. med. Alfred	DAG	Ersterstellung und 1. Aktualisierung
Wolfram, Prof. Dr. med. Günther	DGE	Ersterstellung

3.2. Fachgesellschaften

Deutsche Adipositas Gesellschaft (DAG), Deutsche Diabetes Gesellschaft (DDG), Deutsche Gesellschaft für Ernährung (DGE), Deutsche Gesellschaft für Ernährungsmedizin (DGEM), Deutsche Gesellschaft für Allgemeinmedizin und Familienmedizin (DEGAM), Deutsche Gesellschaft für Sportmedizin und Prävention (DGSP), Deutsche Gesellschaft für Psychosomatische Medizin und Ärztliche Psychotherapie (DGPM), Deutsche Kollegium für Psychosomatische Medizin (DKPM), Deutschen Gesellschaft für Essstörungen (DGESS), Chirurgische Arbeitsgemeinschaft Adipositastherapie und metabolische Chirurgie (CAADIP) der Deutschen Gesellschaft für Allgemein- und Viszeralchirurgie (DGAV).

3.3. Andere Institutionen/Personen

Redaktion, Koordination, Moderation und Gestaltung

Ersterstellung: Koordination: (Prof. Dr. med. Hans Hauner). Mitglieder der Kommission (G. Buchholz, Prof. Dr. Andreas Hamann, Prof. Dr. med. Bernhard Husemann, Prof. Dr. B. Koletzko, Prof. Dr. med. H. Liebermann, Prof. Dr. med. Martin Wabitsch, Prof. Dr. Joachim Westenhöer, Prof. Dr. med. Alfred Wirth, Prof. Dr. med. G. Wolfram).

1. Aktualisierung: Koordination: DAG (Prof. Dr. med. Alfred Wirth). Redaktion, Evidenzanalyse, Moderation und Gestaltung: Ärztliches Zentrum für Qualität in der Medizin (ÄZQ), Gemeinsame Einrichtung von Bundesärztekammer und Kassenärztlicher Bundesvereinigung (beteiligte ÄZQ-Mitarbeiter: Dr. med. Julia Köpp LL.M, MSc; Dr. med. Anja Katharina Dippmann, MScIH (07/2012-03/2013); Katharina C. Koltermann; Svenja Siegert (bis 09/2011); Andrea Haring, B.A.; Dana Rütters, B.A.; Dr. med. Susanne Weinbrenner MPH (bis 06/2012); Dr. med. Monika Nothacker MPH (04/-06/2013); Prof. Dr. rer. nat. Dr. med. Günter Ollenschläger).

Ständige Leitlinien-Kommission der DAG e.V.: Dr. biol. hum. Anja Moss (AWMF-Leitlinienberaterin).

3.4. Patienten

An der 1. Aktualisierung der Leitlinie waren Vertreter der Patientenorganisation „Adipositaschirurgie-Selbsthilfe Deutschland (AcSDeV)“ direkt beteiligt. Die Vertreterin des AcSDeV (siehe Tabelle 1) war an allen Konsensuskonferenzen beteiligt und stimmberechtigt.

4. Fragestellung und Gliederung

Die Grundstruktur der Leitlinie basiert auf der Einteilung in Hauptkomplexe, die mit den folgenden Kapiteln der vorliegenden Leitlinie korrespondieren:

- Definition und Klassifikation von Übergewicht und Adipositas
- Gesundheitsproblem Adipositas
- Empfehlungen zur Prävention der Adipositas
- Therapie von Übergewicht und Adipositas
- Versorgungsaspekte

5. Methodik

5.1. Evidenzbasierung

5.1.1. Ersterstellung der Leitlinie

Bei der Erstellung der vorliegenden Leitlinie wurde sorgfältig darauf geachtet, die Anforderungen der evidenzbasierten Medizin zu erfüllen. Als Basis dienten nationale und internationale Qualitätskriterien für gute Leitlinien, wie sie u.a. von dem Scottish Intercollegiate Guidelines Network [1] oder vom Ärztlichen Zentrum für Qualität in der Medizin (ÄZQ) und der Leitlinienkommission der Arbeitsgemeinschaft der wissenschaftlichen

Medizinischen Fachgesellschaften (AWMF) gemeinsam erarbeiteten „Deutschen Leitlinien-Bewertungs-Instruments“ [2] aufgestellt wurden.

Literaturrecherche

Festlegung der Suchbegriffe mit den Experten der Fachdisziplinen, Allgemeinmedizinern und Patientenvertretern durch Konsensfindung. Umfassende, systematische, computergestützte Recherche in den Datenbanken von Medline, Cochrane Library, Embase, ERIC und PsycInfo der wissenschaftlichen Literatur (englisch und deutsch, klinische Studien, Metaanalysen) für den Zeitraum 01.2002 bis 12.2004 (Ersterstellung) mit anschließender Selektion der recherchierten Literatur im Hand-Searching-Verfahren und darüber hinaus eine Recherche bereits vorhandener Leitlinien, Empfehlungen, Expertenmeinungen und deren Referenzen in einem Nebensuchverfahren. Der Zugriff auf ältere Fachliteratur war über eine bereits bestehende Datenbank, die für die letzte Version der Leitlinie eingerichtet worden war, gewährleistet. Überprüfung der Suchergebnisse auf ihre Relevanz durch Fachkräfte (Wissenschaftler und Ärzte des Expertengremiums). Einteilung der recherchierten Studien entsprechend ihrem Studiendesign und ihrer wissenschaftlichen Aussagekraft in Evidenzklassen I bis IV (siehe Tabelle 2).

Tabelle 2: Bewertung der publizierten Literatur gemäß der wissenschaftlichen Aussagekraftnach Evidenzklassen und Gewichtung in Empfehlungsgrade (modifiziert nach [1])

Evidenzklassen	
Ia	Evidenz aufgrund von Metaanalysen randomisierter, kontrollierter Studien
Ib	Evidenz aufgrund mindestens einer randomisierten, kontrollierten Studie
IIa	Evidenz aufgrund mindestens einer gut angelegten, kontrollierten Studie ohne Randomisierung
IIb	Evidenz aufgrund mindestens einer gut angelegten, nicht-randomisierten und nicht-kontrollierten klinischen Studie
III	Evidenz aufgrund gut angelegter, nicht-experimenteller, deskriptiver Studien, wie z.B. Vergleichsstudien, Korrelationsstudien und Fall-Kontroll-Studien
IV	Evidenz aufgrund von Berichten der Experten-Ausschüsse oder Experten-Meinungen und/oder Klinischer Erfahrung anerkannter Autoritäten

5.1.2. Erstellung der 1. Aktualisierung 2011-2014

Themen der Aktualisierung

Bei der 1. Aktualisierung der Leitlinie wurden alle Kapitel der Leitlinie auf ihre Aktualität überprüft und überarbeitet.

Für die 1. Aktualisierung folgender Kapitel der Leitlinie wurde systematisch nach Literatur gesucht:

- Ursachen von Übergewicht und Adipositas
- Gesundheitsproblem Adipositas
- Empfehlungen zur Prävention der Adipositas
- Therapie von Übergewicht und Adipositas

- Vor- und Nachteile der Gewichtsreduktion
- Versorgungsaspekte

Berücksichtigung evidenzbasierter Leitlinien

Bei der 1. Aktualisierung wurde die Suche vom ÄZQ nach Leitlinien (2007) herangezogen [3]. Dabei wurden die Leitliniendatenbank des Guideline International Network (G-I-N), die Webseiten der auf www.leitlinien.de gelisteten Leitlinienanbieter bzw. -datenbanken (z.B. Arbeitsgemeinschaft der Wissenschaftlichen Medizinischen Fachgesellschaften (AWMF), National Guideline Clearinghouse (NGC)) und die Literaturdatenbanken MEDLINE und EMBASE systematisch durchsucht. Darüber hinaus wurden die aktuelleren Leitlinien wie die SIGN-Leitlinie 2010, die ICSI 2011-Leitlinie und die Europäische Leitlinie 2010 [4-6] zusätzlich berücksichtigt.

Relevante Leitlinien wurden nach dem Deutschen Leitlinien-Bewertungsinstrument (DELBI) bewertet (zwei Reviewer). Leitlinien wurden weiter berücksichtigt, wenn sie die methodischen Mindestanforderungen einer evidenzbasierten Leitlinie (Domänenwert in der DELBI-Domäne 3 ≥ 0,5) erfüllten und thematisch von Interesse waren. Folgende Leitlinien kamen in der Folge als Quellleitlinien in Frage:

- Management of Obesity A national clinical guideline, SIGN 2010 (Leitlinienadaptation) [4];
- Obesity guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children, NICE 2006 [7];
- Canadian clinical practice guidelines on the management and prevention of obesity in adults and children, CMAJ 2006 [8].

Eine Ausnahme hinsichtlich der methodischen Mindestanforderungen wurde wegen ihrer Aktualität für die ICSI-Leitlinie von 2011 „Health Care Guideline: Prevention and Management of Obesity (Mature Adolescents and Adults)“ [5] gemacht. Bei der Leitlinie “A European Evidence-Based Guideline for the Prevention of Type 2 Diabetes, 2010” [6] wurde auf eine DELBI-Bewertung verzichtet, da die Evidenzrecherche der SIGN-Methodik entsprach.

Die Schlüsselempfehlungen der genannten Leitlinien wurden extrahiert und sind Bestandteil der Evidenztabellen zu dieser Leitlinie.

Adaptation der Quell-Leitlinien: Die Methodik der Adaptation orientierte sich an der Vorgehensweise z. B. der New Zealand Guidelines Group von 2001 zur Adaptation nationaler Leitlinien [9] und an weiteren Projekten zur Leitlinien-Adaptation [10]. Sowohl die Empfehlungen, als auch die angegebene Evidenzgraduierung wurden zunächst unverändert im ersten Entwurf aus den Quellleitlinien übernommen, im weiteren Verlauf von den Experten modifiziert und an das deutsche Gesundheitssystem angepasst.

Systematische Recherche nach aggregierter Evidenz und Einzelstudien

Zu allen Fragestellungen erfolgte eine systematische Literaturrecherche in der Datenbank Medline über www.pubmed.org. Es wurde ab dem Datum der letzten Recherche der Ersterstellung gesucht. Der Recherchezeitraum für die 1. Aktualisierung umfasste 2005-2010, anschließend wurden zwei Aktualisierungsrecherchen zu den Themen Prävention (Recherchezeitraum bis Februar 2012) und Therapie (Recherchezeitraum bis März 2012)

durchgeführt. Es wurden außerdem auf den Niveau der aggregierten Evidenz Studien berücksichtigt, die durch die Experten der Leitliniengruppe zusätzlich identifiziert und als relevant eingestuft wurden (Milestone papers).

Die systematische Recherche erfolgte in der Literaturdatenbank Medline über www.pubmed.org (Sprache Deutsch oder Englisch, Erscheinungsjahr ab 2005, unter Verwendung von Suchfiltern für aggregierte Evidenz und randomisierte kontrollierte Studien).

Vorliegende systematische Übersichtarbeiten/Metaanalysen/HTA-Berichte/RCTs wurden in den Evidenztabellen gesondert ausgewiesen und den extrahierten Einzelpublikationen vorangestellt.

Die in der zu aktualisierenden Leitlinie genutzte Suchstrategie wurde etwas modifiziert. Die vom ÄZQ vorgeschlagene Strategie wurde bezüglich des Vokabulars von den Experten ergänzt.

Folgende Suchstrategien (im Folgenden mit Trefferzahlen aufgeführt) wurden verwendet:

- **Erste themenübergreifende Recherche**

Tabelle 3: Suchstrategie in Medline für erste themenübergreifende Recherche

Nr.	Suchfrage	Anzahl
#22	#18 AND #21	6191
#21	#19 OR #20	2165087
#20	(randomized controlled trial [pt] OR controlled clinical trial [pt] randomized [tiab] OR placebo [tiab] OR drug therapy [sh] OR randomly [tiab] OR trial [tiab] OR groups [tiab]) AND humans [mh]	2061171
#19	systematic[sb]	149245
#18	#11 AND #16 Limits: Humans, English, German, Publication Date from 2005	14277
#17	#11 AND #16	41744
#16	#12 OR #15	1657712
#15	#13 NOT #14	1312675
#14	surgery	2945505
#13	therapy[TIAB] OR management[TIAB] OR diet[TIAB] OR exercise[TIAB] OR "life style"[TIAB] OR "behavior therapy"[TIAB] OR "behavior modification"[TIAB] OR "psychosomatic medicine"[TIAB]	1753046
#12	cause*[TIAB] OR epidemiology[TIAB] OR comorbidit*[TIAB] OR complication*[TIAB] OR Mortality[TIAB] OR "death rate"[TIAB] OR (life AND expectanc*)[TIAB] OR prevention [TIAB] OR (quality AND (criteria OR indicator))	418637
#11	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10	174115
#10	Overweight[TI] OR Overnutrition[TI] OR Adiposity[TI] OR Obesit*[TI] OR "Morbid Obesity"[TI] OR "Weight Loss"[TI] OR (Weight [TI] AND reduction[TI]) OR "Weight Gain"[TI] OR "Body Mass Index" [TI] OR "Waist Circumference"[TI]	59986

Nr.	Suchfrage	Anzahl
#9	Waist Circumference [MeSH]	1488
#8	Body Mass Index [MeSH]	54709
#7	Weight Gain [MeSH]	17868
#6	Weight Loss [MeSH]	21174
#5	Overweight [MeSH]	105101
#4	Overnutrition [MeSH]	104813
#3	Obesity, Morbid [MeSH]	7905
#2	Adiposity [MeSH]	2183
#1	Obesity [MeSH]	104753

- **Aktualisierungsrecherche zum Thema Prävention**

Tabelle 4: Suchstrategie in Medline für die Aktualisierungsrecherche zum Thema Prävention

Nr.	Suchfrage	Anzahl
#18	#14 AND #17	657
#17	#15 OR #16	2304737
#16	(randomized controlled trial [pt] OR controlled clinical trial [pt] randomized [tiab] OR placebo [tiab] OR drug therapy [sh] OR randomly [tiab] OR trial [tiab] OR groups [tiab]) AND humans [mh]	2185477
#15	systematic[sb]	170620
#14	#11 AND #12 Limits: English, German, Publication Date from 2011	2209
#13	#11 AND #12	25166
#12	prevention	1096329
#11	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10	189992
#10	Overweight[TI] OR Overnutrition[TI] OR Adiposity[TI] OR Obesit*[TI] OR "Morbid Obesity"[TI] OR "Weight Loss"[TI] OR (Weight [TI] AND reduction[TI]) OR "Weight Gain"[TI] OR "Body Mass Index" [TI] OR "Waist Circumference"[TI]	66272
#9	Waist Circumference [MeSH]	2289
#8	Body Mass Index [MeSH]	61138
#7	Weight Gain [MeSH]	19042
#6	Weight Loss [MeSH]	22974
#5	Overweight [MeSH]	114563
#4	Overnutrition [MeSH]	113687
#3	Obesity, Morbid [MeSH]	8731
#2	Adiposity [MeSH]	2871
#1	Obesity [MeSH]	113607

Aktualisierungsrecherche zum Thema Therapie (ausgenommen chirurgische Therapie)

Tabelle 5: Suchstrategie in Medline für die Aktualisierungsrecherche zum Thema Therapie (ausgenommen chirurgische Therapie)

Nr.	Suchfrage	Anzahl
#20	#16 AND #19	1055
#19	#17 OR #18	2320951
#18	(randomized controlled trial [pt] OR controlled clinical trial [pt] randomized [tiab] OR placebo [tiab] OR drug therapy [sh] OR randomly [tiab] OR trial [tiab] OR groups [tiab]) AND humans [mh]	2199804
#17	systematic[sb]	173118
#16	#11 AND #12 Limits: English, German, Publication Date from 2011	3793
#15	#11 AND #14	39975
#14	#12 NOT #13	1409434
#13	surgery	3139100
#12	therapy[TIAB] OR management[TIAB] OR diet[TIAB] OR exercise[TIAB] OR "life style"[TIAB] OR "behavior therapy"[TIAB] OR "behavior modification"[TIAB] OR "psychosomatic medicine"[TIAB]	1885384
#11	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10	191971
#10	Overweight[TI] OR Overnutrition[TI] OR Adiposity[TI] OR Obesit*[TI] OR "Morbid Obesity"[TI] OR "Weight Loss"[TI] OR (Weight [TI] AND reduction[TI]) OR "Weight Gain"[TI] OR "Body Mass Index" [TI] OR "Waist Circumference"[TI]	67043
#9	Waist Circumference [MeSH]	2375
#8	Body Mass Index [MeSH]	61929
#7	Weight Gain [MeSH]	19173
#6	Weight Loss [MeSH]	23210
#5	Overweight [MeSH]	115773
#4	Overnutrition [MeSH]	114799
#3	Obesity, Morbid [MeSH]	8857
#2	Adiposity [MeSH]	2976
#1	Obesity [MeSH]	114718

Die erste Relevanzprüfung erfolgte bereits im Rahmen der Recherchen. Dabei wurden doppelte Publikationen sowie Publikationen zu anderen Erkrankungen ausgeschlossen. Bei der Aktualisierungsrecherche zum Thema Prävention wurden zusätzlich Studien an Kindern und Jugendlichen ausgeschlossen. Bei der Aktualisierungsrecherche zum Thema Therapie wurden darüber hinaus Publikationen zu den operativen Verfahren sowie Studien an Tieren und In-vitro-Studien ausgeschlossen.

Das Ergebnis der Literatursuche wurde zentral beim ÄZQ erfasst und in eine Datenbank eingespeist. Die Ergebnislisten wurden den Experten als Listen mit bibliographischen Angaben und Abstrakts zur Verfügung gestellt.

Auswahl und Bewertung der Evidenz

Die Auswahl der Studien zu den einzelnen Fragestellungen erfolgte durch Methodikerinnen (Julia Köpp, Svenja Siegert) des ÄZQ nach vorab definierten Ein- und Ausschlusskriterien und entsprechend der Methodik der evidenzbasierten Medizin.

Die Zielgruppe wurde auf Erwachsenen beschränkt, nur in Ausnahmefällen und nach Absprache mit den Experten wurden Publikationen mit Aussagen zu Kindern einbezogen.

Grundsätzlich wurden systematische Übersichtsarbeiten (Reviews, Metaanalysen) sowie randomisierte kontrollierte Studien einbezogen. Für das Kapitel „Gesundheitsproblem Adipositas“ wurde festgelegt, dass nur die aggregierte Evidenz einer Evidenzanalyse unterzogen wurde. Studien mit einem anderen Design wurden vom ÄZQ nicht bewertet; wichtige weitere Publikationen haben die Experten bei der Erstellung des Leitlinientextes mitberücksichtigt (Handsuche).

Die in den Recherchen identifizierte Literatur wurde durch die Methodikerinnen des ÄZQ einem Titel-/Abstraktscreening unterzogen. Die ausgewählten Abstrakts wurden im Volltext bestellt und nach erneuter Sichtung eingeschlossen, wenn die Volltexte als relevant und methodisch geeignet bewertet wurden. Dabei wurden Publikationen aus folgenden Ausschlussgründen ausgeschlossen:

A1 die Publikation beinhaltet ein anderes Thema bzw. eine andere Fragestellung oder die Publikation ist nicht spezifisch für die Fragestellung.

A1a nur oder vorrangig Kinder/Jugendliche werden untersucht

A1b eingeschränkte Repräsentativität: spezielle Personengruppen (Schwangere und Stillende (Ausnahme: Thema Prävention)); selektierte Studienpopulation mit ausschließlich einer bestimmten Erkrankung (nur Patienten mit Asthma, Diabetes, polyzystischem Ovarialsyndrom, metabolischen Syndrom, HIV, Fettleber, Dyslipidämie, Hypertonie, Vorhof-flimmern, Psoriasis, Krebs); spezielle Berufsgruppen; nur jüngere oder nur ältere Patientengruppen

A1c anderer kultureller Kontext, Lebensumstände und Ernährungsgewohnheiten, die nicht zum mitteleuropäischen Kontext passen

A1d es werden keine Menschen, sondern Tiere untersucht

A1e primäres Outcome ist nicht Gewicht oder BMI

A2 die Publikation ist vor 2009 publiziert (Rechercheschluss SIGN-Leitlinie 2010)

A3 die Publikation ist nicht in deutscher oder englischer Sprache verfügbar

A4 die Publikation beschreibt keine Studie (z.B. Editorial, Comments, Notes) bzw. Ergebnisse liegen noch nicht vor (z.B. Studienprotokoll)

A5 es erfolgt keine Beschreibung der methodischen Vorgehensweise (zum Beispiel: narrativer Review)

A6 Publikation ist keine systematische Übersichtsarbeit bzw. kein RCT

A7 Volltext der Publikation ist nicht verfügbar

A8 Doppelpublikationen

A9 die Publikation wurde in einer berücksichtigten Quelle der aggregierten Evidenz bereits berücksichtigt.

Eingeschlossen wurden zu den Fragestellungen der Leitlinie passende Studien unter Berücksichtigung von Ausschlusskriterien. Die eingeschlossenen Studien wurden in Evidenztabellen extrahiert und nach dem Evidenzklassensystem des Scottish Intercollegiate Guidelines Network (SIGN) (siehe Tabelle 6) bewertet.

Tabelle 6: Schema der Evidenzgraduierung des Scottish Intercollegiate Guidelines Network [1]

Grad	Beschreibung
1++	Qualitativ hochwertige Metaanalysen, Systematische Übersichten von RCTs, oder RCTs mit sehr geringem Risiko systematischer Fehler (Bias)
1+	Gut durchgeführte Metaanalysen, Systematische Übersichten von RCTs, oder RCTs mit geringem Risiko systematischer Fehler (Bias)
1-	Metaanalysen, Systematische Übersichten von RCTs, oder RCTs mit hohem Risiko systematischer Fehler (Bias)
2++	Qualitativ hochwertige systematische Übersichten von Fall-Kontroll- oder Kohortenstudien oder Qualitativ hochwertige Fall-Kontroll- oder Kohortenstudien mit sehr niedrigem Risiko systematischer Verzerrungen (Confounding, Bias, „Chance“) und hoher Wahrscheinlichkeit, dass die Beziehung ursächlich ist
2+	Gut durchgeführte Fall-Kontroll Studien oder Kohortenstudien mit niedrigem Risiko systematischer Verzerrungen (Confounding, Bias, „Chance“) und moderater Wahrscheinlichkeit, dass die Beziehung ursächlich ist
2-	Fall-Kontroll Studien oder Kohortenstudien mit einem hohen Risiko systematischer Verzerrungen (Confounding, Bias, „Chance“) und signifikantem Risiko, dass die Beziehung nicht ursächlich ist
3	Nicht-analytische Studien, z.B. Fallberichte, Fallserien
4	Expertenmeinung

Die Evidenztabellen mit den extrahierten Angaben sind in im Kapitel 12.4.2.2 aufgeführt.

Erstellung von Kapiteln für die keine systematische Literaturrecherche nach Primärliteratur erfolgte

Nach Einschätzung der Experten war für das Kapitel 2 “Definition und Klassifikation von Übergewicht und Adipositas“ keine systematische Literaturrecherche erforderlich, weil für dieses Kapitel für Erwachsene zum Beginn der Aktualisierung keine wesentlichen neuen Erkenntnisse bzw. Klassifikationen vorlagen. Daher erfolgte die Aktualisierung dieses

Kapitels durch die Experten unter Heranziehung ergänzender Literaturquellen (Handsuche). Das Unterkapitel 2.3 „Adipositas als Krankheit“ wurde dabei neu erstellt. In dem Kapitel „Chirurgische Therapie“ wurde auf die S3-Leitlinie „Chirurgie der Adipositas“ verwiesen.

5.2. Formulierung der Empfehlungen und Festlegung der Empfehlungsgrade

In der Leitlinie sind die wesentlichsten Aussagen in gesonderten Kästen unter Angaben der zugrundeliegenden Evidenz, der jeweiligen Evidenzklasse, des Empfehlungsgrades und der Konsensstärke dargestellt. Die Kernaussagen sind entweder als handlungsleitende Empfehlungen oder Statements formuliert. Als Statements werden Darlegungen oder Erläuterungen von spezifischen Sachverhalten oder Fragestellungen ohne unmittelbare Handlungsaufforderung bezeichnet.

Bei der Ersterstellung der Leitlinie wurden die Entwürfe diskutiert und in einem informellen Konsens im Expertengremium verabschiedet.

Bei der 1. Aktualisierung erfolgten die Verabschiedung von Empfehlungen und Statements sowie die Festlegung der Empfehlungsgrade vorwiegend im Rahmen von Konsensuskonferenzen unter Verwendung formaler Konsensusverfahren. Empfehlungen, die nicht in den Konsensuskonferenzen abschließend abgestimmt werden konnten, wurden schriftlich durch die Leitlinienautoren im Delphi-Verfahren konsentiert. Bei den Konsensuskonferenzen erfolgte jeweils eine Einführung zum Stand der Leitlinienbearbeitung durch einen Methodiker des ÄZQ und die Teilnehmer wurden in die Technik der strukturierten Konsensusfindung eingewiesen.

Tabelle 7: Konsensuskonferenzen und behandelte Themen der 1. Aktualisierung

Konsensuskonferenzen	Datum	Themen
1. Konsensuskonferenz (Aktualisierung) (Teilnehmer: Hr. Prof. Hauner, Fr. Dr. Weinbrenner (ÄZQ), Hr. Prof. Wirth, Hr. Prof. Berg, Hr. Prof. Bischoff, Hr. PD Dr. Ellrott, Hr. Dr. Heintze, Fr. Kanthak, Fr. Dr. Köpp (ÄZQ), Hr. Prof. Shang, Hr. Dr. Teufel)	22.02.2012	• Besprechung der methodischen Vorgehensweise, Leitlinienstruktur • Ursachen von Übergewicht und Adipositas • Gesundheitsproblem Adipositas • Prävention der Adipositas
2. Konsensuskonferenz (Aktualisierung) (Teilnehmer: Hr. Prof. Berg, Hr. Prof. Colombo-Benkmann (ab ca. 10:40 Uhr), Hr. PD Dr. Ellrott, Hr. Prof. Hauner, Hr. PD Dr. Heintze, Fr. Kanthak, Hr. Prof. Kunze, Hr. Dr. Teufel, Hr. Prof. Wirth, ÄZQ: Fr. Dr. Köpp, Fr. Dr. Dippmann, Hr. Prof. Ollenschläger)	21.02.2013	• Prävention der Adipositas • Therapie von Übergewicht und Adipositas • Versorgungsaspekte

5.2.1. Themenbezogene Gruppenarbeit

Bei der Ersterstellung der Leitlinie brachten die Experten ihre Entwürfe in Konsensuskonferenzen ein, wo sie konsentiert wurden.

Bei der 1. Aktualisierung der Leitlinie arbeiteten Arbeitsgruppen mit je drei bis acht Mitgliedern zunächst parallel themenbezogen in moderierten Telefonkonferenzen (Moderation: Susanne Weinbrenner, Günter Ollenschläger, Anja Dippmann). In zehn Telefonkonferenzen wurden die von den Kapitelautoren erarbeiteten Empfehlungen und Statements vor der jeweiligen Konsensuskonferenz diskutiert, gegebenenfalls modifiziert und (vor-)abgestimmt. Änderungen und Kommentare galten als angenommen, wenn alle Teilnehmer zugestimmt haben bzw. keiner der Teilnehmer einen Einwand erhoben hat. Wurde im Rahmen der Telefonkonferenzen in den Arbeitsgruppen keine Zustimmung aller Teilnehmer erreicht, konnten in den Konsensuskonferenzen auch Alternativen (Sondervotum etc.) dargestellt werden. Die (vor-)abgestimmten Empfehlungen dienten als Vorlage für die Konsensuskonferenzen.

5.2.2. Konsensuskonferenzen mit endgültiger Verabschiedung der Empfehlungen

Die zuvor in den Arbeitsgruppen abgestimmten Empfehlungsvorschläge wurden in zwei Konsensuskonferenzen dem gesamten Expertengremium vorgestellt. Die definitive Abstimmung erfolgte im Expertengremium in Form einer strukturierten Konsensuskonferenz im nominalen Gruppenprozess (NGP) unter Moderation durch Günter Ollenschläger (ÄZQ). Die Abstimmung erfolgte nach Wunsch der Experten nach der Regel „Ein Experte = eine Stimme“. Gemäß dem Regelwerk der AWMF wurde die Konsensusstärke wie folgt definiert:

Tabelle 8: Definition der Konsensusstärke

Starker Konsens	> 95 % der Teilnehmer
Konsens	> 75-95 % der Teilnehmer
Mehrheitliche Zustimmung	> 50-75 % der Teilnehmer
Kein Konsens	< 50 % der Teilnehmer

Die Teilnehmer des Konsensustreffens wurden zu Beginn der Konferenz in die Technik der strukturierten Konsensusfindung nach dem Nominalen Gruppenprozess eingewiesen. Jedem Teilnehmer wurde eine Tischvorlage zur Verfügung gestellt. Zusätzlich wurden die zu konsentierenden Aussagen/Empfehlungen elektronisch präsentiert, Kommentare bzw. Änderungen zur Diskussion integriert und der Abstimmungsprozess dokumentiert. Die Abstimmung wurde kapitelweise vorgenommen, wobei jede Empfehlung einzeln aufgerufen wurde.
Folgender Ablauf wurde befolgt (gemäß AWMF-Regelwerk):

· stille Notizen (Generierung von Änderungsvorschlägen)
· Registrierung der Stellungnahmen im Einzel-Umlaufverfahren (noch keine Diskussion)
· Gelegenheit zu Rückfragen und Klärung der Evidenzgrundlage, Vorabstimmung über Diskussion der einzelnen Kommentare
· Reihendiskussion und Debatte der Diskussionspunkte

· endgültige Abstimmung über die Empfehlungen und alle Alternativen
· Wiederholung der Schritte für jede Empfehlung

5.2.3. Delphi-Abstimmung

Empfehlungen, die nicht abschließend in den Konsensuskonferenzen abgestimmt werden konnten (z.B. aus zeitlichen Gründen), wurden nach der jeweiligen Konsensuskonferenz schriftlich in einer Delphi-Abstimmung konsentiert. Mittels strukturiertem Fragebogen wurden die Mitglieder der Leitliniengruppe per E-Mail angeschrieben, um ihre Zustimmung, Ablehnung oder Änderungsvorschläge zu den jeweiligen Empfehlungen abzugeben. Die Beiträge wurden gesammelt, anonym zusammengefasst und das Ergebnis der Leitliniengruppe mitgeteilt.

Nach der ersten Konsensuskonferenz wurden Empfehlungen aus dem Kapitel zum Thema Prävention in der Delphi-Abstimmung abgestimmt (Zeitraum April/Mai 2012). Im Rahmen der Delphi-Abstimmung von Empfehlungen aus dem Kapitel Prävention haben sieben von zwölf Experten fristgerecht geantwortet, eine Rückmeldung ist verspätet im ÄZQ eingegangen und konnte daher nicht regelrecht berücksichtigt werden. Die Stimmen von weiteren vier Experten, die keine Rückmeldung im Rahmen des Delphi-Verfahrens gegeben haben, wurden als Zustimmung bewertet. Dies wurde den entsprechenden Experten im Vorfeld mitgeteilt. Eine Stimme wurde als Enthaltung eingestuft. Nach der zweiten Konsensuskonferenz fand vom 1.-4.11.2013 eine Delphi-Konferenz zu weiteren gesammelten Änderungsvorschlägen aus den Fachgesellschaften statt. Zehn von elf Experten haben fristgerecht rückgemeldet. Von den 17 Änderungsentwürfen konnte keiner einen Konsens erzielen. Da die betreffenden Punkte im Vorfeld ausführlich diskutiert wurden und im Delphi kein Konsens erreicht werden konnte, wurde sich geeinigt entsprechende Sonder-Voten bzw. Sonder-Kommentare zu formulieren.

5.2.4. Empfehlungen und deren Graduierung

Empfehlungen sind thematisch bezogene handlungsleitende Kernsätze der Leitlinie.

Die Vergabe von Empfehlungsgraden erfolgte durch die Leitlinienautoren im Rahmen eines formalen Konsensusverfahrens. Dementsprechend wurde ein durch das ÄZQ moderierter Nominaler Gruppenprozess durchgeführt. Die Empfehlungsgrade drücken den Grad der Sicherheit aus, dass der erwartete Nutzen der Intervention den möglichen Schaden aufwiegt (Netto-Nutzen) und die erwarteten positiven Effekte ein für die Patienten relevantes Ausmaß erreichen. Im Fall von Negativempfehlungen (soll nicht) wird entsprechend die Sicherheit über einen fehlenden Nutzen bzw. möglichen Schaden ausgedrückt.

Bei der Graduierung der Empfehlungen werden neben den Ergebnissen der zugrunde liegenden Studien, die klinische Relevanz der in den Studien untersuchten Effektivitätsmaße, die beobachteten Effektstärken, die Konsistenz der Studienergebnisse; die Anwendbarkeit der Studienergebnisse auf die Patientenzielgruppe, die Umsetzbarkeit im ärztlichen Alltag, ethische Verpflichtungen sowie die Patientenpräferenzen berücksichtigt.

Tabelle 9: Einstufung von Leitlinienempfehlungen in Empfehlungsgrade

Empfehlungsgrad	Beschreibung	Syntax
A	Starke Empfehlung	soll
B	Empfehlung	sollte
0	Empfehlung offen	kann

5.2.5. Statements

Als Statements werden Darlegungen oder Erläuterungen von spezifischen Sachverhalten oder Fragestellungen ohne unmittelbare Handlungsaufforderung bezeichnet. Sie werden entsprechend der Vorgehensweise bei den Empfehlungen im Rahmen eines formalen Konsensusverfahrens verabschiedet und können entweder auf Studienergebnissen oder auf Expertenmeinungen beruhen.

5.2.6. Expertenkonsens

Als ‘Expertenkonsens’ werden Empfehlungen bezeichnet, zu denen keine ausreichende Evidenz gefunden werden konnte. In der Regel adressieren diese Empfehlungen Vorgehensweisen der guten klinischen Praxis, zu denen keine wissenschaftlichen Studien notwendig sind bzw. erwartet werden können.

5.2.7. Sondervoten

Die in der Leitlinie aufgeführten Sondervoten zu den Empfehlungen sind Ausdruck unterschiedlicher Auffassungen der Fachgesellschaften aufgrund der teilweise spärlichen und nicht konsistenten Studienlage. Um in Zukunft eine Einheitlichkeit zu erreichen, wurde eine ständige Kommission zur Pflege und Aktualisierung der DAG-Leitlinien einberufen, welche für die kontinuierliche Überarbeitung der Leitlinien verantwortlich ist.

6. Externe Begutachtung (öffentliche Konsultation)

Die ersterstellte S3-Leitlinie zur Prävention und Therapie der Adipositas wurde zur öffentlichen Diskussion im Internet (Webseiten der vier Fachgesellschaften) vorgestellt. Anschließend erfolgte die Einbeziehung von eingegangenen Änderungsvorschlägen unter Einbeziehung des Expertengremiums und Erstellung der Endversion.

Die öffentliche Konsultation der 1. Aktualisierung wurde durch die Experten koordiniert. Die aktualisierte Fassung der Leitlinie konnte vom 15.7.2013. bis 31.8.2013 öffentlich von allen Mitgliedern der beiteiligen Fachgesellschaften kommentiert werden. Es gingen in dieser Zeit insgesamt Kommentare von 18 Personen oder Organisationen ein. Von den inhaltlichen Kommentaren bezogen sich 110 Kommentare ausschließlich auf Änderungen an Hintergrundtexten. Auf Wunsch können die vollständigen Kommentare bei der

Geschäftsstelle der DAG eingesehen werden. Nach der Konsultationsphase wurden die Kommentare im Expertengremium in drei Telefonkonferenzen besprochen. Dabei wurden redaktionelle Änderungen vorgenommen oder Empfehlungen zur Neuabstimmung in Delphi-Verfahren vorgeschlagen. Die Entscheidung des Expertengremiums zum Umgang mit den eingegangenen Kommentaren wurde den Kommentierenden rückgemeldet.

7. Redaktionelle Unabhängigkeit

Die Ersterstellung der Leitlinie wurde unabhängig von Interessengruppen durch die beteiligten Fachgesellschaften vorgenommen. Alle Mitglieder der Kommission arbeiteten ehrenamtlich und erhielten lediglich die Reisekosten ersetzt. Alle Mitglieder haben mögliche Interessenkonflikte schriftlich gegenüber den Fachgesellschaften dargelegt. Kein Experte wurde ausgeschlossen.

Die Erstellung der 1. Aktualisierung erfolgte in redaktioneller Unabhängigkeit von den finanzierenden Trägern.

Für die 1. Aktualisierung der Leitlinie haben alle Beteiligten das aktuelle Formblatt der AWMF zur Erklärung von Interessenkonflikten ausgefüllt. Die darin offengelegten Beziehungen und Sachverhalte sind in Kapitel 12.3 dargestellt. Das Thema Interessenkonflikte wurde während des Aktualisierungsprozesses mehrfach in der Leitliniengruppe besprochen. Ein Ausschluss von Experten wurde durch das Expertengremium geprüft und nicht vorgenommen. Die Gefahr von unangemessener Beeinflussung durch Interessenkonflikte wurde dadurch reduziert, dass die Recherche, Auswahl und Bewertung der Literatur durch Methodikerinnen des ÄZQ, ohne Beziehungen zu Industrie oder Interessengruppen erfolgte. Die formale Konsensbildung und die interdisziplinäre Erstellung, sowie die Möglichkeit der öffentlichen Begutachtung bildeten weitere Elemente, die das Risiko von Verzerrungen (auch aufgrund von Interessenkonflikten einzelner Personen) reduzieren können.

8. Verbreitung und Implementierung

Die Konsultationsfassung der aktualisierten Leitlinie wurde auf dem Jahreskongress der Deutschen Adipositas Gesellschaft im Oktober 2013 vorgestellt. Weiterhin sind folgende Aktivitäten zur Verbreitung und Implementierung geplant:

1. Publikation der Leitliniendokumente auf den Internetseiten der DAG sowie der beteiligten Fachgesellschaften und Organisationen,

2. Publikation der aktualisierten Leitlinieninhalte in Fachzeitschriften,

3. Erstellung einer Leitlinienversion für Laien

4. Bundesweite Fortbildungsveranstaltungen.

9. Gültigkeitsdauer der Leitlinie

Die Leitlinie ist bis zur nächsten Aktualisierung gültig, höchstens jedoch bis Mitte 2019. Vorgesehen sind weitere regelmäßige Aktualisierungen, die durch eine ständige Kommission zur „Pflege und Aktualisierung der DAG-Leitlinien“ koordiniert wird.

Kommentare und Änderungsvorschläge zur Leitlinie bitte an folgende Adresse:

Dr. biol. hum. Anja Moss

AWMF-Leitlinienberaterin
Ständige Kommission zur Pflege und Aktualisierung der DAG-Leitlinien
Sektion Pädiatrische Endokrinologie und Diabetologie
Interdisziplinäre Adipositasambulanz
Univ. Klinik für Kinder- und Jugendmedizin, Universität Ulm
Eythstr. 24
89075 Ulm
E-Mail: anja.moss@uniklinik-ulm.de

10. Abkürzungsverzeichnis

Abkürzung	Erläuterung
AcSDeV	Adipositaschirurgie-Selbsthilfe Deutschland
AWMF	Arbeitsgemeinschaft der Wissenschaftlichen Medizinischen Fachgesellschaften
ÄZQ	Ärztliches Zentrum für Qualität in der Medizin
CAADIP	Chirurgische Arbeitsgemeinschaft Adipositastherapie und metabolische Chirurgie der Deutschen Gesellschaft für Allgemein- und Viszeralchirurgie
CMAJ	Canada's Database of Clinical Practice Guidelines
DAG	Deutsche Adipositas Gesellschaft
DELBI	Deutsches Leitlinien-Bewertungsinstrument
DDG	Deutsche Diabetes Gesellschaft
DEGAM	Deutsche Gesellschaft für Allgemeinmedizin und Familienmedizin
DGAV	Deutsche Gesellschaft für Allgemein- und Viszeralchirurgie
DGE	Deutsche Gesellschaft für Ernährung
DGEM	Deutsche Gesellschaft für Ernährungsmedizin
DGESS	Deutschen Gesellschaft für Essstörungen
DGPM	Deutsche Gesellschaft für Psychosomatische Medizin und Ärztliche Psychotherapie
DGSP	Deutsche Gesellschaft für Sportmedizin und Prävention
DKPM	Deutsche Kollegium für Psychosomatische Medizin
GIN	Guideline International Network
HTA	Health Technology Assessment
ICSI	Institute for Clinical Systems Improvement
LoE	Level of Evidence
NGC	National Guideline Clearinghouse
NGP	nominaler Gruppenprozess
NICE	National Institute of Clinical Excellence
RCT	Randomized Controlled Trial
SIGN	Scottish Intercollegiate Guidelines Network

11. Tabellenverzeichnis

12. Anhänge

12.1. Themenkomplexe und beteiligte Autoren

Die Zuordnung der Themenkomplexe zu den beteiligten Experten erfolgte durch den Leitlinienkoordinator.

Themenkomplexe	**Zuständigkeit**
Ursachen von Übergewicht und Adipositas	Hauner, Wirth
Gesundheitsproblem Adipositas: Verbreitung der Adipositas	Bischoff, Wirth
Gesundheitsproblem Adipositas: Komorbiditäten und Komplikationen von Übergewicht und Adipositas	Wirth, Stefan
Gesundheitsproblem Adipositas: Metabolisches Syndrom	Stefan, Wirth, Hauner
Gesundheitsproblem Adipositas: Mortalität und Lebenserwartung	Wirth, Hauner
Empfehlungen zur Prävention der Adipositas: Indikation und Ziele	Wabitsch, Kunze

Themenkomplexe	Zuständigkeit
Empfehlungen zur Prävention der Adipositas: Empfehlungen zur Adipositasprävention	Kunze, Wabitsch
Therapie von Übergewicht und Adipositas: Indikationen	Bischoff, Ellrott
Therapie von Übergewicht und Adipositas: Therapieziele	Kunze, Wabitsch
Therapie von Übergewicht und Adipositas: Therapievoraussetzungen	Wabitsch, Heintze, Ellrott
Therapie von Übergewicht und Adipositas: Therapie - Basisprogramm	Ellrott, Berg, Kunze
Therapie von Übergewicht und Adipositas: Therapie - Ernährungstherapie	Hauner, Ellrott, Wirth, Bischoff
Therapie von Übergewicht und Adipositas: Therapie - Bewegungstherapie	Berg, Wirth, Hauner
Therapie von Übergewicht und Adipositas: Therapie - Verhaltenstherapie	Teufel, Ellrott
Therapie von Übergewicht und Adipositas: Therapie - Gewichtsreduktionsprogramme	Hauner, Berg, Ellrott
Therapie von Übergewicht und Adipositas: Therapie - Adjuvante medikamentöse Therap	Wirth, Ellrott, Bischoff
Therapie von Übergewicht und Adipositas: Therapie - Chirurgische Therapie	Shang (bis 05.2012), Colombo-Benkmann (ab 06.2012), Wirth, Wabitsch
Therapie von Übergewicht und Adipositas: Therapie - Langfristige Gewichtsstabilisierung	Teufel, Hauner, Ellrott
Vor- und Nachteile einer Gewichtsreduktion: Vorteile einer Gewichtsreduktion	Wirth, Bischoff
Vor- und Nachteile einer Gewichtsreduktion: Nachteile einer Gewichtsreduktion	Bischoff, Wirth
Versorgungsaspekte	Hauner, Heintze

12.2. Formblatt der AWMF zur Erklärung von Interessenkonflikten

Vorbemerkung

Die Entwicklung von Leitlinien für die medizinische Versorgung verlangt über die fachliche Expertise hinaus eine Vermeidung kommerzieller Abhängigkeiten oder anderer Interessenkonflikte, die die Leitlinieninhalte beeinflussen. Es gibt eine Vielzahl von materiellen (z. B. finanzielle oder kommerzielle) und immateriellen (z. B. politische, akade-mische oder persönliche) Beziehungen, deren Ausprägungsgrade und Bedeutungen variieren können. Interessenkonflikte sind somit zumeist unvermeidbar, aber nicht zwangsläufig problematisch in Hinblick auf eine Beeinflussung der Leitlinieninhalte.

Eine Erklärung zu den Beziehungen und den daraus entstehenden Interessenkonflikten durch die Autoren der Leitlinien und die Teilnehmer am Konsensusverfahren ist für die Qualitätsbeurteilung von Leitlinien, aber auch für ihre allgemeine Legitimation und Glaubwürdigkeit in der Wahrnehmung durch Öffentlichkeit und Politik entscheidend.

Die Erklärungen werden zu Beginn des Leitlinienprojekts gegenüber dem Leitlinien-koordinator abgegeben. Bei länger andauernden Projekten kann eine zusätzliche Abgabe im Verlauf erforderlich sein. Ob davon die erforderliche Neutralität für die Mitarbeit bei der Leitlinienentwicklung in Frage gestellt ist oder in welchen Bereichen das professionelle Urteilsvermögen eines Experten durch die Interessen Dritter unangemessen beeinflusst sein könnte, ist in der Leitliniengruppe zu diskutieren und zu bewerten.

Die Inhalte der Erklärungen und die Ergebnisse der Diskussion zum Umgang mit Interessenkonflikten sollten im Leitlinienreport offen dargelegt werden. In der Langfassung der Leitlinien ist auf das Verfahren der Sammlung und Bewertung der Erklärungen hinzu-weisen.

Wir möchten Sie bitten, untenstehende Erklärung auszufüllen und zu unterzeichnen.

Erklärung

Die Erklärung betrifft finanzielle und kommerzielle (materielle) sowie psychologische und soziale (immaterielle) Aspekte sowie Interessen der Mitglieder selbst und/oder ihrer persönlichen/professionellen Partner innerhalb der letzten 3 Jahre. Bitte machen Sie konkrete Angaben zu folgenden Punkten:

1. Berater- bzw. Gutachtertätigkeit oder bezahlte Mitarbeit in einem wissenschaftlichen Beirat eines Unternehmens der Gesundheitswirtschaft (z. B. Arzneimittelindustrie, Medizinproduktindustrie), eines kommerziell orientierten Auftragsinstituts oder einer Versicherung.

☐ Nein

☐ Ja

Falls ja, bitte konkrete Angabe:

2. Honorare für Vortrags- und Schulungstätigkeiten oder bezahlte Autoren- oder Co-Autorenschaften im Auftrag eines Unternehmens der Gesundheitswirtschaft, eines kommerziell orientierten Auftragsinstituts oder einer Versicherung.

☐ Nein

☐ Ja

Falls ja, bitte konkrete Angabe:

3. Finanzielle Zuwendungen (Drittmittel) für Forschungsvorhaben oder direkte Finanzierung von Mitarbeitern der Einrichtung von Seiten eines Unternehmens der Gesundheitswirtschaft, eines kommerziell orientierten Auftragsinstituts oder einer Versicherung

☐ Nein

☐ Ja

Falls ja, bitte konkrete Angabe:

4. Eigentümerinteresse an Arzneimitteln/Medizinprodukten (z. B. Patent, Urheberrecht, Verkaufslizenz)

☐ Nein

☐ Ja

Falls ja, bitte konkrete Angabe:

5. Besitz von Geschäftsanteilen, Aktien, Fonds mit Beteiligung von Unternehmen der Gesundheitswirtschaft

☐ Nein

☐ Ja

Falls ja, bitte konkrete Angabe:

6. Persönliche Beziehungen zu einem Vertretungsberechtigten eines Unternehmens Gesundheitswirtschaft

☐ Nein

☐ Ja

Falls ja, bitte konkrete Angabe:

7. Mitglied von in Zusammenhang mit der Leitlinienentwicklung relevanten Fachgesellschaften/Berufsverbänden, Mandatsträger im Rahmen der Leitlinienentwicklung

☐ Nein

☐ Ja

Falls ja, bitte konkrete Angabe:

8. Politische, akademische (z. B. Zugehörigkeit zu bestimmten „Schulen“), wissenschaftliche oder persönliche Interessen, die mögliche Konflikte begründen könnten

☐ Nein

☐ Ja

Falls ja, bitte konkrete Angabe:

9. Gegenwärtiger Arbeitgeber, relevante frühere Arbeitgeber der letzten 3 Jahre:

Bewertung

Ergeben sich aus allen oben angeführten Punkten nach Ihrer Meinung für Sie oder die ganze Leitliniengruppe bedeutsame Interessenkonflikte?

☐ Nein

☐ Ja

Falls ja, bitte Angabe eines Vorschlags zur Diskussion in der Leitliniengruppe

(z. B. Stimmenthaltung zu speziellen Fragestellungen):

Name/Anschrift (Stempel)

_____ _____

Ort, Datum Unterschrift

12.3. Ergebnisse der Interessenkonflikterklärungen

Punkte		Prof. Dr. A. Wirth	Prof. Dr. H. Hauner	Prof. Dr. M. Colombo-Benkmann	Prof. Dr. N. Stefan	U. Kanthak	Prof. Dr. S. C. Bischoff	Dr. T. Ellrott	PD Dr. C. Heintze	Prof. Dr. A. Berg	Prof. Dr. D. Kunze	Dr. M. Teufel	Prof. Dr. M. Wabitsch
1	Berater- bzw. Gutachtertätigkeit oder bezahlte Mitarbeit in einem wissenschaftlichen Beirat eines Unternehmens der Gesundheitswirtschaft (z. B. Arzneimittelindustrie, Medizinprodukteindustrie), eines kommerziell orientierten Auftragsinstituts oder einer Versicherung	Mitarbeit im Data-Monitoring Committee einer wissenschaftlichen Studie der Fa. Riemser	Mitglied im International Advisory Board der Weight Watchers Int. Corp., New York	nein	Beratertätigkeit für die Firmen Boehringer Ingelheim, MediGene	nein	Danone, Yakult, Fresenius, Covidien	nein	nein	ALMA-SEG GmbH Bienenbüttel	nein	nein	nein
2	Honorare für Vortrags- und Schulungstätigkeiten oder bezahlte Autoren- oder Co-Autorenschaften im Auftrag eines Unternehmens der Gesundheitswirtschaft, eines kommerziell	Honorare für Vorträge/ Artikel von Certmedica, MSD, Lilly, Actavis, Medical Training,	In den letzten 3 Jahren Honorare für Vorträge von Novartis, BMS, Sanofi-Aventis, Novo-	Covidien Deutschland: Vortrags- und Schulungstätigkeit im Rahmen von Operations-	Honorare für Vortragstätigkeiten im Rahmen der ärztlichen Weiterbildung unterstützt durch die	nein	Zahlreiche, wechselnd	Glaxo Smith-Kline, Kirchheim-Verlag, Nestle Healthcare Nutrition, Weight-Watchers,	nein	ALMA-SEG GmbH Bienenbüttel	nein	nein	nein

Punkte		Prof. Dr. A. Wirth	Prof. Dr. H. Hauner	Prof. Dr. M. Colombo-Benkmann	Prof. Dr. N. Stefan	U. Kanthak	Prof. Dr. S. C. Bischoff	Dr. T. Ellrott	PD Dr. C. Heintze	Prof. Dr. A. Berg	Prof. Dr. D. Kunze	Dr. M. Teufel	Prof. Dr. M. Wabitsch
	orientierten Auftragsinstituts oder einer Versicherung	Cardiovasc	Nordisk	workshops gegen Honorar	Firmen Sanofi-Aventis, Bristol-Myers Squibb, AstraZeneca			NSA; Preventias Institut für Arbeits- und Sozialhygiene Stiftung, Deynique Cosmetics					
3	Finanzielle Zuwendungen (Drittmittel) für Forschungsvorhaben oder direkte Finanzierung von Mitarbeitern der Einrichtung von Seiten eines Unternehmens der Gesundheitswirtschaft, eines kommerziell orientierten Auftragsinstituts oder einer Versicherung	nein	LKP einer klinischen Studie Phase II für die Riemser AG (Alvalin) Klinische Studie für Certmedica (Formoline L112)	nein	Drittmittel für die Durchführung von Studien der Industrie (Roche) und für Investigator-Initiated-Studies (Sanofi-Aventis)	nein	Almirall, Merck	Allgemeine Ortskrankenkasse (AOK), Weight-Watchers, Nestle Healthcare Nutrition	nein	ALMA-SEG GmbH Bienenbüttel	nein	nein	nein
4	Eigentümerinteresse an Arzneimitteln/ Medizinprodukten (z. B. Patent,	nein	nein	nein	nein	nein	nein	nein	nein	nein	nein	nein	nein

Punkte		Prof. Dr. A. Wirth	Prof. Dr. H. Hauner	Prof. Dr. M. Colombo-Benkmann	Prof. Dr. N. Stefan	U. Kanthak	Prof. Dr. S. C. Bischoff	Dr. T. Ellrott	PD Dr. C. Heintze	Prof. Dr. A. Berg	Prof. Dr. D. Kunze	Dr. M. Teufel	Prof. Dr. M. Wabitsch
	Urheberrecht, Verkaufslizenz)												
5	Besitz von Geschäftsanteilen, Aktien, Fonds mit Beteiligung von Unternehmen der Gesundheitswirtschaft	nein	nein	nein	nein	nein	Besitz von Geschäftsanteilen, Aktien, Fonds mit Beteiligung von Unternehmen der Gesundheitswirtschaft; Die Zusammensetzung des Besitzes wechselte über den abgefragten Zeitraum, ist nicht dokumentiert, bewegt sich in einer Größen-	nein	nein	nein	nein	nein	nein

Punkte		Prof. Dr. A. Wirth	Prof. Dr. H. Hauner	Prof. Dr. M. Colombo-Benkmann	Prof. Dr. N. Stefan	U. Kanthak	Prof. Dr. S. C. Bischoff	Dr. T. Ellrott	PD Dr. C. Heintze	Prof. Dr. A. Berg	Prof. Dr. D. Kunze	Dr. M. Teufel	Prof. Dr. M. Wabitsch
							ordnung von unter 100.000 Euro und stellt meines Erachtens keinerlei Interessenkonflikt dar						
6	Persönliche Beziehungen zu einem Vertretungsberechtigten eines Unternehmens Gesundheitswirtschaft	nein	nein	nein	nein	nein	nein	nein	nein	nein	nein	nein	nein
7	Mitglied von in Zusammenhang mit der Leitlinienentwicklung relevanten Fachgesellschaften/ Berufsverbänden, Mandatsträger im Rahmen der Leitlinienentwicklung	Deutsche Diabetes-Gesellschaft / Lipidliga / Deutsche Hochdruck Liga/ Deutsche Gesellschaft für	Präsident der Deutschen Adipositas Gesellschaft / Mitglied im Präsidium der Deutschen Gesell-	Deutsche Gesellschaft für Chirurgie / Deutsche Gesellschaft für Allgemein- und Viszeralchirurgie / Arbeits-	Deutsche-Diabetes-Gesellschaft	nein	DGEM DAG DGE EJSEN	Deutsche Gesellschaft für Ernährung / Deutsche Gesell,schaft für Ernährungsmedizin, Deutsche Adipositas	DEGAM	Beirat DAG / Präsidium DGSP	Leitlinienkoordinator der AGA – Arbeitsgemeinschaft Adipositas im Kindes- und Jugendalter der DAG	Deutsche Kollegium für Psychosomatische Medizin / Deutsche Gesellschaft	Federführender Autor der S3-LL „Adipositas im Kinder- und Jugendalter“

Punkte		Prof. Dr. A. Wirth	Prof. Dr. H. Hauner	Prof. Dr. M. Colombo-Benkmann	Prof. Dr. N. Stefan	U. Kanthak	Prof. Dr. S. C. Bischoff	Dr. T. Ellrott	PD Dr. C. Heintze	Prof. Dr. A. Berg	Prof. Dr. D. Kunze	Dr. M. Teufel	Prof. Dr. M. Wabitsch
		Sport und Prävention	schaft für Ernährung (DGE) / Vorsitzender der LL-Kommission für Kohlehydrate der DGE	gemeinschaft Adipositaschirurgie und metabolische Chirurgie / Deutsche Gesellschaft für Chirurgie der Adipositas / Vorsitzender der Leitlinienkommission Adipositaschirurgie				Gesellschaft, Deutsche Gesellschaft für Prävention und Rehabilitation, Verband für Ernährung und Diätetik, Deutsche Gesellschaft für Prävention und Rehabilitation				für Essstörungen	
8	Politische, akademische (z.B. Zugehörigkeit zu bestimmten „Schulen“), wissenschaftliche oder persönliche Interessen, die mögliche Konflikte	nein	nein	nein	nein	nein	nein	nein	nein	nein	nein	nein	nein

Punkte		Prof. Dr. A. Wirth	Prof. Dr. H. Hauner	Prof. Dr. M. Colombo-Benkmann	Prof. Dr. N. Stefan	U. Kanthak	Prof. Dr. S. C. Bischoff	Dr. T. Ellrott	PD Dr. C. Heintze	Prof. Dr. A. Berg	Prof. Dr. D. Kunze	Dr. M. Teufel	Prof. Dr. M. Wabitsch
	begründen könnten												
9	Gegenwärtiger Arbeitgeber, relevante frühere Arbeitgeber der letzten 3 Jahre	Deutsche Rentenversicherung Braunschweig-Hannover	Klinikum rechts der Isar der Technischen Universität München	Universität Münster von dort abgeordnet an das Universitätsklinikum Münster	Medizinische Universitätsklinik der Universität Tübingen und Deutsche Forschungsgesellschaft	Rentnerin	Universität Hohenheim	Institut für Ernährungspsychologie an der Universitätsmedizin Göttingen Balzerborn-Klinik Bad Sooden Allendorf	Charite, Institut für Allgemeinmedizin	Seit 10/ 2008 selbstständig	Kein Arbeitgeber, sondern freiberufliche Tätigkeit im MVZ Endokrinologikum München	Universitätsklinikum Tübingen	Universitätsklinikum Ulm
10	Ergeben sich aus allen oben angeführten Punkten nach Ihrer Meinung für Sie oder die ganze Leitliniengruppe bedeutsame Interessenkonflikte?	nein	nein	nein	nein	nein	nein	nein	nein	nein	nein	nein	nein

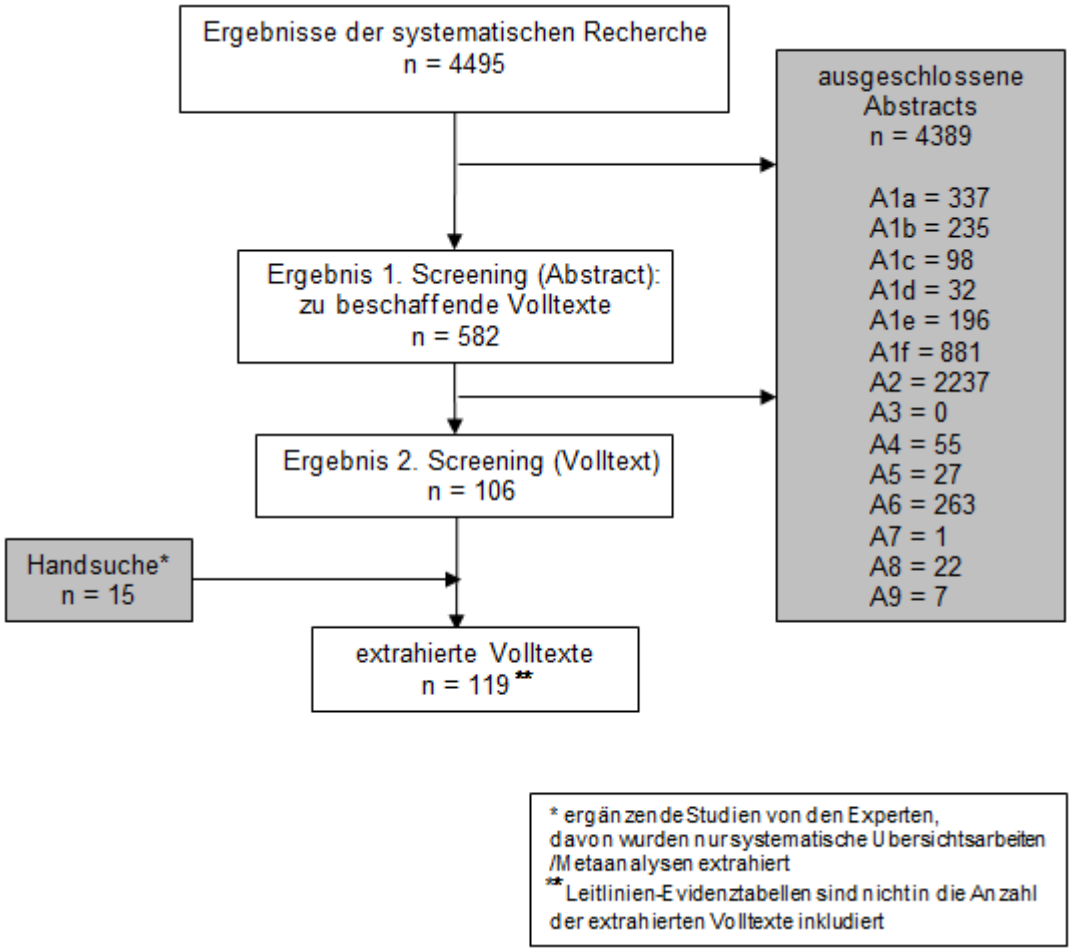
12.4. Methodik und Ergebnisse der Recherchen zur 1. Aktualisierung der Leitlinie

12.4.1. Recherchestrategien

Die Recherchestrategien sind im Kapitel 5.1.2 aufgeführt.

12.4.2. Ergebnisse der Recherchen

12.4.2.1 Flow-Chart



12.4.2.2 Evidenztabellen

Thema: Gesundheitsproblem Adipositas

Aggregierte Evidenz

a) Leitlinien

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
SIGN (2010): Management of Obesity. A national clinical guideline [4]	**Health consequences of obesity in adults** **Asthma** Overweight and obese patients are more likely to develop asthma in a given period; odds ratio (OR) of incident asthma in obese compared to normal weight adults was 1.92 (OR 1.38 for overweight patients). **Cancer** There is an association between obesity and increased risk of developing leukaemia and cancer of the breast, gallbladder, ovaries, pancreas, prostate, colon, oesophagus, endometrium, and renal cells. **Coronary heart disease (CHD) / Cardiovascular disease (CVD)** Obesity is a major risk factor for CHD. Severe obesity is associated with increased cardiovascular mortality. Obesity-induced dyslipidaemia andhypertension are factors in the increased risk of cardiovascular disease. In a meta-analysis, BMI>25 kg/m2 was positively associated with increased risk of venous thromboembolism in combined oral contraceptive users. A meta-analysis reported an RR for hypertension in overweight men of 1.28 and obese men 1.84. The RR for hypertension in overweight women was 1.65 and in	2++ 2++ 2+ 2++ 4 2+	Vazquez G, et al. Epidemiol Rev 2007;29:115-28 Chu SY, Callaghan WM. Diabetes Care 2007;30(8):2070-6 Carey VJ, et al. Am J Epidemiol 1997;145(7):614-9 Chan JM, et al. Diabetes Care 1994;17(9):961-9 Rana JS, et al. Diabetes Care 2007;30(1):53-8 Guh DP, et al. BMC Public Health 2009;9:88 Brown CD, et al. Obes Res 2000;8(9):605-19 Kannel WB, et al. Nutrition 1997;13(2):157-8 Anderson JW, Konz EC. Obes Res 2001;9(Suppl 4):326S-34S Romero-Corral A, et al. Lancet 2006;368(9536):666-78 Nightingale AL, et al. Eur J Contracept Reprod Health Care 2000;5(4):265-74 Wanahita N, et al. Am Heart J 2008;155(2):310-5 Larsson SC, Wolk A. Int J Cancer 2008;122(6):1418-21 Connolly BS, et al. Nutr Cancer 2002;44(2):127-38 Harvie M, et al. Obesity Reviews 2003;4(3):157-73 Olsen CM, et al. Eur J Cancer 2007;43(4):690-709	Domäne 3 (DELBI) 19 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt.

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	obese women was 2.42. Pooled data from seven cohorts give an RR for stroke in overweight men of 1.23 and obese men 1.51 and an RR for stroke in overweight women of 1.15 and obese women 1.49. One cohort study found an RR for pulmonary embolism of 1.91 in overweight women and 3.51 in obese women. In population based cohorts, obese individuals have an associated 49% increased risk of developing atrial fibrillation compared to non-obese individuals.		Berrington de Gonzalez A, et al. Br J Cancer 2003;89(3):519-23 MacInnis RJ, et al. Cancer Causes Control 2006;17(8):989-1003 Bergstrom A, et al. Int J Cancer 2001;91(3):421-30 Wolk A, et al. Cancer Causes Control 2001;12(1):13-21 Hampel H, et al. Ann Intern Med 2005;143(3):199-211	
	Dementia Increasing BMI is an independent risk factor (RR 1 to 2) for dementia.	2++	Kubo A. Cancer Epidemiol Biomarkers Prev 2006;15(5):872-8 Beuther DA, et al. Am J Respir Crit Care Med 2007;175(7):661-6	
	Depression Severe obesity (BMI>40 kg/m2) is associated with depression (OR 4.63).	3	Onyike CU, et al. Am J Epidemiol 2003;158(12):1139-47	
	Diabetes Elevation in BMI is the dominant risk factor for the development of diabetes (including gestational diabetes). In large cohort studies in men and women, obesity is associated with an increased RR of type 2 diabetes (RR≥10 comparing BMI>30 kg/m2 to BMI<22 kg/m2 and RR 50-90 comparing BMI >35 kg/m2 to BMI <22 kg/m2). RR of diabetes in overweight men 2.4 and obese men 6.74. RR of diabetes in overweight women 3.92 and obese women 12.	2++ 2+ 2+	Gorospe EC, et al. Age Ageing 2007;36(1):23-9 van der Steeg JW, et al. Hum Reprod 2008;23(2):324-8 Metwally M, et al. Fertil Steril 2008;90(3):714-26 Stothard KJ, et al. JAMA 2009;301(6):636-50 Hammoud AO, et al. Fertil Steril 2008;90(4):897-904 Hampel H, et al. Ann Intern Med 2005;143(3):199-211 Ioannou GN, et al. Clin Gastroenterol Hepatol 2005;3(1):67-74	
	Fertility and Reproduction Ovulatory, subfertile women with BMI >29 kg/m2 have lower pregnancy rates compared with those with BMI 21-29 kg/m2. In a meta-analysis there were significantly raised odds of miscarriage, regardless of the method of conception (OR, 1.67, 95% confidence interval, 1.25-2.25) in patients with a body mass index of ≥25 kg/m2.		Machado M, et al. J Hepatol 2006;45(4):600-6 Scheen AJ, Luyckx FH. Best Pract Res Clin Endocrinol Metab 2002;16(4):703-16 Rutherford A, et al. Clin Gastroenterol Hepatol 2006;4(12):1544-9 Lievense AM, et al. Rheumatology (Oxford) 2002;41(10):1155-62	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	Maternal obesity increases risk for a range of structural congenital abnormalities including neural tube defects (OR, 1.87), hydrocephaly (OR, 1.68), cleft lip and palate (OR, 1.2) and cardiovascular anomalies (OR,1.3). An editorial review suggests male obesity contributes to an increased risk of infertility.		Oliveria SA, et al. Epidemiology 1999;10(2):161-6 Martinez J, et al. Pancreatology 2006;6(3):206-9 Heslehurst N, et al. Obes Rev 2008;9(6):635-83 O'Brien TE, et al. Epidemiology 2003;14(3):368-74 Dixon JB, et al. Arch Intern Med 2001;161(1):102-6	
	Gastrooesophagael reflux disease The OR for gastro-oesophageal reflux disease is raised in patients who are overweight (OR 1.43) or obese (OR 1.94).	2++	Dagan Y, et al. Traffic Inj Prev 2006;7(1):44-8 Daltro C, et al. Obes Surg 2007;17(6):809-14 Namyslowski G, et al. J Physiol Pharmacol 2005;56(suppl 6):59-65	
	Kidney disease Obesity increases the risk of kidney disease in the general population (RR, 1.92 in women, 1.49 in men) and adversely affects the progress of kidney disease among patients with kidney-related diseases.	2+	Newman AB, et al. Arch Intern Med 2005;165(20):2408-13 Santiago-Recuerda A, et al. Obes Surg 2007;17(5):689-97 Young T, et al. J Appl Physiol 2005;99(4):1592-9	
	Liver disease Compared to healthy-weight patients, overweight and obese patients with abdominal fat distribution experience higher rates of hospitalisation and death due to cirrhosis. 37% of asymptomatic morbidly obese patients have histological non-alcoholic steatohepatitis (compared with 3% in the general population) and 91% have steatosis (compared with 20% in the general population). In one study of subjects with acute liver failure, obese patients had an RR of 1.63 for transplantation or death.	2+	McTigue KM, et al. Ann Intern Med 2003;139(11):933-49, I-57 Avenell A, et al. Health Technology Assess 2004;8(21) Stenius-Aarniala B, et al. Br Med J 2000;320(7238):827-32 Christensen R, et al. Ann Rheum Dis 2007;66(4):433-9	
	Mortality Obesity is associated with excess mortality. BMI (above 22.5-25 kg/m2) is a strong predictor of overall mortality with most of the excess mortality likely to be causal and due to vascular disease. In the elderly (age ≥65), a BMI in the moderately obese range is associated with a modest increase in mortality risk regardless of sex,	2++	Bales CW, et al. J Am Med Dir Assoc 2008;9(5):302-12 Mulrow CD, et al. The Cochrane Library, 2006(4) Vettor R, et al. Diabetes Care 2005;28(4):942-9 Aucott L, et al. Hypertension 2005;45(6):1035-41 Neter JE, et al. Hypertension 2003;42(5):878-84 Douketis JD, et al. Int J Obes 2005;29(10):1153-67	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	disease state and smoking status. Physical inactivity and adiposity have both independent and dependent effects on all-cause mortality. **Osteoarthritis** A systematic review reported moderate evidence for a positive association between obesity and the occurrence of hip osteoarthritis with an OR of approximately 2.52 In one case control study, body weight was a predictor of incident osteoarthritis of the hand, hip, and knee. Pooled results from three studies give the RR for joint replacement for osteoarthritis in overweight men as 2.76 and 4.20 for obese men. The RR for joint replacement in overweight women was 1.80 and for obese women was 1.96. **Pancreatitis** Obesity is associated with higher rates of local complications of acute pancreatitis. **Pregnancy/birth Complications** A meta-analysis demonstrated a significant relationship between increasing obesity and increased odds of Caesarean section and instrumental deliveries, haemorrhage, infection, longer duration of hospital stay and increased neonatal intensive care requirement. A meta-analysis of twenty studies in overweight, obese and severely obese women showed the odds ratios of developing gestational diabetes mellitus were 2.14 (95% CI 1.82- 2.53), 3.56 (95% CI 3.05-4.21), and 8.56 (95% CI 5.07-16.04) respectively, as compared with pregnant women whose booking weight was within the normal range. There is a strong positive association between maternal prepregnancy body mass index and the risk of pre-eclampsia.	2+ 3 2+ 2++ 2+	Williamson DA, et al. Arch Intern Med 2009;169(2):163-71 Poobalan A, et al. Obesity Reviews 2004;5(1):43-50 Kramer FM, et al. Int J Obes 1989;13(2):123-36 Field AE, et al. Int J Obes 2001;25(8):1113-21 Field AE, et al. Am J Epidemiol 1999;150(6):573-9 Rzehak P, et al. Eur J Epidemiol 2007;22(10):665-73 Diaz VA, et al. J Community Health 2005;30(3):153-65 Guagnano MT, et al. Eur J Clin Nutr 2000;54(4):356-60 Guagnano MT, et al. Clinical Science 1999;96(6):677-80 Petersmarck KA, et al. Int J Obes Relat Metab Disord 1999;23(12):1246-55 Tsai CJ, et al. Arch Intern Med 2006;166(21):2369-74	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	Sleep There is a high prevalence of significantly disturbed sleep in people with obesity. Sleep disordered breathing is common in people with obesity and to a lesser degree in the overweight. Obstructive sleep apnoea is found in the majority of morbidly obese patients. **<u>Health benefits of weight loss in adults</u>** **Recommendations:** Healthcare professionals should make patients aware of the following health benefits associated with sustained modest weight loss: - improved lipid profiles - reduced osteoarthritis-related disability. - lowered all-cause, cancer and diabetes mortality in some patient groups - reduced blood pressure - improved glycaemic control - reduction in risk of type 2 diabetes - potential for improved lung function in patients with asthma. The literature was reviewed to assess the potential health benefit of moderate sustained weight loss, meaning 5-10 kg or 5-10% at one year. **Mortality** Moderate intentional weight loss of around 5 kg or more in overweight and obese adults with a history of diabetes is associated with lowered all-cause mortality. Intentional weight loss of between 5 kg to 10 kg in obese women with some obesity-related illness is associated with lowered cancer-related mortality and lowered diabetes-related mortality.	2+ A B 2++		

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	Asthma There is limited evidence from one RCT that weight loss of more than 10 kg in obese patients with asthma is associated with improved lung function.	1+		
	Arthritis -related disability Weight loss of greater than 5 kg and around 5% of body weight in overweight or obese older female patients with knee osteoarthritis is associated with a reduction in self reported disability when at least 0.24% of body weight is lost each week. In one study, 5% weight loss was associated with improved physical function and reduced knee pain in obese patients aged over 60 years with established osteoarthritis.	2+		
	Blood pressure Weight loss of around 5 kg is associated with a reduction in systolic blood pressure of between 3.8-4.4 mmHg and reduction of diastolic blood pressure of between 3.0-3.6 mmHg at 12 months. Weight loss of around 10 kg is associated with a reduction in systolic blood pressure of around 6 mmHg and reduction of diastolic blood pressure of around 4.6 mmHg at two years.	1+ 2++		
	Glycaemic control and incidence of diabetes In patients with type 2 diabetes, weight loss of around 5 kg is associated with a reduction in fasting blood glucose of between 0.17 mmol/L to 0.24 mmol/L at 12 months. Weight loss of around 5 kg in obese patients with type 2 diabetes is associated with a reduction in HbA1c of around 0.28% at 12 months. In adults with impaired glucose tolerance, behaviourally mediated weight loss can prevent diabetes (58% reduction in diabetes incidence).Weight loss of around 5 kg in overweight patients at risk for diabetes mellitus who receive lifestyle interventions is associated with a reduced risk of	1++ - 2++		

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	developing impaired glucose tolerance at 2-5 years. In one RCT overweight or obese patients with type 2 diabetes who received an intensive lifestyle intervention which yielded significant weight loss (9 kg), had improved physical fitness, reduced physical symptoms and experienced significant improvements in health-related quality of life compared with those who received diabetes support and education who lost less than 1 kg.			
	Lipid profiles	1++		
	Modelling based on systematic reviews of RCTs suggests that modest and sustained weight loss (5 kg – 10 kg) in patients with overweight or obesity is associated with reductions in low density lipoprotein, total cholesterol and triglycerides and with increased levels of high density lipoprotein.	2++		
	Weight cycling			
	Recommendations:			
	Patients should be encouraged to make sustainable lifestyle changes and given support to avoid weight cycling.	Best praxice		
	Weight history, including previous weight loss attempts, should be part of the assessmentof patients with obesity.			
	Weight cycling is the repeated voluntary loss and subsequent regain of body weight in those who repeatedly follow weight loss regimens. Weight cycling is a common condition as only a minority of people who lose weight through weight management interventions are able to maintain their weight loss. There is no consistent definition of weight cycling parameters. Most studies define weight cycling as 4.5 kg lost and regained but the period of concern varies from three to six years and the number of cycles of weight loss required to	2+		

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	qualify is not clearly defined. Weight cyclers gain significantly more weight than non-weight cyclers over four and six years. Weight cycling is a risk factor for all-cause mortality and cardiovascular mortality (hazard ratio (HR) approximately 1.8 for both). Weight cycling is associated with increased risk of hypertension in obese women. There was no adverse effect of weight cycling on hypertension in overweight middle aged men and adverse effects on hypertension in overweight women did not reach statistical significance. Weight cycling increases the risk of symptomatic gallstones in men by 25-50% depending on the degree of weight lost and regained.			
Paulweber B, et al. (2010): A European Evidence-Based Guideline for the Prevention of Type 2 Diabetes, 2010 [6]	**Modifiable risk factors: Overweight and obesity** Obesity (BMI ≥ 30 kg/m2) and overweight (BMI 25–30 kg/m2) increase the risk for developing both IGT and T2DM at all ages. They act, at least in part, by inducing insulin resistance. More than 80% of cases of T2DM can be attributed to obesity. Reversal of obesity also decreases the risk for T2DM and improves glycemic control in patients with established diabetes. A strong curvilinear relationship between BMI and the risk for T2DM was found in women in the Nurses' Health Study. The age-adjusted relative risk for diabetes was 6.1 times higher for people with BMI >35 kg/m2 than for people with BMI < 22 kg/m2. The degree of insulin resistance and the incidence of T2DM are highest in those subjects with upper body or abdominal adiposity, as assessed from waist circumference. Adiposity of the "gynoid" type, which primarily affects the gluteal and femoral region is not associated with glucose intolerance or increased CVD risk. However, studies trying to discern the relative	A – B	Harris MI. Diabetes Care 1989;12:464-74 DeFronzo RA, Ferrannini E. Diabetes Care 1991;14:173-94 Norris SL, et al. Cochrane Database Syst Rev 2005:CD005270 Cummings DE, Flum DR. JAMA 2008;299:341-3 Colditz GA, et al. Ann Intern Med 1995;122:481-6 Chan JM, et al. Diabetes Care 1994;17:961-9 Meisinger C, et al. Am J Clin Nutr 2006;84:483-9 Vazquez G, et al. Epidemiol Rev 2007;29:115-28	Bei der Suche nach Evidenz wurden systematische Methoden angewandt, welche der SIGN-Methodik entsprechen.

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	importance of waist circumference (or waist-to-hip ratio) compared to BMI regarding risk for T2DM development have not shown a major advantage of one over the other. **Metabolic syndrome (MetSy)** MetSy is defined as a cluster of metabolic risk factors for cardiovascular disease which are associated with insulin resistance. It is associated with an up to 2-fold elevated risk for CVD. Although several diagnostic criteria have been proposed by different organizations, there is an ongoing debate regarding the existence of unique underlying pathophysiology. The most widely used criteriawere defined by the National Cholesterol Education Program (NCEP/ATP III) and include central obesity, high fasting plasma glucose, high triglycerides, low HDL-cholesterol and high blood pressure. A harmonized definition of the MetSy has recently been suggested in a joint statement issued by several international organizations. Despite the fact that the MetSy strongly predicts progression to T2DM, several reports show that a single measure of blood glucose is a better predictor of incident diabetes than the complex definition of the MetSy. In a recent analysis from the San Antonio heart study, however, the metabolic syndrome as defined by the NCEP criteria predicted T2DM independently of the presence of elevated FPG. The MetSy was as good a predictor for the occurrence of T2DM as iIFG (OR: 5.03 versus 7.07). If both conditions occurred simultaneously, the risk for T2DM was much higher (OR: 21.0).		Galassi A, Reynolds K, He J. Am J Med 2006;119:812-9 National Cholesterol Education Program (NCEP). Circulation 2002;106:3143-421 Reaven GM. Diabetes 1988;37:1595-607 Grundy SM. Diabetes Care 2006;29:1689-92, discussion 1693-6 Kahn R, Buse J, Ferrannini E, Stern M. Diabetes Care 2005;28:2289-304 Oda E. Diabetes Care 2006;29:2566 Alberti KG, et al. Circulation 2009;120:1640-5 Ford ES, Li C, Sattar N. Diabetes Care 2008;31:1898-904 Ford ES. Diabetes Care 2005;28:1769-78 Stern MP, et al. Diabetes Care 2004;27:2676-81 Wilson PW, et al. Circulation 2005;112:3066-72 Lorenzo C, et al. Diabetes Care 2007;30:8-13	

b) Systematischer Review, Metaanalyse, HTA

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
Meta-analysis	Gariepy G, et al. (2010) [11]	Search strategy is reported 7 Databases: Medline, Embase, Scopus, ISI Web of Knowledge, PsycInfo, Cumulative Index to Nursing and Allied Health Literature Period: from Inception to Mai 2009 Prospective and cross-sectional studies	Primary outcome: Anxiety disorders	**Included studies:** Study quality: - 2 prospective and 14 cross-sectional studies - Flowchart of studies selection is available - Meta-analysis was performed from 13 of the cross-sectional studies - Quality assessment is reported - 5 studies with high quality, 5 studies with moderate quality and 4 studies with poor quality Descriptive statistics: - All studies were from western world (9 from Northwest Europe) - A total of 346 289 individuals - Men and women Heterogeneity: - inconsistency index = 84.3 % ($p < 0.001$) - Random effects model was used Publication bias: - No publications bias - funnel plot was symmetric except for one small study - Eggers test produced no significant p-value = 0.65 **Results:** The pooled OR of an association between obesity and anxiety was 1.4 (95 % CI 1.2 – 1.6) Causal relationship from obesity to anxiety is not clear Subgroup meta-analysis:	Barry, et al. Ann Epidemiol 2008 Baumeister, et al. Int J Obes 2007 Becker, et al. Int J Obes 2001 Bruffaerts, et al. Can J Psychiat Rev 2008 Hach, et al. Eur J Public Health 2007 Hallstrom, et al. J Psychosomat Res 1981 Herpertz, et al. J Psychosomat Res 2006 Mather, et al. J Psychosomat Res 2009 McLaren, et al. Soc Psychiatry Psychiatr Epidemiol 2008 Moore, et al. JAMA 1962 Patten, et al. Internet J Mental Health 2007 Scott, et al. J Psychosomat Res	2++	Gute methodische Qualitat der Metaanalyse, die meisten eingeschlossenen Studien haben ebenfalls gute bzw. moderate Qualität Eingeschlossen waren Beobachtungs-studien

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
				Men: OR 1.3; 95 % CI 1.0 – 1.5 Women: OR 1.4; 95 % CI 1.1 – 1.7	2008 Simon, et al. Arch Gen Psychiatry 2006 Zhao, et al. Int J Obes 2009 Bjerkeset, et al. Am J Epidemiol 2008 Kasen, et al. Int J Obes 2008		
Meta-analysis	Luppino FS, et al. (2010) [12]	Search strategy is reported 3 Databases : Medline (PubMed), EMBASE, and PsycINFO Studies design: prospective cohort studies	Primary outcome: depression or overweight/obesity (BMI)	**Included studies:** Study quality: - Quality assessment is reported, 15-item checklist adapted from Kuijpers et al. was used - 5 studies with high quality Descriptive statistics: - In children, adolescent and adult; total N = 58 745 - 8 studies with obesity/overweight exposure and outcome depression Heterogeneity: - Random effects model was used - Q-Statistic was used, I2 was calculated: not significant or low heterogeneity Publication bias: - Egger test, Duval and Tweedie: no significant publication bias **Results (obesity/overweight exposure and outcome depression):** - Overweight increased the risk of onset of depression at follow-up: N = 53 639: unadjusted OR = 1.27 (95 % CI, 1.07 - 1.51; p < 0.01); N = 48 739:	Anderson SE, et al. Psychosom Med. 2007;69(8):740-7 Bjerkeset O, et al. Am J Epidemiol. 2008;167(2):193-202 Herva A, et al. Int J Obes (Lond). 2006;30(3):520-7 Kasen S, et al. Int J Obes (Lond). 2008;32(3):558-66 Koponen H, et al. J Clin Psychiatry. 2008;69(2):178-82 Roberts RE, et al. Int J Obes Relat Metab Disord. 2003;27(4):514-21 Sachs-Ericsson N, et al. Am J Geriatr Psychiatry.	2++	Gute methodische Qualität des SR anhand der Kohortenstudien (5 von 15 haben sehr gute Qualität)

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
				adjusted OR = 1.08 (95 % CI, 1.02 - 1.14; p < 0.01) - Obesity at baseline increased the risk of onset depression in follow-up: N = 55 387: unadjusted OR = 1.55 (95 % CI, 1.22 - 1.98; p < 0.001), N = 48 739: adjusted OR = 1.57 (95 % CI, 1.23 - 2.01; p < 0.001) Subgroup analysis: - Age: Overweight: Not significant: mean age < 20 years (N = 3 799, OR = 1.05 (95 % CI, 0.86 - 1.29) and mean age > 60 (N = 3 981, OR = 1.77 (95 % CI, 1.00 - 0.32); Significant: mean age 20 - 60 (N = 45 859, OR = 1.48 (95 % CI, 1.19 - 1.83); Obesity: Significant: mean age < 20 years (N = 3 799, OR = 1.70 (95 % CI, 1.25 - 2.30) and mean age > 60 (N = 5 729, OR = 1.98 (95 % CI, 1.26 - 3.10); not significant: mean age 20 - 69 (N = 45 859, OR = 1.34 (95 % CI, 0.83 - 2.19) - Sex: Overweight (N = 48 195): not significant (women: OR = 0.98 (95 % CI, 0.80 - 1.20); men: OR = 1.30 (95 % CI, 0.78 - 2.17); Obesity (N = 48 195): significant for women (OR = 1.67 (95 % CI, 1.11 - 2.51), not significant for men (OR = 1.31 (95 % CI, 1.13 - 1.15) - Follow-up duration: < 10 years: Not significant: Overweight: N = 4900, OR = 0.89, 95 % CI, 0.71, 1.12; Obesity: N = 6648; OR = 1.26, 95 % CI, 0.78, 2.03; ≥ 10 years: not significant for overweight: N = 48 739, OR = 1.19, 95 % CI, 0.97, 1.45; significant for obesity: N = 48 739; OR = 1.72, 95 % CI, 1.40, 2.13 - High versus low quality of studies: Overweight and Obesity: not significant in high quality (N = 1 146 OR = 1.17, 95 % CI, 0.80, 1.70; obesity: N = 1 146 OR = 1.24, 95 % CI, 0.49, 3.17); significant in low	2007;15(9):815-25 van Gool CH, et al. Am J Public Health. 2007;97(5):887-94 Bardone AM, et al. J Am Acad Child Adolesc Psychiatry. 1998;37(6):594-601 Barefoot JC, et al. Int J Obes Relat Metab Disord. 1998;22(7):688-94 Hasler G, et al. Mol Psychiatry. 2005;10(9):842-50 Koponen H, et al. J Clin Psychiatry. 2008;69(2):178-82 Pine DS, et al. Am J Public Health. 1997;87(8):1303-10 Pine DS, et al. Pediatrics. 2001;107(5):1049-56 Richardson LP, et al. Arch Pediatr Adolesc Med. 2003;157(8):739-45 Roberts RE, et al. Int J Obes Relat Metab Disord. 2003;27(4):514-21		

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
				quality (N = 52 493 OR = 1.32, 95 % CI, 1.06, 1.63; obesity: N = 54 241 OR = 1.62, 95 % CI, 1.28, 2.05) - Europeans: Overweight: significant (N = 48 440 OR = 1.29, 95 % CI, 1.05, 1.58); Obesity: not significant (N = 48 440 OR = 1.33, 95 % CI, 0.98, 1.81), p-value between groups < 0.05 - Clinical depressive disorder: Overweight: not significant (N = 1 218 OR = 1.13, 95 % CI, 0.74, 1.84); Obesity: significant (N = 2 966 OR = 2.15, 95 % CI, 1.48, 3.12), p-value between groups < 0.05	van Gool CH, et al. Am J Public Health. 2007;97(5):887-94 Vogelzangs N, et al. Arch Gen Psychiatry. 2008;65(12):1386-93		
Meta-analysis	Yusuf E, et al. (2010) [13]	Search strategy, inclusion and exclusion criteria were reported Databases were in Appendix 1 reported, Appendix 1 n. a. Period: up to April 2008 Studies design: observational studies	exposure: weight or BMI outcome: hand osteoarthritis	**Included studies:** Study quality: - 25 observational studies: 2 cohort, 3 case-control, 20 cross-sectional design - Quality assessment: 19 criteria scoring system - 15 studies had high quality, the mean of quality scores was 63 % - Potential confounder were reported: age, gender, smoking, hormone therapy, workload - Rating of evidence level using SR of Cochrane Collaboration Back review group Descriptive statistics: - 8 studies investigated only women, 1 study - only men - Outcome was diagnosed using only radiographic criteria in 18 studies, 3 studies used radiographic and clinical criteria, 2 studies used only clinical criteria, in 2 studies outcome was reported Heterogeneity: - n. a. Publication bias:	15 high quality studies: Andrianakos AA, et al. J Rheumatol. 2006 Carman WJ. Am J Epidemiol. 1994 Cicuttini FM. J Rheumatol. 1996 Cvijetic S. Croat Med J. 2000 Dahaghin S. Ann Rheum Dis. 2007 Ding H. Obes Res Clin Pract. 2008 Haara MM. Ann Rheum Dis. 2003 Jones G. J Rheumatol 2002 Kessler S. Clin Rheumatol. 2003 Oliveria SA.	2++	Eine Meta-Analyse guter methodischer Qualität. Informationen im Anhang (Datenbanken usw.) sind nicht verfügbar. Eine positive Assoziation ist durch die meisten eingeschlossenen Studien belegt, welche gute methodische Qualität haben. In einigen Studien wurde allerdings keine Assoziation festgestellt.

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
				- Funnel plot, symmetry was determined visually: the plot was asymmetric **Results:** - Pooled RR = 1.9 (forest plot), 14 studies - Total 25 studies, 15 showed significant association - 15 studies with high quality: Cohort studies: 1 showed a positive association (RR = 3.12, 95 % CI 1.65 - 5.88), 1 showed no association Case-control studies: reported positive significant association (OR = 1.30, 95 % CI 1.06 - 1.59 and OR = 8.3 95 % 1.2 - 56.5) 11 cross-sectional studies: 7 reported positive association 13 of high quality studies that used radiographic criteria for hand osteoarthritis: 10 of these studies showed positive association	Epidemiology. 1999 Sayer AA. Arthritis Rheum. 2003 Sowers M. Osteoarthr Cartil. 2000 Szoeke CE. Bone. 2006 Hart DJ. J Rheumatol. 1993 Van Saase JL. Ann Rheum Dis. 1989		
Systematic review	Van Duijven-bode DC, et al. (2009) [14]	Search strategy, inclusion and criteria were reported Databases: PubMed, Embase, PsycInfo, SportDiscus Period: 1987 - April 2009 Studies design: longitudinal	Primary outcome: BMI, waist circumference	**Included studies:** Study quality: - 13 longitudinal studies - Quality assessment was reported: scoring system adapted from Ariens and Hayden: 12 studies had high quality - Level of evidence was assessed according up to the rating system of Hoogendoorn, et al. Descriptive statistics: - Study population of included studies varied from 255 to 21 419 workers - Follow up time varied from 1 to 10 years - All studies used BMI as independent variable, one	Alexopoulus, et al. Occup Environ Med. 2001 Burdorf A, et. al. Occup Environ Med. 1998 Christensen KB, et al. Ind Health. 2007 Ferrie JE, et al. Obesity. 2007 Jans MP, et al. J Occup Environ Med. 2007 Laaksonen M, et al.	2++	Eine systematische Übersichtsarbeit von 13 longitudinalen Studien guter Qualität. Keine Analyse der Heterogenität und Publications bias.

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
		studies		study used both BMI and waist circumference - Weight was evaluated by self-reports in half of studies - the same recommended cut-off points were used to define overweight or obesity except for one study (Tsai et al.) that defined obesity as BMI ≥ 27.2 kg/m2 for men and 26.9 kg/m2 for women - sick leave were mostly collected from company records - 8 studies distinguished between duration of sick leave - 2 studies analysed the cause of sickness absence Heterogeneity: - n. a. Publication bias: - n. a. **Results:** Overweight: - 8 high quality studies: - 1 study did not distinguished between duration of sick leave: statistically significant association - long-term sick leave: 7 studies investigated the relationship between overweight and long-term sick leave: 4 reported an association, 3 no association - short-term sick leave: 5 studies investigated the relationship with short-term sick leave: inconsistent and different results Obesity: - 10 studies: 1 low quality, 9 high quality - 1 low quality study: differences in average absence	Obesity 2007 Labriola M et al. Occup Med (Lond). 2006 Moreau M, et al. Int J Obes Relat Metab Disord. 2004 Östbye T, et al. Arch Intern Med. 2007 Parkes KR. J Appl Psychol. 1987 Tsai SP, et al. J Occup Environ Med. 1997 Tsai SP, et al. J Occup Environ Med. 2005 Vingard E, et al. Scand J Public Health. 2005		

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
				duration - 8 studies investigated the relationship with long-term sick leave, 5 of them investigated also the relationship with shorter spells - long-term sick leave: 7 studies reported an association, 1 study reported no association - short-term sick leave: inconsistent and different results: 3 studies reported an association, 2 studies reported no association			
Meta-analysis	Muthuri SG, et al. (2011) [15]	Databases: Ovid Medline (1950), Embase (1980), and AMED (1985), PubMed, ISI Web of Science and CINAHL up to July 2010 Search strategy was reported Inclusion criteria: 1) design association between overweight or obesity and knee OA, or	outcome: Risk Reduction in Knee OA	**Included studies:** 47 studies were included: 14 cohort, 19 cross-sectional, and 14 case–control studies (flow chart) Study quality: - 2 reviewers, criteria recommended by the Meta-Analysis of Observational Studies in Epidemiology were used Descriptive statistics: - 446 219 subjects were included - Risk reduction using population-attributable risk percentage (PAR %) (the proportion of knee OA that would have been avoided if obesity had not been present in the population) - Countries: USA, Europe, others - Obesity was obtained from the International Obesity Task Force Heterogeneity: - significant, random-effects model Publication bias: - significant (funnel plot, Eggers test): smaller studies with larger ORs were more likely to be published; n.	Cooper C, et al. Arthritis Rheum 2000 Shiozaki H, et al. Osteoarthritis Survey. Knee 1999 Gelber AC, et al. Am J Med 1999 Grotle M, et al. BMC Musculoskelet Disord 2008 Jarvholm B, et al. Eur J Epidemiol 2005 Lohmander LS, et al. Ann Rheum Dis 2009 Toivanen AT, et al. Rheumatology (Oxford) 2010 Wang Y, et al. Arthritis Res Ther 2009 Abbate LM, et al. Obesity (Silver Spring) 2006	2-	Different study design, high heterogeneity, study quality n.a.

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
		knee pain; 2) BMI as a measure 3) knee OA = primary outcome (defined using radiographs and clinical or physician-diagnosed OA)		s. in only cohort or case–control studies **Results (for weight):** - By BMI categories: - Pooled OR for overweight: 2.02 (95 % CI 1.84 - 2.22), - Pooled OR for obesity: 3.91 (95 % CI 3.32 - 4.56) - Overweight and obesity: 2.78 (2.45 - 3.15) - Risk reduction (PAR %): varied from 8 % in China to 50 % in the US (depending on the prevalence of overweight and obesity) - Risk reduction: greater in severe symptomatic OA than in asymptomatic radiographic OA	Al-Arfaj AS. Saudi Med J 2002 Anderson JJ, Am J Epidemiol 1988 Aoda H, et al. Acta Med Biol (Niigata) 2006 Bagge E, et al. J Rheumatol 1991 Bernard TE, et al. J Occup Environ Med 2010 Cicuttini FM, et al. J Rheumatol 1997 Du H, et al. China. Rheumatol Int 2005 Fernandez-Lopez JC, et al. Clin Exp Rheu-matol 2008 Janssen I, et al. Int J Obes 2006 Kim I, et al. J Korean Med Sci 2010 Lachance L, et al. Osteoarthritis Cartilage 2001 Muraki S, et al. Osteoarthritis Cartilage 2009 Sudo A, et al. J Orthop Sci 2008		

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
					Tangtrakulwanich B, J Orthop Sci 2006 Tukker A, et al. Public Health Nutr 2009 Von Muhlen D, J Womens Health Gend Based Med 2002 Wang W, et al. Chin J Clin Rehabil 2006 Zeng QY, et al. Chin Med J (Engl) 2006 Coggon D, et al. Arthritis Rheum 2000 Dawson J, et al. J Epidemiol Community Health 2003 Holmberg S, et al. Scand J Rheumatol 2005 Klussmann A, et al. Arthritis Res Ther 2010 Kohatsu ND, Clin Orthop Relat Res 1990 Limer KL, et al. Osteoarthritis Cartilage 2009 Manninen P, et al. Scand J Work Environ Health 2002		

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
					Mounach A et al. Clin Rheumatol 2008 Oliveria SA, et al. Epidemiology 1999 Sahlstrom A, et al. Clin Orthop Relat Res 1997 Sandmark H, et al. Ann Rheum Dis 1999 Soeroso J, et al. APLAR J Rheumatol 2005 Sutton AJ, et al. Ann Rheum Dis 2001 Vrezas I, et al. Int Arch Occup Environ Health 2010		
Systematic review	Sikorski C, et al. (2011) [16]	Databases: Medline, Web of Science, PSYNDEXplus ,EMBASE and Cochrane Library up to February 2011 inclusion criteria: nationally or community-based representative	Outcome: stigmatizing attitudes	**Included studies:** 7 observ. studies (flow chart) Study quality (Randomization/Dropout rate/intention-to-treat): - three studies recruited their participants through Random Digit Dialing sampling - Most studies: investigation via telephone interviews, 1 study applied an internet survey procedure - PRISMA Quality assestment Descriptive statistics: - 3 studies: US population - 3 studies: German population - Sample sizes varied 909 to 2 250	Hilbert A, et al. J Epidemiol Community Health. 2007,61:585-90 Barry CL, et al. Milbank Q. 2009,87:7-47 Oliver JE, et al. J Health Polit Policy Law. 2005,30:923-54. Seo DC, et al. J Natl Med Assoc. 2006,98:1300-8 Taylor P, et al.	2-	Moderate Reporting quality

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
		studies; adult general population; reporting on attitudes towards, stereotypes of, or the perception of overweight and obese people		- Mean age: 45.9 years Heterogeneity: - n. a. Publication bias: - n. a. **Results:** - Only 1 study (non RCT) reported explicit measures of stigmatizing attitudes: average „Weight Control/Blame" (WCB) score 3.01 = neutral (scale range: 1 = strongly disagree to 5 = strongly agree) - Other studies reported causal attributions: The most prevailing causal attributions were lack of activity behavior (82.4 %) and overeating (72.8 %)	[http://pewresearch.org] Hilbert A, et al. Psychother Psychosom Med Psychol. 2007,57:242-7 Hilbert A, et al. Obesity (Silver Spring, Md). 2008,16:1529-34		
Meta-analysis	Harrington M, et al. (2009) [17]	Databases: PubMed (Medline), ScienceDirect, checking of criss references Articles published between 1987-2008 English language Search terms were reported Inclusion criteria were reported:	Comparison: weight loss vs. minimal or no weight loss	**Included studies:** 26 prospective observational studies Study quality (Randomization/Dropout rate/intention-to-treat): - 2 investigators, quality assestment n. a. Descriptive statistics: - sample sizes: 34 to 5 008 subjects; - majority of the data from white population of US and UK origin, - follow up: from 2 to 20 years, - usually self reporting of body weight, - different confounders Heterogeneity: - n. a. Publication bias: - n. a.	See study references	2-	Only 2 databases, heterogeneity n. a.

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
		prospective studies in English of adults, with data of body weight, weight loss over more than 1 year, RR or CI were reported, comparison: minimal or no weight loss		**Results (for weight):** - Intentional: overall weight loss n. s. effect: RR 1.01, 95 % CI 0.93, 1.09, p = 0.89; Subgroup analysis: for "unhealthy" (with obesity related risk factors) individuals: RR 0.87, 95 % CI 0.77, 0.99, p = 0.028; for "unhealthy" obese: RR 0.84, 95 % CI 0.73, 0.97, p = 0.018; for "healthy" individuals: RR 1.11, 95 % CI 1.00, 1.22, p = 0.05; for overweight individuals: RR 1.09, 95 % CI 1.02, 1.17, p = 0.008 - Unintentional (= ill-defined) weight loss: higher mortality risk (RR 1.22, 95 % CI 1.09, 1.37, p = 0.001) - Unspecified cause of weight loss: RR 1.39, 95 % CI 1.29, 1.51, p < 0.001			
Meta-analysis	Fabricato-re AN, et al. (2011) [18]	Databases: Medline, articles published between 1950-2009 Search terms were reported, Inclusion criteria were reported (human subjects, English), assessment of weight and symptoms of depression at baseline and	Different treatment categories: 1) lifestyle modification vs. control; 2) lifestyle modification vs. nondieting; 3) lifestyle modification vs. dietary counseling; 4) lifestyle modification vs. exercise-alone; 5) exercise-alone vs. control; and 6) pharmacologic agent vs. placebo	**Included studies:** 31 RCTs Study quality (Randomization/Dropout rate/intention-to-treat): - 2 investigators, - only 2 studies reported results from intent-to-treat and completers' analyses, - handling of missing data was not specified in the remaining 15 studies Descriptive statistics: - N = 7 937 Heterogeneity: - different (I2: from 0 to high) - Random effects model was used Publication bias: - Funnal plot, results n.a.	Andersen RE, et al. JAMA. 1999 Annesi JJ, et al. Am J Med Sci. 2008 Bacon L, et al. Int J Obes. 2002 Cabioglu MT, et al. Int J Neurosci. 2007 Carels RA, et al. J Women's Health. 2004 Dennis KE, et al. Obes Res. 1999 Evangelista LS, et al. Am J Cardiol. 2006 Faulconbridge, et al. Obesity. 2009 Fontaine KR, et al.	1-	Only 2 studies with ITT, low to high heterogeneity, the typ of analysis were not spezified in nearly half of studies

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		post-treatment Exclusion criteria were reported	outcome: depression symptoms	**Results (for weight):** - Correlations between pre- and post-treatment values for weight and for depressive symptoms were unattainable for 65.8 % of comparisons. The mean observed correlation was 0.54. - Six between-groups analyses: Reductions in symptoms of depression were marginally greater with lifestyle modification than with dietary counseling ($p = 0.053$) and exercise-alone ($p = 0.054$) - The largest effect size was found for the comparison of exercise-alone with control (st. mean deviation: 0.54, $p = 0.03$), but high heterogeneity - Non-pharmacologic interventions were associated with significant reductions in symptoms of depression ($p < 0.001$)	Qual LifeRes. 1999 Galletly C, et al. Appetite. 2007 Hainer V, et al. Int J Obes. 2005 Halyburton AK, et al. Am Journal Clin Nutr. 2007 Kerr J, et al. Depress Anxiety. 2008 Kiortsis DN, et al. Nutr Metab Cardiovasc Dis. 2008 Klem ML, et al. Int J Eat Disord. 1997 Melanson KJ, et al. Nutrition. 2004 Nieman DC, et al. J Psychosom Res. 2000 Pi-Sunyer XF, et al. JAMA. 2006 Rapoport L, et al. Int J Obes Relat Metab Disord. 2000 Sarsan A, et al. Clin Rehabil. 2006 Sbrocco T, et al. J Consul Clin Psychol. 1999 Scheen AJ, et al. Lancet. 2006		

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
					Smith PJ, et al. J Psychosom Res. 2007 Surwit RS, et al. Am J Clin Nutr. 1997 Tanco S, et al. Int J Eat Disord. 1998 Van Gaal LF, et al. Eur Heart J. 2008 Vander Wal JS, et al. Int J Food Sci Nutr. 2007 Wadden TA, et al. Int J Obes. 1990 Wadden TA, et al. Am J Clin Nutr. 2004 Williamson DA, et al. Health Psychol. 2008 Wing RR, et al. Diabetes Care. 1991		
Systematic review	Papaion-nou A, et al. (2009) [19]	Databases: MEDLINE, Cochrane Database of Systematic Reviews, DARE, CENTRAL, CINAHL and Embase, Health STAR; between January 1,	Outcome : bone minerale density (BMD)	**Included studies:** - 25 observational studies: 7 longitudinal and 18 cross-sectional studies; - Weight/weight loss as risk factor: 7 longitudinal and 10 cross-sectional studies were included Study quality (Randomization/Dropout rate/intention-to-treat): - quality assessment checklist was used: rating system of the United States Preventive Services Task Force (USPSTF): 9 with good quality and 16 with fair quality were included	Assessment weight/weight loss: Cheung EY, et al. Osteoporos Int. 2005 Kung AW, et al. Osteoporos Int. 2005 Lau EM, et al. Osteoporos Int. 2006 Lynn HS, et al. Osteoporos Int. 2005 Cauley JA, et al.	2-	High heterogeneity, p and/or 95 % CI for weight n. a.

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
		1990 and January 2006, english, Search terms and inclusion criteria were reported		Descriptive statistics: - target population: healthy men age 50 years or older, - study cohorts were mainly Caucasian participants, - sample sizes ranged from 137 to 5 995 (median 458) Heterogeneity: - high Publication bias: - n. a. **Results (for weight):** - In nine studies: weight or BMI were positively associated with bone minerale density (BMD) at both sites; in one study at the lumbar spine only. - In 4 studies: BMD was approximately 3 - 7 % higher at the hip and lumbar spine for every 10 kg increase in weight. - In 6 longitudinal studies: low baseline weight or BMI predicted subsequent bone loss at the hip. - In 4 studies: weight loss was associated with an increased rate of bone loss at the hip and at the lumbar spine - In one study: weight loss of > 1 % per year may substantially elevate the risk of lower BMD - In one large cohort study: men who lost ≥ 5 % of their baseline weight had approximately doubled the rate of bone loss than men whose weight remained stable. - In one study: those who gained weight had very little or no bone loss.	Osteoporos Int. 2005 Bendavid EJ, et al. J Bone Miner Res. 1996 Orwoll ES. Osteoporos Int. 2000 Nguyen TV, et al. J Bone Miner Res. 2000 Lunt M, et al. Osteoporos Int. 2001 Yoshimura N, et al. Osteoporos Int. 1998 Hannan MT, et al. J Bone Miner Res. 2000 Dennison E, et al. Osteoporos Int. 1999 Burger H, et al. Am J Epidemiol. 1998 Knoke JD, et al. Am J Epidemiol. 2003 Naves M, et al. Osteoporos Int. 2005		
Systematic review/ Meta-	Suvan J, et al. (2011)	Databases: Ovid MEDLINE,	Outcome: peridontitis	**Included studies:** 33 studies in total were included: 1 cohort, 32 case-	Studies included in meta-analysis:	2+	High heterogeneity, the most of studies are cross-sectional

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analysis	[20]	EMBASE, LILACS, and SIGLE, additionally checking bibliographic references Search to December 2009 Search strategy was reported Inclusion and exclusion criteria were reported		control studies; 19 studies were included in meta-analysis Study quality (Randomization/Dropout rate/intention-to-treat): - 2 reviewers, - cohort and case–control studies were assessed using the validated Newcastle-Ottawa Quality Assessment Scale as recommended by the Cochrane Collaboration Guidelines; - the quality of cross-sectional studies were assessed using questions from the Newcastle-Ottawa Quality Assessment Scale: in all studies: low risk of bias Descriptive statistics: - different confounders were reported, - N = 1 362 and age 59-72 in cohort study; - in cross-sectional studies: different age, different sample sizes: from 60 to 13 665 individuals, - different countries Heterogeneity: - high (I2 > 70 %, p for heterogeneity sign.); random effects models analysis was performed Publication bias: - n.a. **Results (for weight):** - SR: from 33 studies: 30 reported a positive association between peridontitis and BMI, 3 reported no association; Prevalence data ORs ranging from 0.93 to 5.31. - In meta-analysis (forrest plot): significant associations between periodontitis and BMI: - 12 studies: in obese individuals OR 1.81(95 %	Al-Zahrani MS, et al. J Periodontol. 2003 Alabdulkarim M, et al. J Int Acad Periodontol. 2005 Dalla Vecchia CF, et al. J Periodontol. 2005 Ekuni D, et al. J Periodontal Res. 2008 Genco RJ, et al. J Periodontology. 2005 Saito T, et al. J Dent Res. 2001 Saito T et al. J Periodontal Res. 2005 Torrungruang K, et al. J Periodontol. 2005 Nucci Da Silva L, et al. Atheroscler Suppl. 2009 Ylöstalo P, et al. J Clin Periodontol. 2008 Linden G, et al. J Clin Periodontol. 2007 Buhlin K, et al. Eur Heart J 2003 Han DH, et al. J Clin Periodontol. 2010 Kushiyama M, et al. J Periodontol. 2009 Nishida N, et al. J		studies, 1 abstract was included, publication bias analysis n.a.

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				CI 1.42, 2.30), - 11 studies: overweight individuals OR 1.27 (95 % CI 1.06, 1.51); - 6 studies: obese and overweight combined OR 2.13 (95 % CI 1.40, 3.26)	Periodontol. 2005 Haffajee AD, et al. J Clin Periodontol. 2009 Saito T, et al. New England J Medicine. 1998 Khader YS, et al. J Clin Periodontol. 2009 Kongstad J, et al. J Periodontol. 2009		
Systematic review/ Meta-analysis	Aucott L, et al. (2011) [21]	Databases: Medline, Embase, PsycINFO, CINAHL, The Evidence Based Medicine Reviews Collection, CAB Nutrition Abstracts and Reviews; along with hand searching of International Journal of Obesity and Obesity Research Search up to October 2007,	lifestyle interventions/ programmes for weight loss (dietary, exercise, behavioural or environmental) or intentional weight loss (and weight cycling)	**Included studies:** 16 studies: nine related to seven trial studies and seven cohort studies Descriptive statistics: - Follow-up was between 24 and 72 months; two studies had large proportions of participants on lipid-lowering medication - Intervention trials: Six of the seven intervention trials had diet and physical activity as their main components, Most had clinical or academic settings - Cohort trials: All had diet components and most included exercise; fünf studies included lifestyle behavioural advice or behavioural therapy programmes; different settings (from residential clinics to free-living work places); the frequency and duration of contact for each intervention differed Heterogeneity: - random effects models Publication bias: - n. a.	Haskell WL, et al. Circulation 1994 Ditschuneit HH, et al. Am J Clin Nutr 1999 Flechtner-Mors M, et al. Obes Res 2000 Kuller LH, et al. Circulation 2001 Heshka S, et al. JAMA 2003 Lindstrom J, J Am Soc Nephrol 2003 Lindstrom J, et al Diabetes Care 2003 Mensink M, et al .Obesity 2003; Niebauer J, et al Circulation 1997 Sedgwick AW, et al. Int J Obes 1990	2-	Quality assestment n. a.

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		updated in April 2008 MeSH terms and text words for 'trials', 'obesity', 'overweight', 'weight differences' appropriately combined Inclusion criteria: ≥ 2-year follow-up for studies with lifestyle interventions/programmes for weight loss or intentional weight loss along with records of long-term lipid profile change(s) for adult participants Exclusion: mean BMI ≥ 35 kg m2, eating disorders, pregnant, or		**Results (for weight):** - weight loss at 2 - 3 years follow-up, produced significant beneficial lipid profile changes; weight loss sustained longer than 3 years was not associated with beneficial lipid changes Intervention trials: - SCRIP trial: cholesterol improvement of 0.99 mmol L-1 was on the, but this is confounded with the previously mentioned lipid-lowering medication; LDL: significant reductions (-0.95 mmol L-1) - meal replacement trial: Significant cholesterol reductions of between 0.3 and 0.4 mmol L-1 were reported (not statistically significant); improvement in triglycerides was 0.94 mmol - HDL: 3 studies. improvements: (+0.14 mmol L-1) - Not all studies reported LDL - Netherlands IGT intervention study: significant weight and triglyceride reductions, but significantly raised levels of cholesterol and LDL Cohort studies: - 1 study (Pawlowski): While cholesterol decreased for relevant groups in this study, there was no major weight loss, and so lipid improvement was probably medication-induced. - 1 study (Welty): reported the largest average weight loss (7.8 kg after 31 months) of the cohorts along with HDL (+0.12 mmol L-1) and LDL (-0.34 mmol L-1) improvements, none of these were significant; the mean triglyceride showed the largest decrease of the whole review (1.14 mmol L-1) (statistically significant); cholesterol was not reported for this cohort	Eriksson KF, et al Diabetologia 1991 Kauffmann R, et al. Rev Med Chil 1992 Martinez-Gonzalez MA, et al. Eur J Epidemiol 1998 Sjostrom M, et al .Eur J Clin Nutr 1999 Pawlowski Tet al. Pol Arch Med Wewn 2003 Welty FK, et al. Am J Cardiol 2007		

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		mentally or physically handicapped ethnic groups: UK-compatible. Small studies (appr. 50 participants per subgroup at recruitment and/or appr. 20 at follow-up)		- 2 studies (Sedgwick; Kauffmann): subgroups with weight loss of 2 - 5 kg, with all subgroups showing significant benefits for cholesterol - Other cohort studies had inconsistent weight lipid-1 change relationships Meta-Analysis - Combining the results from all papers (excluding the SCRIP and Polish studies): average significant differences of -1.20 kg (95 % CI, -1.90, -0.50) for weight, -0.10 mmol L-1 for triglycerides (95 % CI, -0.17, -0.03) and 0.05 mmol L-1 for HDL (95 % CI, 0.01, 0.08) However, the differences of -0.08 mmol L-1 for cholesterol (95 % CI, -0.20, 0.05) and -0.07 mmol L-1 for LDL (95 % CI, -0.23, 0.08) were not significant. - Subgroup analysis was reported			
Meta-analysis	Torloni MR, et al. (2009) [22]	Observational studies Search: 1977-2007 4 databases: Medline, Embase, Cinahl, Lilacs No language or contries restrictions Included: studies with women with information on prepregnancy	gestational diabetes (GDM) = outcome, BMI = exposure	**Included studies:** 70 studies were included (59 cohorts and 11 case-control studies) Study quality: - most studies with the high (14) or medium (43) quality, two rewievers, created quality checklist Descriptive statistics: - 671 945 participants, - 53 studies form developed countries, - in 22 studies - measured BMI, in 33 self-reported, in 15 studies - no information Heterogeneity: - significant heterogeneity (I2 > 50 %) random effects model was used, sensitivity analysis was performed	70 studies were included (see study references)	1+	Quality assestment (high or medium quality of most studies) This SR followed the Cochrane methodology and MOOSE recommendations (for MA of observational studies) Search strategy was reported High heterogeneity

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		or first trimester BMI, women with previously diagnosted diabetes mellitus were excluded Excluded studies: no OR or RR, no definition of BMI categories,women with high risk of diabetes, BMI was registred after significant prepregnancy weight gain Search words were reported		Publication bias: - n. a. **Results (for weight):** - the risk of gestational diabetes (GDM) is positively associated with prepregnancy BMI Compared with women with normal BMI the unadujsted pooled OR: - For underweight women (results from 16 cohort studies): 0.78 (95 % CI 0.69 vs. 0.82) - For overweight women (17 cohort studies with 395 338 participants): 1.97 (95 % CI 1.77 vs. 2.19) - For obese women (6 cohort studies with 23 938 participants): 3.01 (95 % CI 2.34 vs. 3.87) - For morbidly obese women (7 cohort studies with 22 742 participants): 5.55 (95 % CI 4.27 vs. 7.21) - For every 1 kg/m2 increase in BMI: the prevalence of GDM increased by 0.92 % (95 % CI 0.73 to 1.10) Compared with normal BMI women with at least BMI 25 had the risk of GDM of 2.95 (95 % CI 2.68 vs. 3.24), based on 34 cohort studies Compared with women with BMI < 30 women with BMI > 30 had OR of GDM of 3.36 (95 % CI 3.01 vs. 3.74) based on 40 cohort studies			
Systematic review/ Meta-analysis	Nordmann AJ, et al. (2011) [23]	Search in MEDLINE, EMBASE, Biosis, Web of Science, and the Cochrane Central	Mediterranean and low-fat diets on cardiovascular risk factors and inflammatory markers	**Included studies:** 6 RCTs were included Study quality: - 2 reviewers, quality assestment (no blinding, Four of the 6 included trials had a loss to follow-up <10%; no trial was stopped early for benefit) Descriptive statistics:	Estruch R, et al. Ann Intern Med. 2006;145(1):1-11 Esposito K, et al. JAMA. 2003;289(14):1799-1804 Esposito K, et al..	1 +	Limitations : only 6 included trials (3 trials published by the same group of authors), sign. heterogeneity (sensitivity analysis is available) ; none of the included trials was

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		Register of Controlled Trials from their inception until January 2011 using the terms “diets, fat restricted [Mesh]“ and “Mediterranean diets.” ; No language restrictions Included studies : RCTs (search term : random) comparing Mediterranean to low-fat diets in overweight/obese individuals with with at least one additional cardiovascular risk factor or patients with established coronary artery disease,		- 2650 individuals (50% women), - Mean age ranged from 35 to 68 years, mean BMI - from 29 to 35 kg/m2 - Follow-up of included trials was 2 years in 4 trials, 4 years in one trial, 6 years in one trial - Persistence on diet varied between 85% and 95% in subjects assigned to Mediterranean diets and from 78% to 93% in subjects assigned to low-fat diets Heterogeneity: - Q and I2 statistics , signifikant (see results) Publication bias: - assestment by means of funnel plots, no evidence for publication bias (p<0.1) **Results: (2 years of follow-up)** - weighted mean differences of body weight (-2.2 kg; 95% confidence interval [CI], -3.9 to -0.6 ; P for heterogeneity < 0.001, I2=97%) in favour to a Mediterranean diet - BMI (-0.6 kg/m2; 95% CI, -1 to 0.1 ; P for heterogeneity < 0.001, I2=94%) in favour to a Mediterranean diet - systolic blood pressure (-1.7 mm Hg; 95% CI, - 3.4 to -0.1 ; P for heterogeneity < 0.001, I2=89%), diastolic blood pressure (-1.5 mm Hg; 95% CI, -2.1 to -0.8 ; P for heterogeneity = 0,03, I2=60%) in favour to a Mediterranean diet - fasting plasma glucose (-3.8 mg/dL, 95% CI, -7 to -0.6 ; P for heterogeneity = 0,18 I2=98%) in favour to a Mediterranean diet - total cholesterol (- 7.4 mg/dL; 95% CI, -10.3 to - 4.4 ; P for heterogeneity = 0,002, I2=73%) in favour to a Mediterranean diet ; no statistically significant	JAMA. 2004; 292(12):1440-1446 Shai I, et al. N Engl J Med. 2008; 359(3):229-241. Tuttle KR, et al. Am J Cardiol. 008;101(11):1523-1530. Esposito K, et al. Ann Intern Med. 2009;151(5):306-314.		powered to detect any differences in clinical outcomes between the 2 diets

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		with a minimum follow-up of 6 months, reporting intention-to-treat data on cardiovascular risk factors		differences in LDL (-3.3 m g/dL; 95% CI, -7.3- -0.6; P for heterogeneity =0,3, I2=23%) or HDL cholesterol (-0.9 mg/dL; 95% CI, -1.9-3.8, P for heterogeneity <0.001, I2=99%) - high-sensitivity C-reactive protein (- 1.0 mg/L; 95% CI, -1.5 to -0.5 ; P for heterogeneity <0,001 I2=82%) in favour to a Mediterranean diet			
Meta-analysis (Milestone paper)	Poobalan AS, et al. (2009) [24]	Databases: Medline, Embase, Cinahl Search from 1996 to May 2007 MESH term and key word were reported (combined with Cochrane Collaboration strategy) Included: studies with nulliparous pregnant women conducted in any setting. Excluded: studies with multiparous	Primar outcome: OR for cesarian section	**Included studies:** 11 cohort studies (3 prospective) Study quality: - 2 reviewers, methododlogical quality assestment using the NOS scala: all studies scored high quality Descriptive statistics: - Setting: USA (50 % of studies), Denmark, UK, Sweden; - period from 1976 to 2005; - in 3 studies: referent group ≠ norm. BMI; - in total 143 875 women in the normal BMI catogorie, 43 025 in overweight, 20 419 in obese and 1 874 in morbidly obese group Heterogeneity: - n. a., random effects model was used, - sensitivity analysis n. a. Publication bias: - n. a. **Results (for weight):** Crude pooled OR (95 % CI) for cesarian section compared with women with normal BMI:	Baeten JM et al. 2001 Barau G et al. 2006 Bergholt et al. 2007 Bhattacharya S. et al. 2007 Cnattingius R et al. 1998 Dietz PM et al. 2005 Jensen H et al. 1999 Kiran TCU et al. 2005 Stotland NE et al. 2004 Vahratian A et al. 2005 Young TK et al. 2002	2-	Clearly focused question, description of methodology, the literature search and flow chart were reported, quality assestment is reported Heterogeneity n. a. Publication bias n. a.

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		women, case studies or case series, multiple pregnancies or pregnant women with comorbidities, studien reported an association between cesarean delivery and other health care outcomes		- In overweight women: 1.53 (1.48 to 1.58) - In obese: 2.26 (2.04 to 2.51) - In morbidly obese (BMI > 35 kg/m2): 3.38 (2.49 to 4.57) Pooled odds of having an emergency cesarian section: - In overweight: 1.64 (95 % CI 1.55 to 1.73) - In obese: 2.23 (95 % CI 2.07 to 2.42) Pooled rates of cesarean section were: - In norm: BMI group: 15.22 % - In overweight: 20.52 % - In obese: 29.02 % - In morbidly obese: 38.37 % Subgroup analysis was reported			
Meta-analysis (Milestone paper)	Strazzullo P, et al. (2010) [25]	Databases: PUBMED, EMBASE, HTA, from January 1966 through May 2009; key words: "BMI," "body mass index," "overweight" AND stroke," "cerebrovascular disease," or combinations In addition: manual search	Primary outcome: incidence of stroke	**Included studies:** Twenty-five prospective studies were included in Meta-Analysis, total number 33 prospective studies Study quality: - 3 investigators, study quality was evaluated by the Downs and Black score system, all the studies had a quality score of at least 15 out of 19 Descriptive statistics: - 2 274 961 participants from 10 countries (10 studies form Europe, 9 from Asia, 6 from US), - 30 757 events (11 722 ishamic and 8 380 hemorrhagic score), - average follow up time 17.5 years Heterogeneity (tested by I2 and Q-Statistik): - significant heterogeneity (p < 0.0001; I2 > 90 %),	Abbott RD, et al. Stroke. 1994;25 Walker SP, et al. Am J Epidemiol. 996;144 Shaper AG et al. BMJ. 1997;314:1311-7 Wassertheil-Smoller S, et al. Arch Intern Med. 2000;160:494-500 Kurth T, et al. Arch Intern Med. 2002;162 Jood K, et al. Stroke. 2004;35:2764-9 Cui R, et al. Stroke. 2005;36:1377-82	2+	Clearly focused question, methodology is described, literature search is reported, Quality assestment is reported, High heterogeneity (sensitivity analysis is reported) CI were reported publication bias were investigated

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		of references from recent reviews and relevant published original studies. Inclusion criteria were original article in English, prospective study design, follow-up ≥ 4 years, indication of number of subjects exposed, and number of events across body mass index categories		- random effects model was used, - sensitivity analysis was performed Publication bias (funnel plot, Egger Test and trim-and-fill method were performed): - no evidence of publication bias forpooled RR of total stroke for overweight and obese subjects (Egger Test: p = 0.98) - but evidence of publication bias for stroke rate in obese vs. normal-weight (Egger test, p = 0.01), but no missing study was identified by the trim-and-fill method - no evidence for p. b. for stroke rate in overweight vs. normal-weight **Results (for weight):** - Pooled RR of total stroke for overweight and obese subjects combined vs normal-weight individuals was 1.05 (95 % CI, 0.89 - 1.24; p = 0.56) - total stroke rates in obese vs normalweight individuals: pooled RR 1.26 (95 % CI, 1.07 - 1.48; p = 0.005) - total stroke rates in overweight vs. normalweight individuals: non significant, pooled RR 1.05 (95 % CI, 0.93 - 1.17; p = 0.42) - RR for ischemic stroke: 1.22 (95 % CI, 1.05 - 1.41) for overweight and 1.64 (95 % CI, 1.36 - 1.99, but publication bias sign.) for obesity, for overweight und obese RR = 1.30 (95 % CI, 1.06 - 1.60; p = 0.01) - RR for hemorrhagic stroke: 1.01 (95 % CI, 0.88 - 1.17) and 1.24 (95 % CI, 0.99 - 1.54) for obese; for overweight and obese individuals pooled RR was 1.06 (95 % CI, 0.83 - 1.36; p = 0.64) Subgroup analysis was performed	Kurth T, et al. Circulation. 2005;111:1992-8 Tanne D, et al. Stroke. 2005;36:1021-5 Murphy NF, et al. Eur Heart. 2006;27:96-106 Batty GD, et al. Heart. 2006;92:886-92 Chen HJ, et al. Stroke. 2006;37:1060-4 Li C, et al. Int J Obes (Lond). 2006;30 Lu M, et al. J Intern Med. 2006;260:442-50 Oki I, et al. Cerebrovasc Dis. 2006;22:409-15 Park HS, et al. Int J Epidemiol. 2006;35 Hong JS, et al. Ann Epidemiol. 2007;17 Hu G, et al. Arch Intern Med. 2007;167 Song Y, et al. Am J Cardiol. 2007;100 Funada S, et al. Prev Med. 2008;47:66-70 Sauvaget C, et al. Int J Epidemiol. 2008;37 Zhou M, et al. Stroke.		

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					2008;39:753-9 Eeg-Olofsson K, et al. Diabetologia. 2009;52 Silventoinen K, et al. Int J Epidemiol. 2009;38 Zhang X, et al. Stroke. 2009;40:1098-104		
Meta-analysis (Milestone paper)	Renehan AG, et al. (2008) [26]	Literature search in Medline and Embase (1966 to November 2007), no language restrictions, Search strategy: terms related to bodyweight ("obesity", "adiposity", "body mass index", and "body size"), combined with specific terms for each cancer site included: cohort studies if they determined	Primary outcome: risk of cancer associated with a 5 kg/m2 increase in BMI	**Included studies:** - 141 articles (221 datasets) of prospective observational studies (flow chart): reported on 76 studies (67 cohort studies, six nested case-control studies, and three randomised trials) Study quality: - 2 investigators, - assessed according to three study components: length of follow-up; whether BMI was self-reported or measured; and the extent of adjustments for potential confounding factors Descriptive statistics: - 282 137 incident cases (154 333 men and 127 804 women), - half the papers were published since 2004, - 28 studies were from North America, 35 from Europe and Australia, and 11 from Asia-Pacific; - one cohort was multi-ethnic (three papers), and two cohorts analysed black American populations; - follow-up per cancer site varied from 8.4 years (breast cancer) to 14.4 years (multiple myeloma) Heterogeneity:	141 Studies were included (see study references)	2+	Clearly question, methodology and literature search and quality assestment were reported, Heterogeneity range: 0 up to 84 % p. b. results n. a.

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		BMI at baseline and then recorded incident cancer cases during follow–up; reported risk estimates with 95 % CIs across at least three categories of BMI or must report sufficient data to estimate these; case-control studies nested in such cohort studies and control arms from clinical trials; studies with self-reported or measured height and weight		- I2 statistik: heterogeneity range 0 – 84 % (particular sign.): heterogeneity was high for thyroid and liver cancers, and moderate or low for the other sites random effects model was used, sensitivity analysis was reported Publication bias: - results? **Results (for weight):** In men: - increaseed BMI (5 kg/m2) was strongly associated with oesophageal adenocarcinoma (RR 1.52, p < 0.0001) thyroid (1.33, p = 0.02), colon (1.24, p < 0.0001), and renal (1.24, p < 0.0001) cancers; - weaker positive association between increased BMI and malignant melanoma (1.17, p = 0.004), multiple myeloma (1.11, p < 0.0001), rectal cancer (1.09, p < 0.0001), leukaemia (1.08, p = 0.009), and non-Hodgkin lymphoma (1.06, p < 0.0001). In women: - strong associations between a 5 kg/m2 increase in BMI and endometrial (1.59, p < 0.0001), gallbladder (1.59, p = 0.04), oesophageal adenocarcinoma (1.51, p < 0.0001), and renal (1.34, p < 0.0001) cancers - Weaker positive associations for: leukaemia (1.17, p = 0.01), and cancers of the thyroid (1.14, p = 0.0001), postmenopausal breast cancer (1.12, p < 0.0001), pancreas (1.12, p = 0.01), colon (1.09, p < 0.0001), and non-Hodgkin's lymphoma (1.07, p = 0.05) Increased BMI was negatively associated with the risk of lung cancer (0.76, p < 0.0001 in men and 0.80,			

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				p = 0.03 in women); but seperatly for smoking status: no association for non-smokers (RR 0.91; 95 % CI 0.76 - 1.10) Subgroup analysis was reported			
Meta-analysis (Milestone paper)	Oreopou-los A, et al. (2008) [27]	Databases: Cochrane Central Register of Controlled Trials (1990-June 2007), MEDLINE (1966 - June 2007), EMBASE (1988 - June 2007), Scopus (1966 - June 2007) and Web of Science (1900 - June 2007) were searched, No language or age restrictions Databases were searched using “heart failure” or “cardiac failure” and	Primary outcome: all-cause mortality Secondary outcome: cardiovascular mortality	**Included studies:** - 9 studies: 5 post hoc analyses of RCT-study populations, 1 prospective cohort study, 3 retrospective analyses of cohort data collected for another research question Study quality: - 2 reviewers, - all studies were of high methodological quality (score 8-9/9) as assessed by the Ottawa-Newcastle criteria Descriptive statistics: - mean length of follow-up was 2.7 years, - total N = 28 209 individuals Heterogeneity: - significant for all cause mortality (I2 > 50 %, p = 0.02), non-significant heterogeneity for cardiovascular mortality, random effects model was used, sensitivity analysis was reported Publication bias: - n. a. **Results (for weight):** all-cause mortality: - individuals without elevated BMI vs. overweight: RR 0.84, 95 % CI 0.79 - 0.90 - individuals without elevated BMI vs. obesity: all-cause mortality RR 0.67, 95 % CI 0.62 - 0.73 cardiovascular mortality (versus normal BMI):	Hall J, et al. J Am Acad Nurse Prac. 2005;1711 Kristorp C, et al. Circulation. 2005;112:1756-62 Davos C, et al. J Cardiac Fail. 2003;9:29-35 Kenchaiah S, et al. Circulation. 2007;116 Bozkurt B, et al. Am Heart J. 2005;150:1233-9 Gustafsson F, et al. Eur Heart J. 2005; 26:58-64 Cicoira M, et al. Eur J Heart Fail 2007;9 Butler J, et al. Ann Thorac Surg. 2005;79:66-73 Lavie C, et al. Am J Cardiol. 2003;91:891-4	2+	Clearly question, methodology, literatur search, studies quality («good» for all studies) were reported High heterogeneity, but sensitivity analysis was **p**erformed, publication bias n. a.

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
		"obes$" or "body mass index" as key words, text words or MESH headings in combination with "mortality," "survival," "reverse epidemiology," and "obesity paradox." Inclusion criteria: reporting mortality in HF patients according to BMI category excluded were studies comparing obese vs nonobese		- overweight (RR 0.81, 95 % CI 0.72 - 0.92) - obesity (RR 0.60, 95 % CI 0.53 - 0.69) - Underweight/low-normal-weight (RR 1.20, 95 % CI 1.04 - 1.38) Sensitivity analysis (mortality): obese individuals (adjusted HR 0.88, 95 % CI 0.83 - 0.93); overweight individuals (adjusted HR 0.93, 95 % CI 0.89 - 0.97)			
Meta-analysis (Milestone paper)	Buchwald H, et al. (2004) [28]	Literatur search: MEDLINE, Current Contents, and the Cochrane	Interventions: gastric banding (including adjustable and nonadjustable bands), gastric	**Included studies:** - (flow chart) in total of 134 studies were included and extracted: 5 RCT, 28 nonrandomized controlled trials or series with comparison groups, and 101 uncontrolled case series. Study quality:	134 studies were included (see study references)	2-	Study question is wide, methodology and litersture search were descripted, quality assestment of studies n. a.

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		Library databases. MEDLINE (1990-2003, cutoff date June 5, 2003) search terms: obesity/ surgery, gastric bypass, gastroplasty, bariatric, gastric banding, "anastomosis, Roux-en-Y," biliopancreatic diversion (including duodenal switch), or jejunoileal bypass.	bypass (principally Roux-en-Y variations), gastroplasty (principally vertical banded gastroplasty), biliopancreatic diversion or duodenal switch (including a variety of modifications), and mixed and other (biliary intestinal bypass, ileogastrostomy, jejunoileal bypass, and unspecified bariatric). Procedures that included a gastric bypass component (eg, gastroplasty with gastric bypass, biliopancreatic diversion with gastric bypass, and banding with gastric bypass) were classified as gastric bypass surgery	- quality assestment n. a. Descriptive statistics: - a total of 22 094 patients, 19 % (N = 3 769) men and 72.6 % (N = 14 082) women, mean age of 39 years (range, 16 - 64 years), sex was not reported for 8 % patients, - baseline mean BMI for 16 944 patients was 46.9 kg/m2 (range, 32.3 - 68.8), - Fifty-six of the extracted studies were based in North America, 58 in Europe, and 20 were conducted in other locations throughout the world (Australia, New Zealand, South America, Japan, Israel, Saudi Arabia, and Taiwan), - majority of studies were conducted at single centers (N = 126) and only a few were multicenter studies (N = 5) Heterogeneity: - sign. for weight reduction ($p < 0.01$), random effects model was used, sensitivity analysis n. a. Publication bias: - n. a. **Results (for weight):** - mean weight loss (95 % confidence interval): 61.2 % (58.1 % - 64.4 %) for all patients; 47.5 % (40.7 % - 54.2 %) for patients with gastric banding; 61.6 % (56.7 % - 66.5 %)with gastric bypass; 68.2 % (61.5 % - 74.8 %)with gastroplasty; and 70.1 % (66.3 % - 73.9 %) with biliopancreatic diversion or duodenal switch Adverse events: - Operative mortality (≤ 30 days): 0.1 % for the purely			sign. heterogeneity (for most of analysis) publication bias n. a.

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			Primary outcome: weight loss, operative mortality outcome, and 4 obesity comorbidities (diabetes, hyperlipidemia, hypertension, and obstructive sleep apnea)	restrictive procedures (2 297 patients undergoing banding and 749 patients undergoing gastroplasty), 0.5 % for gastric bypass (5 644 Patients), and 1.1 % for biliopancreatic diversion or duodenal switch (3 030 patients) Other outcomes: - Diabetes was completely resolved in 76.8 % (95 % CI, 70.7 % - 82.9 %) of of patients and resolved or improved in 86.0 % (95 % CI, 78.4 % - 93.7 %) - Hyperlipidemia improved in 70 % or more of patients; the maximum improvements in hyperlipidemia by meta-analysis occurredwith the biliopancreatic diversion or duodenal switch procedure (99.1 %; 95 % CI, 97.6 % - 100 %) and with gastric bypass (96.9 %; 95 % CI, 93.6 %-100 %) - Hypertension was resolved in 61.7 % (95 % CI, 55.6 % - 67.8 %) of patients and resolved or improved in 78.5 % (95 % CI, 70.8 % - 86.1 %) - Obstructive sleep apnea was resolved in 85.7 % (95 % CI, 79.2 % - 92.2 %) of patients and was resolved or improved in 83.6 % (95 % CI,71.8 % - 95.4 %) of patients.			
Meta-analysis (Milestone paper)	Buchwald H, et al. (2009) [29]	Databases: MEDLINE, Current Contents, and the Cochrane Library (in addition manually reference check) Studies	Diabetes Type 2 and weight loss after bariatric chirurgie	**Included studies:** - 621 studies were in SR included, 73 % of the studies were single-arm series, 58 % of those retrospective; 4.7 % RCT Study quality: - studies were assigned a level of evidence using the schema of evidence assignment developed by the CEBM in Oxford; - In addition, RCT were rated for quality with Jadad score; only 10 studies (1.6 %) contributing class I	621 studies were included (see study references)	2-	Clearly focused question, methodology and literature search and quality assessment were reported (bad quality), high heterogeneity, publication bias analysis n. a.

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		published in English from January 1, 1990, to April 30, 2006 Search terms used were as follows: obesity/ surgery (MeSH) OR gastric bypass OR gastroplasty OR bariatric OR gastric banding OR anastomosis, Roux-en-Y (MeSH) OR biliopancreatic diversion (MeSH) OR jejunoileal bypass (MeSH) OR ([gastric pacing OR gastric stimulation] AND obes*)		evidence; By Jadad scoring, 27 of the 29 RCT had a quality score of 1 to 3 and 2 trials had a score of 4 to 5. Descriptive statistics: - in total 888 treatment arms and 135 246 patients, 103 treatment arms with 3 188 patients reported on resolution of diabetes, 19 studies with 43 treatment arms and 11 175 patients reported both weight loss and diabetes resolution separately for the 4 070 diabetic patients; - mean age 40.2 years, - BMI 47.9 kg/m2, - 80 % were female, and - 10.5 % had previous bariatric procedures; - Most studies were performed in Europe (44 %) or North America (43 %), - Multicenter studies made up 11 % of the dataset; Heterogeneity (Q-statistic and I2): - Weight loss data (16 diabetes-only studies) less heterogeneous; - data on diabetes resolution were for the most part highly heterogeneous (> 75 %) for the entire dataset but was slightly less heterogeneous (< 75 %) for some surgery groups in the pure diabetic population - I2 statistic were often more than 80 % (significantly heterogeneity), the results across studies had I2 more than 65 % in all but the smallest studies; random effects model was used, sensitivity analysis was reported Publication bias: - n. a.			

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				Results (for weight): Weight loss: - Total weight loss (all procedures, mean change) for at least 50 % of study patients was 38.49 kg (95 % CI 40.36, to 36.63) or 55.9 % of excess body weight loss. Mean BMI loss was 13.97 (95 % CI 14.51 to 13.43) - Weight loss at 2 years or more follow-up was 41.6 kg or 59 % excess body weight loss. - Weight loss was greatest for the biliopancreatic diversion/duodenal switch groups followed by gastric bypass, gastroplasty, and laparoscopic adjustable gastric banding. Diabetes resolution: - 78.1 % of diabetic patients had complete resolution, diabetes was improved or resolved in 86.6 % of patients - Diabetes resolution was greatest for patients undergoing biliopancreatic diversion/duodenal switch (95.1 % resolved), followed by gastric bypass (80.3 %), gastroplasty (79.7 %), and then laparoscopic adjustable gastric banding (56.7 %). - Postoperative Insulin levels declined significantly postoperatively, as did hemoglobin A1c and fasting glucose values. Subgroup analysis was reported			
Systematic review (Milestone paper)	Gill RS, et al. (2011) [30]	In English MEDLINE, EMBASE, SCOPUS, BIOSIS Previews and	**Outcomes:** **Primary outcome.** change or improvement in	**Included studies:** - 6 studies were included in qualitative analysis (five were case series and one was a case controlled study) Study quality:	Richette P, et al. Ann Rheum Dis. 2011;70:139-44 Parvizi J, et al. J Arthroplasty.	2-	Clearly focused question, insufficient description of methodology and literature search,

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		the Cochrane Library The bibliographies of all included articles were examined to identify additional relevant publications. Ongoing trials were identified using controlled trial registration websites, including ICRTP Search Portal for the World Health Organization. Search terms and data n. a.	hip or knee joint pain. This included pain score by the visual analogue scale, knee society score (KSS) or Harris hip score (HSS). **Secondary outcomes:** 1. Joint space width; 2. Patient overall satisfaction; 3. Severity of osteoarthritis; 4. Quality of life.	- 2 reviewers, - methodological quality assesstment using the Cochrane Risk of Bias tools, level of evidence 2b for all included studies Descriptive statistics: - number of patients in the included studies ranged from 14 to 1 203 patients; - mean patient age ranged from 37 to 56 years; - Patients undergoing bariatric surgery had a BMI ranging from 41 to 51 kg/m2, - the included studies varied in the assessment tools used to evaluate the patient's hip or knee joint pain Heterogeneity: - high Publication bias: - n. a. **Results (for weight):** improved hip and knee osteoarthritis following marked weight loss secondary to bariatric surgery	2000;15:1003-8 Abu-Abeid S, et al. Obes Surg. 2005;15:1437-42 Hooper MM, et al. Int J Obes (Lond). 2007;31:114-20 Korenkov M, et al. Obes Surg. 2007;17:679-83 Peltonen M, et al. Pain. 2003;104:549-57		High heterogeneity, Insufficient reporting of quality assesstment, Publication bias alnalysis n. a.
Systematic review (Milestone paper)	De Groot NL, et al. (2009) [31]	PubMed, EMBASE and the Cochrane Library, search terms: combining the words obesity and gastro-oesophageal	**Primary outcomes:** the effect on GERD (measured by 24-h pH monitoring, manometry, endoscopy and⁄or radiological	**Included studies:** - 32 studies (5 RCT; 27 cohort/case control studies) Study quality: - The quality of studies was assessed according to the Cochrane library definitions; 5 studies with level of evidence 2; 27 studies with level of evidence 3; 3 studies with level of evidence 4 Descriptive statistics:	Fraser-Moodie CA, et al. Scand J Gastroenterol 1999 Austin GL, et al. Dig Dis Sci 2006 Mathus-Vliegen EMH, et al. Scand J Gastroenterol 2002	2-	Focused study question, search strategy was insufficient reported, Middle-bad quality of included studies Publication bias n. a.

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		reflux with bariatric surgery, diet, lifestyle intervention and weight loss inclusion criteria: (i) obese or overweight patients (ii) Data on gastro-oesophageal reflux symptoms and⁄or an established diagnosis of GERD. (iii) Treatment modalities included a type of bariatric surgery (gastric banding, VBG or RYGB), diet and⁄or diet⁄lifestyle intervention excluded:	techniques, the reduction in reflux symptoms was evaluated by questionnaires) **Secondary outcome:** weight reduction (measured in kg, in percentages of original weight or in decreased BMI); percentage of excess weight loss.	- mean BMI ranged from 23.5 to 53 kg/m2, number of patients ranged from 8 to 587 Heterogeneity: - n. a. Publication bias: - n. a. **Results (for weight):** Four of seven studies reported an improvement of GERD. For Roux-en-Y gastric bypass: positive effect on GERD was found in 8 studies (mainly evaluated by questionnaires) For vertical banded gastroplasty: no change or an increase of GERD For laparoscopic adjustable gastric banding: conflicting results.	Mathus-Vliegen EMH, et al. Digestion 2003 Frederiksen SG, et al. Eur J Surg 2000 Kjellin A, et al. Scand J Gastroenterol 1996 Mathus-Vliegen LM, et al. Eur J Gastroenterol Hepatol 1996 Clements RH, et al. Obes Surg 2003 Frezza EE, et al. Surg Endosc 2002 Jones KB et al. Obes Surg 1991 Jones KB, Obes Surg 1998 Nelson LG, et al. Am Surg 2005 Perry Y, et al. JSLS 2004 Smith SC, et al. Obes Surg 1997 Patterson EJ, et al. Surg Endosc 2003 Korenkov M, et al. Obes Surg 2002 Merrouche M, et al. Obes Surg 2007 Ortega J, et al. Obes Surg 2004		

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		case reports and expert opinions search date n. a.			Di Francesco V, et al. Obes Surg 2004 Deitel M, Am J Surg 1988 Papavramidis TS, et al. Obes Surg 2004 Ovrebo KK, et al. Ann Surg 1998 Naslund E, et al. Eur J Surg 1996 Lundell L, et al. Eur J Surg 1997 Angrisani L, et al. Obes Surg 1999 Dixon JB, et al. Obes Surg 1999 Iovino P, et al. Surg Endosc 2002 de Jong JR, et al. Obes Surg 2006 de Jong JR, et al. Obes Surg 2004 Klaus A, et al. Arch Surg 2006 Weiss HG, et al. Am J Surg 2000 Weiss HG, et al. Obes Surg 2002 Tolonen P, et al. Obes Surg 2006 Suter M, Arch Surg		

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					2005		
Cochrane Review (Milestone paper)	Chavez-Tapia NC, et al. (2010) [32]	Search strategy: The Cochrane Hepato-Biliary Group Controlled Trials Register, the Cochrane Central Register of Controlled Trials (CENTRAL) in The Cochrane Library, MEDLINE, EMBASE, and Science Citation Index Expanded to October 2009 plus: handsearching Inclusion criteria: RCT evaluating any bariatric procedure versus no intervention, placebo or	**Bariatric procedures including:** Roux-en-Y gastric bypass, gastric banding, vertical banded gastroplasty, duodenal switch, biliopancreatic diversion, isolated intestinal bypass, and gastrectomy versus no intervention, placebo (sham procedure), or other interventions. Co-interventions were to be allowed only if equally received in the intervention groups **Primary outcome measures:** All-cause mortality: number of deaths irrespective of cause at maximal	**Included studies:** - twenty-one prospective or retrospective cohort studies ("We could not find any randomised clinical trials that could fulfill the inclusion criteria of this review regarding benefits.") Study quality: - assessment of risk of bias were reported: Generation of the allocation sequence, allocation concealment, Blinding, Incomplete outcome data, Selective outcome reporting, Any other bias Descriptive statistics: - 15 studies were prospective cohorts, five studies were based on retrospective cohorts, and one study used a retrospective and prospective cohort. - The number of the included participants ranged from 7 to 381 obese patients. - Surgical techniques used in the studies were heterogeneous between and within studies. The most common procedure was Roux-en-Y gastric bypass (thirteen studies) followed by adjustable gastric band (six studies). - The period of follow-up ranged from about 1 to 5 years; during this follow-up only two studies performed more than one biopsy after bariatric surgery Heterogeneity: - high Publication bias: - funnel plots, Egger test	Ranløv 1990 Silverman 1995 Luyckx 1998 Dixon 2004 Kral 2004 Clark 2005 Keshishian 2005 Mattar 2005 Mottin 2005 Stratopoulos 2005 Barker 2006 Csendes 2006 de Almeida 2006 Dixon 2006 Jaskiewicz 2006 Klein 2006 Mathurin 2006 Meinhardt 2006 Furuya 2007 Liu 2007 Mathurin 2009	2+	Methodological heterogeneity and high risk for bias of included studies

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		other interventions in patients with NASH; alternative Quasi-randomised clinical studies	follow-up. Surgical-related mortality. Surgical-related morbidity. Hepatic-related mortality. Hepatic-related morbidity. Cardiovascular-related mortality. Cardiovascular-related morbidity. Histological response (number of patients without histological improvement in the degree of fatty liver infiltration, inflammation, and fibrosis) based on any score systems or their modifications.	**Results (for weight):** Regarding histological outcomes, 18 studies reported a significant improvement in the degree of steatosis 11 studies reported improvement in histological markers of inflammation 6 studies showed some improvement in fibrosis scores. in 4 studies some deterioration in the degree of fibrosis was described. The studies included in this review did not directly report adverse-events rates after bariatric surgery. 2 trials reported histological score deterioration in a small percentage of patients: similarly, two studies reported NASH global scores, and four studies reported an increase in hepatic fibrosis. All other fourteen studies did not report any adverse events.			
Systematic review and Meta-analysis (Milestone paper)	Flegal KM, et al. (2013) [33]	Search in PubMed and EMBASE through September 30, 2012 without	Outcome: mortality	**Included studies:** - 97 prospective studies Study quality: 1 reviewer (1 screen), 3 reviewer - review - Adequately adjustment was assessed: studies if they were adjusted for age, sex, and smoking and not adjusted for factors in the causal pathway between	97 studies were included: see study references	1+	Publication bias analysis n.a., high heterogeneity in most categories ; large included population, only one reviewer for all studies

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		language restrictions Inclusion: Articles that reported HRs for all-cause mortality using standard BMI categories, prospective studies of general populations of adults Exclusion : Studies nonstandard categories or that were limited to adolescents, only in institutional settings or to those with specific medical conditions or to those undergoing specific procedures		obesity and mortality, or if they had reported or demonstrated that adjustments or exclusions to avoid bias had shown little effect on their findings Descriptive statistics: - Regions of origin of participants included the United States or Canada (n=41 studies), Europe (n=37), Australia (n=7), China or Taiwan (n=4), Japan (n=2), Brazil (n=2), Israel (n=2), India (n=1), and Mexico (n=1). - studies included more than 2.88 million participants and more than 270 000 deaths - 93 studies for the BMI category of 25 to less than 30 (overweight), 61 studies for the BMI category of 30 or greater (obesity), and 32 studies for the BMI categories of 30 to less than 35 (grade 1 obesity) and 35 and greater (grades 2 - and 3 obesity) Heterogeneity: - random-effects model was used - Between-study heterogeneity was statistically significant in most categories - sensitivity analysis was performed Publication bias: - n.a. **Results:** - all-cause mortality HRs relative to normal weight: 0.94 (95% CI, 0.91-0.96) for overweight, 1.18 (95% CI, 1.12-1.25) for obesity (all grades combined), 0.95 (95% CI, 0.88-1.01) for grade 1 obesity, and 1.29 (95% CI, 1.18-1.41) for grades 2 and 3 obesity - results from adequately adjusted studies : the			

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				summary HRs were 0.94 (95% CI, 0.90-0.97) for overweight, 1.21 (95% CI, 1.12-1.31) for obesity (all grades), 0.97 (95% CI, 0.90-1.04) for grade 1 obesity, and 1.34 (95% CI, 1.21-1.47) for grades 2 and 3 obesity - Authors conclusion : Relative to normal weight, both obesity (all grades) and grades 2 and 3 obesity were associated with significantly higher all-cause mortality. Grade 1 obesity overall was not associated with higher mortality, and overweight was associated with significantly lower all-cause mortality.			

Thema: Prävention

Aggregierte Evidenz

a) Leitlinien

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung

SIGN (2010): Management of Obesity. A national clinical guideline [4]	**Empfehlungen:**
	- Individuals consulting about weight management should be advised to reduce:
	  - intake of energy-dense foods (including foods containing animal fats, other high fat foods, confectionery and sugary drinks) by selecting low energy-dense foods instead (for example wholegrains, cereals, fruits, vegetables and salads)
	  - consumption of 'fast foods' (eg 'take-aways')
	  - alcohol intake
		B	n. a.	Domäne 3 (DELBI) 19 Punkte
				Bei der Suche nach Evidenz wurden systematischen Methoden angewandt

	- Individuals consulting about weight management should be encouraged to be physically active and reduce sedentary behaviour, including television watching.	B		
	- Adults consulting about weight management should be encouraged to undertake regular self weighing.	B		
	- Healthcare professionals should offer weight management interventions to patients who are planning to stop smoking.	B		
	- Weight management measures should be discussed with patients who are prescribed medications associated with weight gain.	B		
	- Where relevant, patients should be advised that use of combined contraceptives or hormone replacement therapy is not associated with significant weight gain.	B		
	Zitierte Literatur: - A World Cancer Research Fund (WCRF) systematic	2++	WCRF. Washington DC, AICR; 2009 (R. 71)	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	review developed a range of evidence based conclusions on the associations between dietary components and obesity: - low energy-dense foods (including wholegrains, cereals, fruits, vegetables and salads) probably protect against weight gain, overweight, and obesity - high energy-dense foods (including foods containing animal fats, other high fat foods, confectionery and sugary drinks) are probably a cause of weight gain, overweight, and obesity, particularly when large portion sizes are consumed regularly - sugary drinks probably cause weight gain, overweight, and obesity - 'fast foods' probably cause weight gain, overweight, and obesity.		NICE 2006 Malik VS, 2006 Maskarinec G, 2006 Vartanian LR, 2007 Harland JI, 2008 Rosenheck R, 2008 (R: 64,72-76) Kay SJ, 2006 Fogelholm M, 2002 (R. 64,77,78) Asikainen TM, (R. 79) Saris WH, 2003(R. 80) DoH; 2004 (R. 81) Vanwormer JJ, 2008 (R. 82) Neumark-Sztainer D, 2006 (R. 83)	
	- Adults are more likely to maintain a healthy weight if they reduce consumption of high energydense foods through selection of a low-fat, high fibre diet, consuming fewer take-aways, eating more fruit, wholegrains, vegetables and salads, minimising alcohol intake and consuming less confectionery and fewer sugary drinks.	2+ 2++	Pisinger C, et al. Prev Med. 2007; 44(4):290-5 Parsons AC, et al. In: The Cochrane Library, Issue 1, 2009 Novello AC. Public Health Rep. 1990;105(6):545-8	
	- A systematic review concluded that there is likely to be a causal relationship between physical inactivity and obesity	2++	Leslie WS, et al. QJM 2007;100(7):395-404 Alvarez-Jimenez M, et al. Br J Psychiatry 2008;193(2):101-7	
	- Television viewing is a form of sedentary behaviour which may be associated with snacking on energy-dense foods. Evidence from cohort studies is inconsistent about the associations between television viewing and weight gain. In a systematic review, some but not all studies found a significant positive association between television viewing and weight gain.	2+	Gallo MF, et al. In: The Cochrane Library, Issue 1, 2006 Kongnyuy EJ, et al. In: The Cochrane Library, Issue 3, 1999	
	- The WCRF review suggests that the mechanistic evidence for television viewing, particularly that on energy	2++		

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	input, output, and turnover, is compelling. Television viewing is probably a cause of weight gain, overweight, and obesity. It has this effect by promoting an energy intake in excess of the relatively low level of energy expenditure.			
	- Adults are more likely to maintain a healthy weight if they have an active lifestyle and reduce their inactivity.	1+ 2+		
	- A systematic review of RCTs in early postmenopausal women suggested that walking at least 30 minutes per day plus twice weekly resistance exercise sessions is likely to be effective in improving health related fitness, one factor of which was weight control.	1++		
	- International consensus guidelines, based largely around data from epidemiological prospective studies using physical activity estimates obtained through questionnaires, recommend that adults should engage in 45-60 minutes of moderate intensity physical activity per day to prevent the transition to overweight or obesity.	4		
	- This level of activity is greater than current UK physical activity recommendations for general health (5 x 30 minutes of moderate intensity physical activity per week)	4		
	- In a systematic review, more frequent self weighing was associated with greater weight loss and weight gain prevention.	2+		
	- In a cohort of adolescents, frequent self weighing was associated with unhealthy weight control behaviours such as fasting, use of diuretics and vomiting.	2+		
	- Those who quit smoking for at least a year experience greater weight gain than their peers who continue to smoke. The amount of weight gained after smoking cessation may differ by age, social status and certain behaviours. One follow-up study of a cross-sectional survey covering European adults also found substantially	2 +		

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	greater weight gain and increased waist circumference at one year in those who quit compared with those who continued to smoke.	2++		
	- A high quality systematic review of interventions to prevent weight gain after smoking cessation found that individualised interventions, very low calorie diets and cognitive behavioural therapy may reduce the weight gain associated with smoking cessation, without affecting quit rates. Additionally, exercise interventions may be effective in the longer term (12 months). General advice to avoid weight gain was not effective and may reduce quit rates.	4		
	- The health benefits of smoking cessation are broad and are likely to outweigh risks of weight gain.	2++		
	- A well conducted systematic review considered studies of greater than 12 weeks duration and found a large range of medications was associated with weight gain. In most cases, the observed weight gain was greatest within the first six months.90 In particular, the following medications were found to be associated with weight gain, up to 10 kg in some cases, at 12 weeks from commencement: atypical antipsychotics, including clozapine; beta adrenergic blockers, particularly propranolol; insulin, when used in the treatment of type 2 diabetes mellitus; lithium; sodium valproate; sulphonylureas, including chlorpropamide, glibenclamide, glimepiride and glipizide; thiazolidinediones, including pioglitazone; tricyclic antidepressants, including amitriptyline.	1+		
	- Adjunctive non-pharmacological weight management interventions are effective in reducing or attenuating antipsychotic induced weight gain when compared with treatment as usual in patients with schizophrenia	1++		
	- A Cochrane systematic review of 44 randomised controlled trials (RCTs) considered the effects of combined contraceptives on body weight. Only three trials			

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	were placebo controlled and these did not find an association between combined contraceptive use and weight gain. - A Cochrane systematic review of 28 RCTs considered the potential contribution of hormone replacement therapy (HRT) to body weight and fat distribution. Unopposed oestrogen HRT and oestrogen/progesterone HRT for three months to four years in peri- and postmenopausal women of all ethnicities showed no significant effect on weight gain or BMI in those with/without HRT in each category. There was generally poor control for baseline co-variates of increased body weight.	1++		
NICE (2006): Obesity guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children [7]	**Empfehlungen:** - Public Health: NHS: Managers and health professionals in all primary care settings should ensure that preventing and managing obesity is a priority, at both strategic and delivery levels. Dedicated resources should be allocated for action. - Local health agencies should identify appropriate health professionals and ensure that they receive training in the health benefits and the potential effectiveness of interventions to prevent obesity, increase activity levels and improve diet (and reduce energy intake) - 1.7.4.19 To prevent obesity, most people should be advised they may need to do 45–60 minutes of moderate-intensity activity a day, particularly if they do not reduce their energy intake. People who have been obese and have lost weight should be advised they may need to do 60–90 minutes of activity a day to avoid regaining weight.	n. a.	n. a.	Domäne 3 (DELBI) 17 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt
	Zitierte Literatur: - People should follow the strategies listed in box 1, which may make it easier to maintain a healthy weight by balancing ‘calories in’ (from food and drink) and ‘calories	2++	Williamson, et al. 1996 Saris, et al. 2003	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	out' (from being physically active). Box 1 Strategies to help people achieve and maintain a healthy weight Diet - Base meals on starchy foods such as potatoes, bread, rice and pasta, choosing wholegrain where possible. - Eat plenty of fibre-rich foods – such as oats, beans, peas, lentils, grains, seeds, fruit and vegetables, as well as wholegrain bread and brown rice and pasta. - Eat at least five portions of a variety of fruit and vegetables each day, in place of foods higher in fat and calories. - Eat a low-fat diet and avoid increasing your fat and/or calorie intake. - Eat as little as possible of: - fried foods - drinks and confectionery high in added sugars - other food and drinks high in fat and sugar, such as some take-away and fast foods. - Eat breakfast. - Watch the portion size of meals and snacks, and how often you are eating. For adults, minimise the calories you take in from alcohol. - There is a body of evidence from cohort studies that adults are more likely to maintain a healthy weight if they consume a low-fat diet containing less 'takeaway' foods, more fruit and vegetables, salad and fibre and little alcohol. Reducing consumption of confectionary and drinks high in sugar may also help to prevent weight gain	2+ 2+	Nooyens, et al. 2005; Klesges, et al. 1992; Owens 1992; Gerace and George 1996; DiPietro, et al. 1998; Martikainen and Marmot 1999; Field, et al. 2001; Ball, et al. 2002; Bell, et al. 2001; Droyvold, et al. 2004; Sundquist and Johannson, 1998; Wagner, et al. 2001; Greenlund, et al. 1996; Sternfeld, et al. 1999; Lissner, et al. 1997; Kahn and Williamson 1990; Rissanen, et al. 1991; French and Jea 1994; Kahn, et al. 1997; Parsons, et al. 2005; Sammel, et al. 2003; Ball, et al. 2002; Pereira, et al. 2005; Greenlund, et al. 1996; He, et al. 2004; Schulze, et al. 2004; Koh-Banerjee, et al. 2003; Schulz, et al. 2005; Quatromoni, et al. 2002 Rissanen, et al.1991; Klesges, et al. 1992 (both for women only, out of Williamson 1996 review); French, et al. 1994; Kahn, et al. 1997; Parson, et al. 2005; Sammel, et al. 2003; Ball, et al. 2002; Greenlund, 1996; He, et al. 2004; Schulze, et al. 2004; Koh-Banerjee, et al. 2003; Martikainen and Marmot 1999; Schulz, et al. 2005; Quatromoni, et al. 2002; Nooyens, et al. 2005	
CMA (2006):	**Empfehlungen:**			Domäne 3 (DELBI)

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
Canadian clinical practice guidelines on the management and prevention of obesity in adults and children [8]	- The use of surveillance systems and measurement tools is encouraged to determine the effectiveness and efficacy of obesity prevention programs and interventions. The development of a comprehensive, coordinated and rigorous surveillance plan with strong links among program developers, advocates, policy-makers and other stakeholders is encouraged as a key component in obesity prevention.	C/4	n. a.	15 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt
	- Obesity prevention should take a multisector approach-similar to that used for tobacco control in Canada. Prevention efforts should invest in and target all age groups and span life from infancy to old age. Innovative ways to provide access and programs to less economically viable citizens should be developed.	C/4	n. a.	
	- Programs that combine a low-fat or energy-reduced diet and endurance exercise have not been shown to be more effective than programs using either component alone for obesity prevention; both approaches should be considered.	B/3	n. a.	
	- CMAJ suggest that individual and small-group counselling for dietary interventions be considered for the prevention of obesity in adults. Counselling by telephone, counselling by mail and financial incentives do not appear to be effective, and we do not encourage their use.	B, C/2, 3	n. a.	
	- There is insufficient evidence to recommend in favour of or against broad community interventions aimed at cardiovascular disease risk reduction for the prevention of obesity.	C/3	n. a.	
	- CMAJ suggest limiting “screen time” (i.e., watching television, playing video or computer games) to no more than 2 hours a day to encourage more activity and less food consumption, and to limit exposure to food advertising.	B/3	n. a.	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	- The development of programs in multiple settings targeting behaviour change with parental and family involvement is encouraged.	C/4	n. a.	

b) Systematischer Review, Metaanalyse, HTA

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
Systematic review	Brown T, et al. (2009) [34]	RCTs, CBA No language restriction from 1990 included studies: due to lifestyle intervention, age, BMI, duration Medline, Embase, Cinahl et al. Literature search in 4 phases RevMan	Lifestyle interventions: diet, exercise, behaviour, environmental versus control Primary outcome: weight and other risk factors, morbidity and mortality	**Included studies:** Study quality: (Randomization/Dropout rate/intention-to-treat): - 39 RCTs and 1 CBA, separat analysed - Quality assestment strategy was used - 12 studies reported allocation concealment - 10 applying Intention-to-treat - 2 reported blinding Descriptive statistics: - lifestyle interventions (diet, exercise, behaviour, environmental) - in adults (18 - 65 years) - body mass index (BMI) < 35 kg m2 - reporting weight at least 2 years post randomization Heterogeneity: - n. a. Publication bias: - n. a. **Results:** - limited evidence for lifestyle interventions to	Ashley JM, et al. Obes Res. 2001;9(Suppl. 4):312s-20s Blonk MC, et al. Diabet Med. 1994;11:449-57 Borg P, et al. Int J Obes Relat Metab Disord. 2002;26:676-83 Kukkonen-Harjula KT, et al. Prev Med. 2005;41:784-90 Boyd NF, et al. J Natl Cancer Inst. 1997;89:488-96 Ditschuneit HH, et al. Am J Clin Nutr, 1999;69:198-204 Flechtner-Mors M, et al. Obes Res. 2000;8:399-402 Orchard TJ, et al. Ann Intern Med. 2005;142:611-	1+	CI and p-values of RCT-results are often n. a. study quality: gut reported in ca. 1/3 - 1/4 of studies Publication bias: n. a. Small groups with similar intervention, high heterogeneity of studies

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				prevent weight gain in healthy normal-weight adults within the community Outcome: weight, studies where the primary intention was not to lose weight Dietary interventions vs. Control: - 2 RCTs: association between low-fat non-reducing diet with weight change: -1.42 kg (95 % CI -2.10 to -0.74), Duration: 24 months - 2 RCTs: Duration 24 months, signifikant weight change, Intervention group -1.6 kg vs. control +1.5 kg - intensive diet group: increased mean weight by 2.09 kg and the routine diet group increased weight by 1.57 kg, at a median of 51 months of follow-up. Behavioural interventions vs. Control: - 1 RCT: Duration 24 months: no significant effect on weight Diet and exercise vs. Control: - 1 Study (809 individuals): intervention did not prevent weight gain, duration 24 and 36 months Diet and behaviour vs. Control (8 Studies): - duration 36 months: significant weight change: -1.01 kg (95 % CI -1.34 to -0.68 kg, 2 studies) at 24 months, -1.77 kg (95 % CI -1.94 to -1.59 kg, 3 studies), - duration 48 months: -0.52 kg (95 % CI -0.85 to -0.19 kg, 2 studies) - duration 90 months -0.70 kg (95 % CI -0.90 to -0.50 kg, one study) Diet, exercise and behaviour therapy vs. Control:	9 Diabetes Prevention Program Research Group. N Engl J Med. 2002;346:393-403 Tuomilehto J, et al. N Engl J Med. 2001;344:1343-50 Lindstrom J, et al. Lancet. 2006;368:1673-9 Heshka S, et al. JAMA. 2003;289:1792-8 Jones DW, et al. Am J Hypertens. 1999;12(Pt1-2):1175-80 Hypertension Prevention Trial Research Group. Arch Intern Med. 1990;150:153-62 Jeffery RW, Wing RR. J Consult Clin Psychol. 1995;63:793-6 Kristal AR, et al. Cancer Epidemiol Biomarkers Prev. 2005;14:2377-83 Kuller LH, et al. Circulation. 2001;103:32-7 Mensink M, et al. Obes Res. 2003;11:1588-96 Oldroyd JC, et al. Diabetes Res Clin Pract. 2006;72:117-27		

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				- 284 individuals: non-significant weight changes, duration 24 and 36 months - not significant difference between clinic-and home-based interventions Diet plus exercise vs. Diet: - Low-fat diet - Exercise: walking or resistance training, amount 3.6 - 8.4 MJ/wk - non-significant weight change, duration 29 - 33 months	Page RC, et al. Diabet Med. 1992;9:562-6 Jeffery RW, French SA. Am J Public Health. 1999;89:747-51 Ramachandran A, et al. Diabetologia. 2006;49:289-97 Simonen P, et al. Am J Clin Nutr. 2000;72:82-8 Singh RB, et al. J Am Coll Nutr. 1996;15:592-601 Davis BR, et al. Arch Intern Med. 1993;153:1773-82 Davis BR, et al. Hypertension. 1992;19:393-9 Davis BR, et al. Am J Hypertens. 1994;7:926-32 Trials of Hypertension Prevention Collaborative Research Group. et al. Arch Intern Med. 1997;157:657-67 Stevens VJ, et al. Ann Intern Med. 2001;134:1-11 de Waard FD, et al. Eur J Cancer Prev. 1993;2:233-8 Sheppard L, et al. Am J		

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
					Clin Nutr. 1991;54:821-8 Insull W, et al. Arch Intern Med. 1990;150:421-7 Chlebowski RT, et al. J Clin Oncol. 1993;11:2072-80 Howard BV, et al. JAMA. 2006;295:39-49 Ditschuneit HH, et al. Obes Res. 2001;9(Suppl. 1):284s-9s Diabetes Prevention Program Research Group, Crandall J, et al. J Gerontol A Biol Sci Med Sci. 2006;61:1075-81 Prentice RL, et al. JAMA. 2006;295:629-42 Beresford SA, et al. JAMA. 2006;295:643-54 Dunn AL, et al. JAMA. 1999;281:327-34 Esposito K, et al. JAMA. 2004;292:1440-6 Fogelholm M, et al. Arch Intern Med. 2000;160:2177-84 Hivert MF, et al. Int J Obes. 2007;31:1262-9 King AC, et al. Circulation. 1995;91:2596-604		

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					Lanza E, et al. Am J Clin Nutr. 2001;74:387-401 Levine MD, et al. Obesity. 2007;15:1267-77 Sherwood NE, et al. Int J Obes. 2006;30:1565-73 Tate DF, et al. Am J Clin Nutr. 2007;85:954-9 Turner-McGrievy GM, et al. Obesity. 2007;15:2276-81 Wein P, et al. Aust N Z J Obstet Gynaecol. 1999;39:162-6 Pierce JP, et al. JAMA. 2007;298:289-98 Ilanne-Parikka P, et al. Diabetes Care. 2008;31:805-7 Lanza E, et al. Cancer Epidemiol Biomarkers Prev. 2007;16:1745-52 Prentice RL, et al. J Natl Cancer Inst. 2007;99:1534-43 Tinker LF, et al. Arch Intern Med. 2008;168:1500-11 Chlebowski RT, et al. J Natl Cancer Inst. 2006;98:1767-76		

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
					Quinn Rothacker D. Nutrition. 2000;15:344-8		
Systematic review	Neville LM, et al. (2009) [35]	Included: RCTs or quasi-experimental design published 1996-2008, due to intervention Language restriction: english Medline, Embase, Cinahl et al. Keywords are reported	Second or third generation computerised intervention in which tailored nutrition, physical avtivity or weight loss advice was generated through a computerised system and delivery was inclusive of, but not exclusive to, the electronic technology Primary Outcome: body mass, body weight or waist circumference	**Included studies:** Study quality: (Randomization/Dropout rate/intention-to-treat): - 6 RCTs - National Public Health Partnership guidlines were used for evaluating evience of intervention - Internal and external vlidity criteria were reported - Small or unrepresentative sample - Only 2 studies reported a rationale for sample size - 3 studies described dropouts - 5 studies reported randomizations procedure Descriptive statistics: - Duration: 5 RCTs 2-3 months, 1 RCT 6 months Heterogeneity: - n. a. Publication bias: - n. a. **Results:** 5 RCTs: short-medium term positive effects on weight outcomes - 3 RCTs (small groups: N = 57/39, long-term follow-up not mantained): reported significant positive effects between groups. - 1 RCT (N = 31 women): conflicting results for different fitness and weight reduction outcomes - 2 RCTs: positive within groups effects The evidence of effectiveness or efficacy of	Booth et al., Health educ Res. 2008;23(3):371-81 Cook et al., J Med Interner Res, 2007:9(2):e17 Spittaels et al. Health educ Res. 2007;22(3):385-96 Winett et al. Ann Behav Med. 2007;33(3):251-61 Hagemann et al. J Geriatr Phys Ther. 2005;28(1):28-33 Veverka et al. Mil Med. 2003;168(5):373-9	1-	Study quality: insufficient reporting (blinding, allocation consealment, ITT) publications bias not analysed small patient groups

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				computer-tailored primary prevention interventions targeting weight reduction is limited to a small number of studies which are heterogeneous.			
Systematic review	Lombard CB, et al. (2009) [36]	Databases: Medline, Psychinfo, Embase, EBM reviews, CINHAL Keywords were reported Search strategy in details was extra reported Studies: RCTs Included due to: primary outcome, study design, study duration, follow-up Excluded due to comorbidity, outcome, intervention	Interventions: diet, physical activity, behaviour Primary outcome: to prevent weight gain in adults	**Included studies:** Study quality: (Randomization/ Dropout rate/ intention-to-treat): - 9 RCTs (one study used a modified randomization) - unit of randomization: individuals (seven studies), families (one study) or schools (one study) - One study adjusted for clustering effect created by the randomization method - Five studies reported on intention-to-treat analysis - Two studies reported weight data using multivariate models adjusted for confounding baseline variables Descriptive statistics: - Duration: varied from 13 weeks to 5 years: - 3 studies 16 weeks or less, 2 studies for 1 year, 2 studies were for 2 years, 1 study was for 3 years and one was for 5 years - Overall: 375 men and 1 595 women - process information was not always reported - all studies inconporated diet, physical activity and behaviour components Heterogeneity: - n. a. Publication bias: - n. a. **Results:**	Eiben G, Lissner L. Int J Obes (Lond). 2006;30:691-6 Hivert MF, et al. Int J Obes (Lond). 2007;31:1262-9 Jeffery RW, French SA. Am J Public Health. 1999;89:747-51 Levine MD, et al. Obesity (Silver Spring). 2007;15:1267-77 Klem ML, et al. Int J Obes Relat Metab Disord. 2000;24:219-25 Leermarkers EA, et al. Obes Res 1998;6:346-52 Lombard C, et al. Int J Obes (Lond). 2008;32(Suppl.1):S34 Rodearmel SJ, et al. Obesity (Silver Spring). 2006;14:1392-401 Kuller LH, et al. Circulation 2001;103:32-7	1-	High heterogeneity between studies (different interventions, individuals groups) Few trials are available

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				Weight: - 5 RCTs showed a significant difference in weight between groups: - Weight change by group (intervention vs. control): -1.9 vs. +2.6; -1.9 vs. +0.2; -0.2 vs. +0.8; -0.54 vs. +0.5; -0.1 vs. +2.4 - 4 RCTs reported no significant difference Diet: - The nature of diet varied - Only one study showed a significant decrease in energy intake (-669 kJ, -160 kcal) and fat intake measured by FFQ Physical activity: - 3 studies reported no significant difference in physical activity between groups - 1 study reported no change in fitness but a change in self-reported physical activity. - 3 studies showed limited change in physical activity Behaviour: - 2 studies were showed an association between frequent self-monitoring of weight and weight change			
Meta-analysis	Kremers S, et al. (2009) [37]	Databases: Medline (PubMed) Keywords were reported Studies: different design	lifestyle interventions aimed at prevention of overweight and obesity in the adult population (> 18 years) with primary programme objective: weight	**Included studies:** 46 studies: - 5 studies in which workplace interventions were evaluated - 15 community-based intervention studies - 5 intervention studies were identified that targeted a general patient population or high-risk patients	Gomel M, et al. Am J Public Health. 1993;83:1231-8 Jeffery RW, et al. Am J Public Health. 1993;83:395-401 Braeckman L, et al. Occup Med. 1999;49:549-55	1-	18 Studien an Frauen, 2 Studien an Menschen mit Down Syndrom eingeschlossen Publikations-bias, sehr

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		Included studies had to be published between January 1990 and the onset of the review, be written in English or Dutch, be primary studies and include one or more anthropometrical outcome measures (e.g. body weight, body mass index or skin-fold thickness) Excluded: studies of pregnant or [pre]menopausal women	mangement, prevention of weight gain or moderate weight loss	for primary prevention - 4 studies examined diverse ethnic groups e. g. Hispanics, African-American women - 4 studies were identified of prevention of excessive gestational weight gain for pregnant women - 2 studies Included women surrounding the menopause - 8 studies were identified that investigated the effect of smoking cessation including weight-control interventions - 2 intervention studies were identified that targeted at adults with learning disabilities and adults with Down's syndrome Descriptive statistics: - 28 studies (61 %) were executed in the USA, 14 in Europe (five in UK), two in Australia and two in Canada - participants ranged between 19 and 48 835 (mean 1 892; SD 7 328) - mean BMI at baseline was 27.3 (SD 3.4) - mean age was 42.1 years (SD 9.8) - mean duration of the interventions was 18.9 months (SD 22.4) Heterogeneity: - n. a. Publication bias: - n. a. **Results:** - In 45.7 % significant intervention effects on BMI - Effect sizes for changes in BMI was between	Proper KI, et al. Am J Prev Med. 2003;24:218-26 Kwak LN. The NHF-NRG in Balance Project Department of Human Biology. Maastricht University: Maastricht, 2007 Murray DM, et al. Prev Med. 1990;19:181-9 Shelley E, et al. Eur Heart J. 1995;16:752-60 Baxter T, et al. BMJ. 1997;315:582-5 Jeffery RW, et al. Int J Obes. 1997;21:457-64 Jeffery RW, French SA. AmJ Public Health. 1999;89:747-51 O'Loughlin JL, et al. Am J Public Health. 1999;89:1819-26 Donnelly JE, et al. Arch Intern Med. 2003;163:1343-50 Schmitz KH, et al. Int J Obes Relat Metab Disord. 2003;27:326-33 Dzator JA, et al. J Clin Epidemiol. 2004;57:610-9 Slentz CA, et al. Arch		heterogene Studien

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				-0.09 and 0.45, a mean effect size was 0.06 (95 % CI = 0.04 - 0.08) - univariate regressions: when the programme goal was specifically aimed at weight management, the intervention was found to be more successful than programme goals that were aimed at preventing cardiovascular disease or improving general health status (standardized b = 0.37; p = 0.01). - Positive assiciation of intervention duration with intervention effectiveness at a level p ≤ 0.15	Intern Med. 2004;164:31-9 Jenum AK, et al. Diabetes Care. 2006;29:1605-12 Levitsky DA, et al. Int J Obes. 2006;30:1003-10 Schuit AJ, et al. Am J Prev Med. 2006;30:237-42 Hivert MF, et al. Int J Obes. 2007;31:1262-9 Salyer J, et al. Prog Transplant. 2007;17:315-23 Family Heart Study Group. BMJ. 1994;308:313-20 Andersen RE, et al. JAMA. 1999;281:335-40 Riebe D, et al. Prev Med. 2003;36:45-54 Jackson C et al. J Adv Nurs. 2007;58:23-34 McConnon A, et al. BMC Health Serv Res. 2007;7:206 Howard-Pitney B, et al. Am J Public Health. 1997;87:1971-6 Yanek LR, et al. Public Health Rep. 2001;116(Suppl.1):68-81		

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					Hall WD, et al. Ethn Dis. 2003;13:337-43 Winett RA, et al. Ann Behav Med. 2007;33:251-61 Clapp JF III, Little KD. Med Sci Sports Exerc. 1995;27:170-7 Polley BA, et al. Int J Obes Relat Metab Disord. 2002;26:1494-502 Olson CM, et al. Am J Obstet Gynecol. 2004;191:530-6 Kuller LH, et al. Circulation. 2001;103:32-7 Simkin-Silverman LR, et al. Ann Behav Med. 2003;26:212-20 Howard BV, et al. JAMA. 2006;295:39-49 Hall SM, et al. Am J Public Health. 1992;82:799-803 Pirie PL, et al. Am J Public Health. 1992;82:1238-43 Danielsson T, et al. BMJ. 1999;319:490-3 Marcus BH, et al. Arch Intern Med. 1999;159:1229-34 Jonsdottir D, et al. Scand		

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
					J Caring Sci. 2001;15:275-82 Perkins KA, et al. J Consult Clin Psychol. 2001;69:604-13 Spring B, et al. J Consult Clin Psychol. 2004;72:785-96 Copeland AL, et al. Addict Behav. 2006;31:115-27 Rimmer JH, et al. Am J Ment Retard. 2004;109:165-74 Chapman MJ, et al. J Intellect Disabil. 2005;9:131-44		
Systematic review	Enwald HP, et al. (2010) [38]	Databases: MEDLINE, Science Direct, Google Scholar, CSA, EBSCO, LISTA, Emerald Journals, Web of Science (ISI), and ABI/Inform (ProQuest); Keywords were reported; not limited by	second generation tailored health communication (using interactive media e. g. E-Mail, Internet)	**Included studies:** - 21 RCTs and 2 quasi-experimental design (nonrandomized controlled Trials) - 10 studies focused on behavior change in nutrition, 7 on change in physical activity, 2 on change in both nutrition and physical activity, and 4 on behavior change related to weight management - 14 studies did not include a no-information control group Descriptive statistics: - 8 studies included more than 500 participants, 6 studies included less than 100 participants - Duration: most (20) studies were short (6 months or less)	Oenema A, et al. Ann Behav Med. 2005;29(1):54-63 Kroeze, et al. J Nutr Educ Behav. 2008;40(4):226-36 Booth, et al. Health Educ Res. 2008;23(3):371-81 Oenema A, et al. Health Educ Res. 2001;16(6):647–60 Block, et al. Prev Chronic Dis. 200415;1(4):A06 Dunton, et al. Prev Med. 2008;47(6):605-11 Frenn, et al. Appl Nurs	1-	Die meisten Outcomes sind nicht relevant (Verhaltensänderungen usw.), nur in 4 Studien relevante Outcomes Gruppen sehr heterogen bzgl. Intervention-Design, Dauer, Geschlecht, Abbrechquoten, Ethnien, Bildungsgrade

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
		publication date Included: RCT or quasi-experimental designs with pretest and posttest; focused on second generation interventions; focused on health behavior related to nutrition, physical activity, or weight management, alone or in combination; measured or assessed behavioral, psychological, or physiological outcomes; included design; full text available Excluded:		**Results:** Nutrition interventions: more positive results (possible cause: fruit and vegetable consumption is a relatively easy behavioral change) physical activity interventions: less positive results - many studies ended up with negative outcomes from the perspective of tailoring - physical activity measurements were conducted both objectively and by self-report - In 4 physical activity studies, the outcomes were mixed or negative from the perspective of tailoring Tailoring: In 6 studies (2 on nutrition, 3 on physical activity and 1 on weight management), tailoring did not increase the effectiveness of the intervention. - In some studies the effectiveness of the intervention was reported as mixed from the perspective of tailoring: some measured indicators may have been better and others worse when compared with the control group. 4 Weight management-studies: - in 3: significantly decreases in weight loss, but 1 with a high attrition rate; - in 1 study: self-reported and objectively measured results might not always be in line. The tailored intervention group ended up with significantly greater objectively measured weight loss and greater reduction in waist circumference.	Res. 2005;18(1):13-21 Hageman, et al. J Geriatr Phys Ther. 2005;28(1):28-33 Irvine, et al. Health Educ Res. 2004;19(3):290-305 Luszczynska, et al. Health Educ Res. 2007;22(5):630-8 Marcus, et al. Arch Intern Med. 200714;167(9):944-9 Napolitano, et al. Ann Behav Med. 2003;25(2):92-9 Di Noia, et al. Am J Health Promot. 2008;22(5):336-41 Papadaki, et al. Patient Educ Couns. 2008;73(2):256-63 Park, et al. J Nutr Educ Behav. 2008;40(5):288-97 Rothert, et al. Obesity (Silver Spring). 2006;14(2):266-72 Spittaels, et al. Health Educ Res. 2007;22(3):385-96 Tate, et al. Arch Intern Med. 2006;166(15):1620-		Selektionsbias

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		measured only the feasibility and acceptability of computer-delivered tailored health communica-tion; focused on diabetes self-management; gave advice in computer kiosk or in an online Internet shopping site			5 Tate DF, et al. JAMA. 2001;285(9):1172-7 de Vet Emely, et al. Health Educ Res. 2008;23(2):218-27 Walker, et al. Nurs Res. 2009;58(2):74-85 Wanner, et al. J Med Internet Res. 2009;11(3):e23 Oenema, et al. Ann Behav Med. 2008;35(2):125-35 Spittaels, et al. Prev Med. 2007;44(3):209-17		
Meta-analysis	Anderson LM, et al. (2009) [39]	RCTs, non-randomised studies, cohort designs, time serie Following Databases were used: Medline, Embase, Cinahl, Cochrane library et al. Up to 2005 Keywords were reported	Worksite interventions (nutrition and physical activity programs) Outcomes: different weight related outcomes including weight in pounds or kilograms, BMI and percentage body fat	**Included studies:** Study quality: (Randomization/ Dropout rate/ intention-to-treat): - 47 studies: 31 RCTs, 12 non-randomised studies, 3 cohort designs, 1 time series - Quality assessment: “Community Guide” was used - Studies with greatest or moderate design suitability and good or fair quality of execution were included - Random effect model - Only 2 RCTs reported intention-to-treat analysis - Many of the studies reported insufficient statistical information for statistical pooling with CIs - Randomization procedures, allocation concealment, blinding, drop outs n. a.	Abrams DB, Follick MJ. J Consult Clin Psychol. 1983;51(2):226-33 Anderson J, Dusenbury L. AAOHN J. 1999;47(3):99-106 Briley ME, et al. J Am Diet Assoc. 1992;92(11):1382-4 Cook C, et al N Z Med J. 2001;114(1130):175-8 DeLucia J, et al. J Subst Abuse. 1989;1:203-8 Forster JL, et al. J Occup Med. 1985;27(11):8084-8	1-	Heterogeneity: Results of Q-test n.a., only “not significant” Randomization procedure, allocation concealment, blinding, drop outs, publications bias not reported

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		Language restriction: only English Included due to: design, duration, weight status, intervention, outcome		Descriptive statistics: - Outcome measure at least 6 - 12 months from the start of intervention program - any weight status: normal, overweight, obese - Intervention: worksite health promotion programs including nutrition or physical activity programs or both with different implementations-strategies - Separate analysis of studies comparing intervention to untreated control and intervention to multiple treatment arm - The behaviour focus of 27 studies was on diet and physical activity, 10 diet only, 10 physical activity only - Duration was < 6 months in 19 studies, 6 - 9 months in 14 studies, 12 - 18 months in 8 studies, > 18 months in 6 studies - Different data were not reported (age in 70 % of studies, socioeconomic data and information about jobs in 40 % of studies, the size of worksite in 64 % of studies) Heterogeneity: - Q-Statistik was used - Analysis part II: 9 RCTs (outcome weight in pounds): Q-Test for heterogeneity was not significant Publication bias: - n. a. **Results:** - Analysis part I: all study design were used; - Analysis part II: effects separately by study design:	Furuki K, et al. J Occup Health. 1999;41:19-26 Gomel M, et al. Am J Public Health. 1993;83(9):1231-8 Jeffery RW, et al. Am J Public Health. 1993;83(3):395-401 Karlehagen S, Ohlson CG. Prev Med. 2003;37(3):219-25 Lovibond SH, et al. J Behav Med. 1986;9:415-37 Muto T, Yamauchi K. Prev Med. 2001;33(6):571-7 Nilsson PM, et al. Scand J Work Environ Health 2001;27(1):57-62 Nisbeth O, et al. Patient Educ Couns. 2000;40(2):121-31 Oden G, et al. Fitness Bus. 1989;4:198-204 Pohjonen T, Ranta R. Prev Med. 2001;32(6):465-75 Pritchard JE, et al. Nutr Diet. 2002;59(2):87-96 Anderson JV, et al. J Occup Med.		

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				- Analysis part II: RCTs:
				  - 9 RCTs; outcome **weight** in pounds: pooled effect was **-2.8 pounds (95 % CI -4.63 to -0.96)** in favour of intervention
				  - 3 RCTs: physical activity behaviours alone: effect was -2.24 pounds (95 % CI -6.49 to +2.00)
				  - 5 RCTs: physical activity and diet: effect was **-3.18 pounds (95 % CI -5.88 to -0.5)**
				  - One study: diet alone: weight loss was -1.71 (95 % CI -8.38 to +4.95)
				  - 6 RCTs; outcome **BMI**: pooled effect was **-0.47 (95 % CI -0.75 to -0.19)** in favour of intervention
				  - 3 cluster RCTs reported BMI outcomes in 6 months: pooled effect was -0.25 (95 % CI -0.64 to +0.14)
				- Subgroup analysis: **no association between program effectiveness and focus of program or behavioral focus**
				  - But: small number of studies in each category
					1993;35(8):800-4
					Cockcroft A, et al. Occup Med (Lond). 1994;44(2):70-6
					Elberson KL, et al. Outcomes Manag Nurs Pract. 2001;5(2):82-6
					Gerdle B, et al. J Occup Rehabil. 1995;5(1):1-16
					Hedberg GE, et al. Occup Environ Med. 1998;55(8):554-61
					Wier LT, et al. Aviat Space Environ Med. 1989;60:438-44
					Anderson J, Dusenbury L. AAOHN J. 1999;47(3):99-106
					Fukahori M, et al. J Occup Health. 1999;41(2):76-82
					Juneau M, et al. Am J Cardiol. 1987;60:66-77
					Krishnan N, et al. Indian J Ind Med. 2004;8(2):29-33
					Peterson G, et al. Behav Ther. 1985;16(A2):213-22
					Shimizu T, et al. J Occup Health. 2004;46(3):205-12
					Steinhardt M, et al. J Psychol. 1999;133(5):495-513		

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					Borenstein M, Englewood NJ. Biostat. 2006,(33) Briley ME, et al. J Am Diet Assoc. 1992;92(11):1382-4 Bruno R, et al. Prev Med. 1983;12(4):523-32 Crouch M, et al. Prev Med. 1986;15:282-91 Erfurt JC, et al. Am J Health Promot. 1991;5(6):438-48 Linenger JM, et al. Am J Prev Med 1991; 7(5):298–310 Okayama A, et al. Environ Health Prev Med 2004; 9(4):165–9 Elliot DL, et al. Am J Health Behav 2004; 28(1):13–23 Drummond S, Kirk T. J Hum Nutr Diet 1998;11:473–85 Robison JI, et al. Med Sci Sports Exerc 1992;24(1):85–93 Talvi AI, et al. Occup Med (Lond) 1999 Feb;49(2): 93–101 Barratt A, et al. Am J Public Health		

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					1994;84(5):779–82 Aldana SG, et al. J Occup Environ Med 2005;47(6):558–64 Grandjean PW, et al. J Sports Med Phys Fitness 1996;36(1):54–9 Harvey HL. Dissert Abstr Int B: Sci Eng 1998;60 (2B) Proper KI, et al. Am J Prev Med 2003; 24(3):218–26 Thorsteinsson R, et al. Scand J Prim Health Care 1994;12(2):93–9		
Systematic Review	Lin JS, et al. (2010) [40]	Included: - trials with primary care–relevant counseling on physical activity or healthful diet interventions - minimum follow-up - priori	counseling for both physical activity and dietary change with a focus on the prevention of cardiovascular disease	**Included studies:** Study quality: (Randomization/ Dropout rate/ intention-to-treat): - 66 studies, most of them RCTs - only 13 were good- quality trials Descriptive statistics: - minimum follow-up of 6 months after randomization Heterogeneity: - Statistical heterogeneity was high (I2= 70%) Publication bias: - n. a. **Results:**	13 studies of good quality: Elley CR, et al. BMJ. 2003;326:793 Kallings LV, et al. Eur J Cardiovasc Prev Rehabil. 2009;16:80-4 Kolt GS, et al. J Am Geriatr Soc. 2007;55:986-92 Lawton BA, et al. BMJ. 2008;337:a2509 Marcus BH, et al. Health Psychol. 2007;26:401-9 Martinson BC, et al. Prev	1-	High hetero-geneity only 13 were good- quality trials Randomization procedure, allocation concealment, blinding, drop outs, publications bias

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
		outcomes		Medium- to high-intensity dietary behavioral counseling, with or without physical activity counseling : small but statistically significant improvements in adiposity, blood pressure, and cholesterol level The evidence for changes in physiologic outcomes was strongest for high-intensity counseling interventions. Medium- to high-intensity dietary interventions (with or without concomitant physical activity counseling) decreased body mass index at about 12 months. 2/3 of ttrials of high-intensity dietary interventions reported statistically significant group differences, suggesting that although the amount of weight change varied greatly from study to study, these interventions are likely to reduce weight (decrease in body mass index of approximately 0.3 to 0.7 kg/m2). Physical activity counseling trials were limited to primarily medium-intensity interventions for this outcome and generally did not reduce adiposity. Five trials evaluating high-intensity counseling had follow-up longer than 12 months; the reduction in body mass index persisted up to 72 months, although this result was slightly attenuated.	Med. 2008;46:111-9 Morey MC, et al. J Am Geriatr Soc. 2009;57:1166-74 Hypertension Prevention Trial Research Group. Arch Intern Med. 1990;150:153-62 The Trials of Hypertension Prevention Collaborative Research Group. Arch Intern Med. 1997;157:657-67 Tinker LF, et al. Arch Intern Med. 2008;168:1500-11 Mosca L, et al. Circ Cardiovasc Qual Outcomes. 2008;1:98-106 Simkin-Silverman LR, et al. Womens Health. 1998;4:255-71 Wister A, et al. CMAJ. 2007;177:859-65		n. a.
Systematic review	Spring B, et al. (2009) [41]	Search strategy was reported Databases: Cochrane Database of SR, CENTRAL,	Smoking treatment vs. combined smoking treatment and weight control	**Included studies:** Study quality: - 10 RCTs - 2 authors for inclusion by reviewing the titles and abstracts (the proportion of agreement was 93 %): 2-4 authors for data extraction - Quality assessment was reported: quality of	Danielsson T, et al. BMJ. 1999; 319:490–4 Hall SM, et al. Am J Public Health. 1992; 82:799–803 Marcus BH, et al. Arch Intern Med. 1999; 159:1229–34	1+	Zusammen-fassung: Gute methodische Qualität des SR Vor allem weibliche

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		PubMed, Ovid MEDLINE, CINAHL, EMBASE, and PsycInfo Period: up to August 2007 Studiendesign: RCTs		studies was assessed using the validated PEDro scale (ranged from 5 to 8) Descriptive statistics: - 154 male and 2079 female adults - "regular" smokers - Any ethnic origin - Interventions: non-pharmacological, non-chirurgical treatment - Classification of smoking cessation: short ≤ 3 months, long-term ≥ 6 months Heterogeneity: - tests for heterogeneity were statistically significant - sensitivity analysis was performed - subgroup analysis was performed - Random effects model was used Publication bias: - Funnel plots and standardized Hedge's g against standard error were used - Eggers p-values: 0.06-0.33: possibility that small negative studies were excluded **Results:** Smoking cessation: Combined smoking plus weight treatment produced significantly higher short-term abstinence (OR=1.29, 95% CI=1.01,1.64 p=.041) But: no longer significant for long-term abstinence (OR=1.23, 95% CI=0.85,1.79 p=0.27) Post-cessation Weight Gain: Combined smoking plus weight treatment also reduced short-term weight gain significantly	Marcus BH, et al. Am J Cardiol. 1991; 68:406–7 Marcus BH, et al. Addict Behav. 1995; 20:87–92 Marcus BH, et al. Nicotine Tob Res. 2005; 7:871–80 Perkins KA, et al. J Consult Clin Psychol. 2001; 69:604–13 Pirie PL, et al. Am J Public Health. 1992; 82:1238–43 Spring B, et al. J Consult Clin Psychol. 2004; 72:785–96 Ussher M, et al. 2007; 32:3060–4		Probanden

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				compared to smoking treatment alone (g=-0.30 95% CI=-0.57,-0.02 p=.035) But: The advantage was no longer significant for long-term weight control (g=-0.17 95% CI=-0.42,0.07 p=.16) Subgroup analysis: similar effects in all groups			
Systematic review (Coch-rane)	Farley AC, et al. (2012) [42]	Search strategy was reported Database: Cochrane Tobacco Addiction Group's Specialized Register of trials, included reports of trials indexed in MEDLINE to update 20110826, EMBASE to 2011week 33, PsycINFO to 20110822 and Web of Science; CENTRAL Inclusion criteria were reported	Pharmacological interventions versus placebo for post cessation weight control ; Behavioural weight management interventions versus advice or no intervention ; CBT to accept moderate weight gain versus no behavioural weight advice ; All types of antidepressant versus placebo for smoking cessation ; Exercise interventions versus no exercise for smoking cessation ; All types of NRT versus placebo for smoking cessation ; Varenicline versus	**Included studies:** - 73 Studies Heterogeneity: - significant statistical heterogeneity. **Results:** - pharmacological interventions for post cessation weight gain (PCWG): significant reduction in WG at the end of treatment (dexfenfluramine (Mean difference (MD) -2.50kg, 95% confidence interval (CI) -2.98 to -2.02, 1study), phenylpropanolamine (MD -0.50kg, 95% CI-0.80 to -0.20, N=3), naltrexone (MD -0.78kg, 95% CI-1.52 to -0.05, N=2); evidence that treatment reduced weight at 6 or 12 months (m). No pharmacological intervention significantly affected smoking cessation rates; - Weight management education only was associated with no reduction in PCWG at end of treatment (6 or 12m); these interventions significantly reduced abstinence at 12m (RR 0.66, 95% CI 0.48 to 0.90, N=2). - Personalised weight management reduced PCWG at 12m (MD -2.58kg, 95% CI -5.11 to-0.05, N=2) ; was not associated with a significant reduction of abstinence at 12m (RR 0.74, 95% CI 0.39 to 1.43, N=2).	Cooper 2005; Copeland 2006; Danielsson 1999; Hall 1992; Hankey 2009; Klesges 1990; Klesges 1999; Levine 2010; Norregaard 1996; O'Malley 2006; Parsons 2009; Perkins 2001; Pirie 1992; Spring 1995 ; Spring 2004; Toll 2010; Gonzales 2006; Hurt 1997; Jorenby 2006; Niaura 2002, Nides 2006; Piper 2007; Rigotti 2006; Saules 2004; Simon 2004; Simon 2009; Uyar 2007; Zellweger 2005; Bize 2010; Marcus 1999; Marcus 2005; Ussher 2003; Abelin 1989; Blondal 1999; Bohadana 2000; CEASE 1999; Cooper; Dale 1995; Ehrsam 1991; Fiore 1994A; Fiore 1994B; Garvey 2000 ; Gourlay 1995; Gross 1995;	1+	Zusammen-fassung: Gute methodische Qualität des SR; Heterogene Studien

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			placebo for smoking cessation ; Varenicline versus bupropion ; Varenicline versus NRT	- A very low calorie diet (VLCD) significantly reduced PCWG at end of treatment (MD -3.70kg, 95% CI-4.82 to-2.58, N=1), but not significantly so at 12m (MD -1.30kg, 95% CI-3.49 to 0.89, N=1) ; VLCD increased chances of abstinence at 12m (RR 1.73, 95% CI 1.10 to 2.73, N=1). - Cognitive behavioural therapy to allay concern about weight gain (CBT) : no evidence for reduction of PCWG ; some evidence of increased PCWG at 6m (MD 0.74, 95% CI 0.24 to 1.24); was associated with improved abstinence at 6m (RR 1.83, 95% CI 1.07 to 3.13, N=2) but not at 12m (RR 1.25, 95% CI 0.83 to 1.86, N=2). - no evidence that exercise interventions significantly reduced PCWG at end of treatment (MD -0.25kg, 95% CI-0.78 to 0.29, N=4), significant reduction at 12m (MD -2.07kg, 95% CI-3.78 to-0.36, N=3). - bupropion and fluoxetine limited PCWG at the end of treatment (bupropionMD-1.12kg, 95%CI-1.47 to-0.77,N=7) (fluoxetine MD -0.99kg, 95% CI-1.36 to-0.61, N=2) ; no evidence that the effect persisted at 6m (bupropion MD -0.58kg, 95% CI-2.16 to 1.00, N=4), (fluoxetine MD -0.01kg, 95% CI-1.11 to 1.10, N=2) or 12m (bupropion MD -0.38kg, 95% CI-2.00 to 1.24, N=4). ; no data on WG at 12m for fluoxetine. - treatment with NRT attenuated PCWG at the end of treatment (MD -0.69kg, 95% CI-0.88 to-0.51, N=19), with no strong evidence that the effect differed for the different forms of NRT (the difference in weight change at end of treatment was -0.45kg (95% CI-0.66 to-0.27, N=18); no evidence of an effect on PCWG at 12m (MD -	Hjalmarson 1984; Hjalmarson 1994; Hjalmarson 1997; Lerman 2004; Pack 2008; Pirie 1992; Puska 1995; Richmond 1994; Sachs 1993; Shiffman 2002A; Shiffman 2002B; Stapleton 1995; Sutherland 1992; TNSG 1991; Tonnesen 1991; Tonnesen 1993; Wallstrom 2000; Aubin 2008; Gonzales 2006; Jorenby; Nakamura 2007; Niaura 2008; Nides 2006; Oncken 2006; Rigotti 2010; Tashkin 2011; Tonstad 2006, Tsai 2008; Wang 2009		

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				0.42kg, 95% CI-0.92 to 0.08, N=15). - evidence that varenicline significantly reduced PCWG at end of treatment (MD -0.41kg, 95% CI-0.63 to-0.19, N=11), but this effect was not maintained at 6 or 12m. No significant difference in PCWG between varenicline and NRT.			
Systematic review (Coch-rane)	Lopez LM, et al. (2011) [43]	Search strategy was reported Database: MEDLINE, CENTRAL, POPLINE, EMBASE, LILACS, ClinicalTrials.gov, ICTRP Inclusion criteria were reported	progestin-only pills, Norplant, and depotmedroxyprogesterone acetate (DMPA) versus other pills or placebo	**Included studies:** - 15 studies: 9 = prospective (5 RCTs and 4 other prospective); 6 = retrospective - From multiple continents - 3 of 5 RCTs did not have any information on randomization method or allocation concealment; other 2 RCTs reported the method of randomization and allocation concealment; 2 RCTs had information on blinding. 1 studie was reportedly “single-blind.” For the trials used in Westhoff 2007, the evaluators were blinded. - Quality of evidence was assessed quality of evidence using the GRADE approach - 3 studies: high quality; 3 studies: moderate quality; 4 studies: low quality; 4 studies: very low quality Heterogeneity: - was analysed, sensitivity analysis was reported **Results:** - Three RCTs compared two POCs - Three retrospective studies compared a POC to a nonhormonal IUD - The retrospective study of Espey 2000 showed two DMPA groups to be similar in weight gain at one and two years - DMPA in adolescents: greater increase in body	Relevant studies: Ball 1991 Bonny 2009 Castle 1978 Espey 2000 Moore 1995 Pantoja 2010 Salem 1984 Salem 1988 Sivin 1998 Sule 2005 Taneepanichskul 1998 Tankeyoon 1976 Tuchman 2005 Westhoff 2007 WHO 1983	1+	Zusammen-fassung: Gute methodische Qualität des SR ; Verschiedene Interventionen wurden vergliechen ; 8 von 15 studien haben schlechte bzw. Sehr schlechte qualität

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				fat versus a group using no hormonal method (mean difference 11.00 %; 95% CI 2.64 to 19.36) and lean body mass (%) (mean difference -4.00; 95% CI -6.93 to -1.07). - DMPA group comparing IUD group: weight gain (kg) was greater (mean difference) 2.28, 2.71, 3.17, respectively). - Norplant group versus non-hormonal IUD group: greater weight gain (kg) (mean difference 0.47 kg (95% CI 0.29 to 0.65) - Norplant group versus group using non-hormonal or no method: greater weight gain (mean difference 0.74; 95% CI 0.52 to 0.96). - Norplant group versus IUD group: greater weight gain (kg) (mean difference 1.10 kg; 95% CI 0.36 to 1.84).			
Meta-analysis	Oken E, et al. (2008) (Milestone paper) [44]	Database: Medline: PubMed, Ovid; studies published between 1966-June 2006; Keywords were reported; Included studies: reported an association between maternal smoking during	children whose mothers smoked during pregnancy compared with children whose mothers did not smoke during pregnancy	**Included studies:** Study quality: - 14 observational studies were included - Two authors (EO and EL) performed independent data extractions of the eligible studies, in accordance with the 'MOOSE' guidelines Descriptive statistics: - 14 observational studies on 84 563 children - populations in Australia, North America, and Europe - prevalence of smoking during pregnancy in the - studies populations ranged from 7.5 to 51% Heterogeneity: - tests for heterogeneity (I2=49%) were statistically significant	Adams AK et al, Am J Clin Nutr 2005;82:393–398 Al Mamun A, et al, Tob Control 2006;15:452–457 Bergmann KE, et al, Int J Obes Relat Metab Disord 2003;27:162–172. Chen A, et al, Int J Epidemiol 2006;35:121–130. Dubois L, et al, Int J Obes (Lond) 2006;30:610–617. Oken E et al, Obes Res 2005;13:2021–2028. Power C, et al, Int J Epidemiol 2002;31:413–	2+	Meta-analysis of observational studies p.b., but 'missing' were imputed;

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		pregnancy and risk of overweight among children at least 2 years of age; excluded were: studies that provided only a continuous measure of adiposity, although those studies are discussed separately		- random-effects models were used Publication bias: evidence for publication bias: asymmetry of the funnel plot and by rank correlation testing (P<0.001) but: 'missing' studies to simulate a dataset without publication bias were imputed; resulting pooled odds ratio (OR 1.40, 95% CI: 1.26, 1.55) was somewhat lower, but still indicated a substantial detrimental effect of prenatal smoking **Results:** children whose mothers smoked during pregnancy: elevated risk for overweight at ages 3–33 years, compared with children whose mothers did not smoke during pregnancy (pooled adjusted OR 1.50, 95% CI: 1.36, 1.65) unadjusted ORs = adjusted ORs	419 Reilly JJ, et al, BMJ 2005;330:1357. Salsberry PJ et al, Pediatrics 2005;116:1329–1338. Toschke AM, et al, Eur J Pediatr 2002;161:445–448. Toschke AM, et al, Am J Epidemiol 2003;158:1068–1074 von Kries R, et al, Am J Epidemiol 2002;156:954–961 Whitaker RC. Et al, Pediatrics 2004;114:e29–e36. Wideroe M, et al, Paediatr Perinat Epidemiol 2003;17:171–179		
Systematic Review/ Meta-analysis	Mattes RD, et al. (2011) [45]	Search: first, other recent evidence-based reviews; second, searches of PubMed, PsycINFO, the Cochrane Collaborative	Considered outcome measures: any indices of or proxies for adiposity, including weight, BMI, percent body fat, or dichotomous indicators of overweight or obesity.	**Included studies: 12 RCTs** Study quality: Study-level risk of bias was assessed: see summary table and graph Descriptive statistics (see also results): adults and children studies were included; Heterogeneity: available (see results) Publication bias: unpublished literature was included to avoid publication bias, other analysis of publication bias n.a. **Results (meta-analysis):**	Tordoff MG, et al Am J Clin Nutr. 1990; 51(6):963–9. DiMeglio et al, Int J Obes Relat Metab Disord. 2000; 24(6):794–800 James J, et al. BMJ. 2004; 328(7450):1237. Ebbeling CB et al .Pediatrics. 2006;	1+	analysis of publication bias n.a.; The most of included studies were not blinded two authors independently reviewed the included studies using the

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		Website, Web of Science, and Dissertation Abstracts through January 2009. No language restriction. Search terms: "sugar sweetened beverage," "soda," "liquid calories," and "chocolate milk," among others. Included: studies – RCT - those 1) conducted in humans; 2) lasting at least 3 weeks; 3) incorporating random assignment of subjects to conditions that differed only in the consumption of NSBs; and		- comparing studies of added NSB consumption (4 studies): added daily energy loads ranged from ~180 kcal to 530 kcal (~754 kJ to 2219 kJ); time periods ranged from 3 wk to 1 y; Sample sizes ranged from less than 30 to133 the results were statistically significant in only 2 studies meta-regression revealed a dose-response relation (Pearson's r, with observations weighted by the inverse of their variances = 0.92, P = 0.029) with a slope of .0022 (SE = 0.00057) and an intercept of −0.357 (SE = 0.249) - comparing studies of reduced NSB consumption (6 studies): test of heterogeneity was not significant (P = 0.643; I2=0%) studies ranged in duration from 4 wk to 52 wk with a follow-up at 3 y from baseline. Sample sizes ranged from 103 to 1140; meta-analysis-outcome variable=change in BMI because it was commonly reported across all 6 studies the overall estimate of standardized mean difference in BMI was extremely close to zero (−0.037; SE = 0.042; P = 0.378); confidence interval was −0.120 to 0.046 Authors conclusion: Metaanalysis of 6 studies that added NSBs to persons' diets showed dose-dependent increases in weight. Contrarily, meta-analysis of studies that attempted to reduce NSB	117(3):673–80. Addington, E. Doctoral Dissertation. Manhattan (KS): Kansas State University; 1988. Haub MD, et al. Nutr J. 2005; 4:21. Munoz, D. Doctoral Dissertation. Albany (NY): State University of New York; 2006. James J, et al .BMJ. 2007; 335(7623):762. Reid M, et al. Br J Nutr. 2007; 97(1):193–203. Williams CL, et al .Int J Food Sci Nutr. 2007; 58(3):217–30 Sichieri R, et al .Public Health Nutr. 2009; 12(2):197–202 Albala C, et al .Am J Clin Nutr. 2008; 88(3):605–11.		guidelines contained in the Cochrane Handbook for Systematic Reviews of Interventions; Disagreements in ratings were discussed until consensus was reached

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		4)including an adiposity indicator as an outcome		consumption consistently showed no effect on BMI when all subjects were considered. Meta-analysis of studies providing access to results separately for subjects overweight at baseline showed a significant effect of a roughly 0.35 standard deviations lesser BMI change (i.e., more weight loss or less weight gain) relative to controls. The current evidence does not demonstrate conclusively that NSB consumption has uniquely contributed to obesity or that reducing NSB consumption will reduce BMI levels in general.			
Systematic Review	Malik VS, et al. (2006) (Milestone paper) [46]	English-language articles; Searching in the MEDLINE database; articles published between 1966 and May 2005; Design: cross-sectional, prospective cohort, and experimental studies of the intake of sugar-sweetened beverages and weight gain, obesity, or both;		**Included studies:** Study quality: - Total 30 studies: 15 are crosssectional studies, 10 are prospective cohort studies, and 5 are clinical trials and interventions. Two studies report both prospective and cross-sectional findings Descriptive statistics: - male and female adults, children and adolescents - endpoints evaluating body size or weight measurements in humans, BMI, weight in kilograms or in pounds - cross-sectional studies: 2 involved adults; =both from USA: (1) included 3552 Adults (1913 female, 1639 male); soft drink: soda (2) 1817 Adults (889 female, 928 male); soft drinks: Sugar-sweetened beverages, soda, diet soda - 4 prospective studies have examined the relation between the intake of sugar-sweetened beverages and weight gain in adults: (3) 7194 Adults; duration 28.5 mo; Sugar-sweetened soft drinks, diet soda, milk; (4) 3552 Adults (1913 females, 1639 males); USA; duration 2 y.; soft drink: soda;	Studies in adult: cross-sectional studies: (1) French et al; Int J Obes Relat Metab Disord 1994;18:145–54. (2) Liebman et al; Int J Obes Relat Metab Disord 2003;27:684 –92 Prospective studies: (3) Bes-Rastrollo et al; Am J Clin Nutr 2006;83:362–70 (4) French et al; Int J Obes Relat Metab Disord 1994;18:145–54. (5) Kvaavik et al; Public Health Nutr 2005;8:149 – 57. (6) Schulze et al; JAMA 2004;292:927–34 Experemental trials and	2+	Included in SIGN guideline; Large observ. studies

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		Key words were used in the primary search strategy, as well as in a subsequent search using medical subheading (MeSH) terms; Additional reports were obtained by cross-matching references of selected articles; Duration: at least 6 months for prospective cohort studies		(5) 422 Adults (215 female, 207 male); Oslo; duration 8 y; soft drink: soda (6) 51 603 Females; duration 8 y; soft drinks: Sweetened soft drinks, diet soft drinks, fruit juice - Experemental trials and interventions: (7) 15 Adults (8 female, 7 male), crossover design; (8) 41 Adults (35 female, 6 male), design: parallel (9) 30 Adults (9 female and 21 male) crossover design Heterogeneity: - n.a. Publication bias: - n.a. **Results:** ´ positive association between greater intakes of SSBs and weight gain and obesity in and adults. cross-sectional studies: - Significant (P = 0.03) association between soda consumption and weight in females, non significant in males (P= 0.13) - Probability of overweight and obesity greater in subjects who drank at least 1 soda/wk than in those who drank < 1 soda/wk (P< 0.05) Prospective studies: - Association between sugar-sweetened beverage intake and weight gain in subjects with at least 3 kg weight gain in 5 y before baseline (OR =1.6; 95% CI: 1.2, 2.4; P = 0.02) - Positive but non significant association between soda consumption and weight change - No significant association between soda intake and change in BMI	interventions: (7) DiMeglio et al; Int J Obes Relat Metab Disord 2000;24:794–800 (8) Raben et al; Am J Clin Nutr 2002;76:721–9. (9) Tordoff and Alleva; Am J Clin Nutr 1990;51:963–9		

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				- Association between soft-drink intake and weight Experemental trials and interventions: - Significant increase in body weight and BMI after liquid load (P<0.05) - Body weight, fat mass, and BMI increased in sucrose group and decreased in sweetener group; respective difference between groups (2.6 kg; 95% CI: 1.3, 3.8; 1.6 kg, 95% CI: 0.4, 2.8; and BMI 0.9, 95% CI: 0.5, 1.4) - Relative to no soda, HFCS soda significantly (P= 0.01) increased weight in females and NS increase in males; APM soda decreased weight in males and NS increase in females			
Meta-analysis	Streuling I, et al. (2010) [47]	Datebases: MEDLINE (1950–2009), EMBASE (1974–2009), Cochrane CENTRAL Library Issue 4 (2009), and Web of Science (1900–2009) Search terma were reported Inclusion criteria: written in English or German language;	Interventions to reduce gestational weight gain (GWG) by modulating diet and physical activity during pregnancy	**Included studies:** - 4 RCT, 5 nonrandomized trials (flow chart) - Study quality: (Randomization/ Dropout rate/ intention-to-treat): 2 reviewer, Cochrane Handbook and CONSORT (Consolidated Standards of Reporting Trials) were used; consealment allocation: in only 1 study, in 3 study: no explanation about mathod of randomisation; 4 studies reported losses to follow-up of <10%; no blinding; 3 cohort studies: reported potential confounders - Descriptive statistics: 4 trials from the United States, 2 from Canada,1 from Finland , 1 from Sweden , and 1 from Belgium. - 1886 women were eligible for the studies, 1549 women completed the trials. - 3 trials: only overweight or obese women - main target of all trials: to test interventions to prevent excessive GWG and adverse pregnancy	Asbee SM, et al,Obstet Gynecol 2009;113(2 Pt 1):305–12. Olson CM, et al. Am J Obstet Gynecol 2004;191:530–6. Polley BA, et al. Int J Obes Relat Metab Disord 2002;26:1494–502. Shirazian T, et al Am J Perinatol 2010;27:411–4. Gray-Donald K, et al Can Med Assoc J 2000;163:1247–51. Hui AL, et al Can J Diabetes 2006:169–75. Kinnunen TI, et al. Eur J Clin Nutr 2007;61:884–91.	1-/ 2+	RCTs and nonrand. Studies; Four studies were not of high methodologic quality; no accepted standard approach on how to measure GWG

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		focusing on healthy women; singleton pregnancies; intervention comprised modification of diet and physical activity; subjects were compared with a control group receiving routine prenatal care; and GWG was documented for control and intervention groups separately.		utcomes. - GWG: 3 authors defined GWG as the difference between prepregnancy weight and body weight at delivery , in 2 studies GWG was assessed as the difference between body weight in early pregnancy and body weight at delivery, 4 trials did not report how they defined GWG - Intervention: in 8 studies: modification of physical activity and diet was supplemented by regular weight monitoring, attempts to achieve GWG within the recommended Institute of Medicine (IOM) ranges; in 3 trials: specific exercise programs for their subjects, in other trials: intervention to oral and written information and recommendations for exercise; in 6 studies: individual nutrition counseling by professional nutritionists or study coordinators; in 1 trial: weekly motivational talks were initiated with the aim of motivating the study subjects to change their behavior and obtain information relevant to their needs; 2 studies offered written and oral information about healthful eating during pregnancy Heterogeneity: - I2-Statistik: moderate/high - random-effects model - sensetivity analyses were reported Publication bias: n.a **Results (for weight):** Lower GWG in Interventional groups: in 3 studies significant, in 3 studies n.s. <u>Forrrest plot:</u>	Claesson IM, et al. BJOG 2008;115:44–50. Guelinckx I, et al. Am J Clin Nutr 2010;91:373–80.		

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				All trials: sign. GWG-reduction (P=0.01): 20.22 units (95% CI: 20.38, 20.05 units), corresponding to an average reduction of GWG of 1.2 kg (data not shown). Only RCTs: nonsignificant reduction of GWG on average in the intervention groups (SMD =20.13; 95% CI: 20.41, 0.15). Only nonrandomized trials: sign. (P = 0.02) lower GWG in the intervention groups (SMD = 20.27; 95% CI: 20.49, 20.04)			
Meta-analysis	Streuling I, et al. (2011) [48]	Databases: MEDLINE (1950–2009), EMBASE (1974–2009), Cochrane CENTRAL library Issue 3, 2009, ISI Web of Knowledge, containing Web of Science (1900–2009), BIOSIS Previews (1926–2009), Current Contents Connect (1998–2009) and Journal Citation	Intervention: increased physical activity	**Included studies: 12 RCTs** - Study quality: (Randomization/ Dropout rate/ intention-to-treat): 2 reviewers, Cochrane's handbook and CONSORT statement; in 6 studies: blinded allocations assigment was reported, in 6 studies less losses to follow-up (< 15 %), in 5 studies high losses (>15 %), ITT in 2 studies was reported Descriptive statistics: - 4 trials from the USA, 2 from Iran, 1 from Spain, 1 from Australia, 1 from New Zealand, 3 from Brazil. - 1073 women, 906 participants had completed the trials. - All studies: women with low-risk pregnancies only. - 7 studies no exercise regularly before pregnancy. - Intervention: duration 10-32 weeks, exersise 3 times a week at least 20 minutes up to 1 hour performing aerobics, running, cycling, water aerobics or muscle strengthenin; stsrt at the 1-2 trimester; in 9 studies: with supervision, 3 studies: home-bases exercise - Gestational weight loss (GWG)- not the main	Clapp JF III, et al. Am J Obstet Gynecol 2000;183:1484–8. Collings CA, et al. Am J Obstet Gynecol 1983;145:702–7. Marquez-Sterling S, et al. Med Sci Sports Exerc 2000;32:58–62. Yeo S. et al. Res Nurs Health 2009;32:379–90. Garshasbi A, et al. Int J Gynaecol Obstet 2005;88:271–5. Sedaghati P, et al. Gazz Med Ital- Arch Sci Med 2007;166:209–13. Barakat R, et al. Int J Obes (Lond) 2009;33:1048–57. Ong MJ, et al. Diabetes	1-	Quality of included studies (middle) ITT in only 2 studies

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		Reports (1999–2008). Key words were reported Inclusion criteria: RCT, healthy women; Intervention= solely physical activity; compared with no intervention promoting physical activity; GWG was documented for both groups separately.		outcome, definition was different - Prepregnancy weight/BMI: norm. Heterogeneity: Low - random-effects model Publication bias: - No indication for p.b. (funnel plot) **Results (for weight):** 7 trials: lower GWG in the exercise group, but in only 1 – significant (p<0.05); 5 trials: women in the exercise groups did not gain significantly less weight. meta-analysis: significant GWG-reduction in the exersise group (p=0.03), MD of GWG of -0.61 (95% CI: -1.17, -0.06), sensitivity analyses were reported	Metab 2009;35:418–21. Hopkins SA, et al. J Clin Endocrinol Metab 2010;95:2080–8. Cavalcante SR, Reprod Health 2009;6:1. Prevedel T, et al. RBGO 2003;25:53–9. Santos IA, et al.Obstet Gynecol 2005;106:243–9.		
Systematic Review	Streuling I, et al. (2011) [49]	Databeses: MEDLINE (1950-2009), EMBASE (1974-2009) (English, German languages) search terms were reported inclusion criteria:	Diets (low caloric/portein or other)	**Included studies: 12 observational studies** - Study quality: 6 studies adjusted for confounders - Descriptive statistics: - 9 studies from USA, 3 studies from Europe - sample sizes; varied from 50 to 2087 women - 2 studies: low-income pregnant teeagers, 10 studies – adult women - different dietary assestment between the studies (FFQ or recall methods) - Gestational weight loss (GWG) was defined in different ways	Aaronson LS 1989 Ancristi G 1977 Bergmann MM 1997 Deierlein AL 2008 Lagiou P 2004 Langhoff-Roos J 1987 Oken E 2008 Picone TA 1982 Scholl TO 1991 Sloan NL 2001	2-	No quality ass., only 6 studies – adjustment for confounders, different definition for GWG

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		english or german, health women with singleton pregnancy, population-based or hospital-based cohort studies industrialized countries, without repeated pregnancy		- Heterogeneity: n.a. - Publication bias: n.a. **Results (for weight):** 5 studies: significantly (p<0.05) association between energy intake and GWG (3 of them – adjusted for confounders), 3 studies (2 – adjusted) – no significant association	Stevens-Simon C 1992 Stuebe AM 2009		
Meta-analysis	Gardner B. et al, 2011 [50]	Databeses: PsycInfo, Medline, Embase, AMED, HMIC, Cochrane Central Controlled Trials Register, Cochrane Health Technology Assessment, peer-reviewed English-language journal articles published between 1990	Intervention: recommended behaviour: diet or physical aktivity or both	**Included studies:** - 7 RCTs, 5 – others (Quasi-experimental control trials and historical cohort designs in two trials; one trial used a time series design); 2 trials in 10 studies were reported - Study quality: (Randomization/ Dropout rate/ intention-to-treat): 2 reviewers, Cochrane validity criteria (allocation concealment, intention-to-treat analysis and losses to follow-up), scoring system was used; - Allocation was concealed in one trial, concealment unclear - 6 trials. - 3 trials – ITT, - 7 trials reporting attrition rates of more than 10%. Descriptive statistics: - Treatment characteristics were coded for both intervention and control treatments where possible. Weight gain – primary outcome.	Claesson IM, et al.. Br J Obstet Gynaecol 2007; 115: 44–50. Hui AL, et al. Can J Diabetes 2006; 30:169–175. Polley BA, et al. Int J Obes(Lond) 2002; 26: 1494–1502. Gray-Donald K, et al CMAJ 2000; 163: 1247–1251. Kinnunen TI, et al Eur J Clin Nutr 2007; 61: 884–892. Wolff S, et al Int J Obes (Lond) 2008; 32: 495–501. Asbee SM, et al Obstet	1-/2-	Different design, Allocation cons. In only 1 trial, Only 3 trials – ITT

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		and 2010 3 search filters were used: interventions to prevent excessive GWG; controlled trial designs; samples with chronic health conditions were excluded. Inclusion criteria: quantitative data, intervention to improve diet and/or increase PA so as to prevent excessive weight gain in pregnant adult women aged differences between an intervention and a control group		- 1656 participants (744 intervention, 912 control), Sample sizes ranged from 21 to 560 (mean 138 participants per trial). - Seven trials were conducted in North America, five USA, two Canada, and 5 in Europe (2 in Belgium, and one in each of Denmark, Finland and Sweden). - 11 trials: both diet and PA; 1 trial - diet only - behavioural outcomes (intake of specific foods or PA) were assessed in six trials. Heterogeneity: significant, moderate (P = 0.0008; I2 = 66%) Publication bias: no p.b (funnel plot) **Results (for weight):** Pooled results: Significantly less weigth loss in the interventionla group: (WMD = -1.19 kg, [95% CI: -1.74, -0.65], P □0.0001). 4 trials - statistically significant effects, intervention recipients gaining between 2.60 and 7.36 kg less than controls. Eight trials - no effect on weight gain, 1 of these observed negative effect (P = 0.09), overweight intervention participants (mean gain 13.6 kg) tended to gain more weight than overweight controls (mean gain 10.1 kg) Moderator analyses were reported	Gynecol 2009;113: 305–311. Shirazian T, et al Am J Perinat 2010; 27: 411–414. Guelinckx I, et al. Am J Clin Nut 2010; 91: 373–380 Olson CM, et al Am J Obstet Gynecol 2004; 191: 530–536.		

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Systematic Review	Campbell F, et al. (2011) [51]	11 databases December 2008, second search (update) in January 2010. (1990-2010); concept of excessive gestational weight gain by the IoM (1990). Inclusion criteria and key words were reported (adults, no medical comlikations etc)	Diet and physical activity interventions	**Included studies:** - 13 studies: 5 RCTs, 8 qualitative studies (flow chart) - Study quality: (Randomization/ Dropout rate/ intention-to-treat): quality assestment: Cochrane Collaboration's tool; 3 trials: method of randomisation was reported, 1 trial – allocation consealment, no blinding, only 2 trials reported loss to follow-up Descriptive statistics: - number of participants - in RCTs- from 52 to 195 with a total of 577. - mean age from 25.5 to 29 years. - Mean pre-pregnancy BMI from 22.6 to 34.7 kg/m2 (2 studies recruted only obese women) - mean gestational age from 9.8 to 15.5 week - countries: Canada, USA, Europe - complex interventions (several components) Heterogeneity: significant (I2 = 67%) **Results (for weight):** Meta-Analysis of 5 RCTs: No significant difference in gestational weight gain (GWG) (mean difference -0.28; 95% CI -0.64 to 0.09) Subgroup and sensitivity analyses were performed	RCTs: Guelinckx I, et al. 2010, 91:373-380. Wolff S, et al.. Int J Obes (Lond) 2008,32:495-501. Asbee SM, et al. Obstetrics and Gynecology 2009,113:305-311. Polley BA, et al., Int J Obes Relat Metab Disord 2002, 26:1494-1502. Hui AL, et al. CAN J DIABETES 2006, 30:169-175.	1-	Significant heterogeneity, small number of studies
Cochrane Review	Gallo MF, et al. (2011) [52]	Databases CENTRAL (The Cochrane Library), MEDLINE, POPLINE,	Combination hormonal contraceptives compared to a placebo, no intervention or to a combination	**Included studies:** - 49 RCTs (compared 52 different pairs) Study quality: (Randomization/ Dropout rate/ intention-to-treat): - 2 reviewers (double check), no summary quality score, appraisal of potential biases concentrated	Aden 1998 Agoestina 1989 Brill 1991 Brill 1996 Burkman 2007	1+	Poor study quality

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		EMBASE, and LILACS, asClinicalTrials.gov and InternationalClinical Trials Registry Platform (ICTRP). Up to to May 2011. Search strategy was reported. Inclusion criteria: English-language, RCTs, at least 3 treatment cycles, compared to placebo or to different combination contraceptive	contraceptive (differed in drug, dosage, regimen, or study length)	on the study design, blinding, randomization method, group allocation concealment, and loss to follow up and early discontinuation; - Generally poor quality of trials, associated with empirical evidence of bias - 31 trials: generating the randomization - not reported - 45 trials - allocation concealment not reported, 3 trials reported sufficient allocation consealment - Only 4 trials reported the number of women recruited for the trial - Blinding: 2 studies - single-blinded, 10 - double-blinded, 1- triple-blinded; not mentioned in 15 trials. - ITT – described for 3 trials - 33 trials did not specify the analytic method used - for the weight change data - Loss to follow up: 0-17 %: only in 19 trials Descriptive statistics: - sample sizes ranged from 20 to 5654 participants, median - 196 participants. - study location - was not described for 13 trials; the other studies were conducted in locations worldwide. - duration of the trials: from 3 to 24 treatment cycles with most trials – 6 or 12 treatment cycles - Main outcome: change in body weight Heterogeneity: n.a Publication bias: n.a. **Results (for weight):** In 4 trials (comparison to placebo or bo intervention):	Cachrimanidou 1993 Coenen 1996 Coney 2001 Dionne 1974 Endrikat 1997 Endrikat 1999 Endrikat 2001a Endrikat 2001b Foulon 2001 Franchini 1995 Goldzieher 1971 Gruber 2006 Halbe 1998 Kashanian 2010 Kaunitz 2000 Kirkman 1994 Knopp 2001 Koetsawang 1977 Koetsawang 1995 Lachnit-Fixson 1984 Liukko 1987 Loudon 1990 Miller 2001 Milsom 2006 Oddsson 2005 Oelkers 1995 Oelkers 2000		

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				no association with weight change Other trials: no significant association with weight change Three studies: differences in the numbers of women with a weight change of more than 2 kg. Four studies: differences in the mean weight change between groups. Athers conclusion: Available evidence was insufficient to determine the effect of combination contraceptives on weight, but no large effect was evident.	Procter-Gray 2008 Rosenbaum 2000 Sang 1995 Serfaty 1998 Sibai 2001 Spellacy 1970 Spona 1996 Stewart 2005 Teichmann 1995 Van der Does 1995 Weisberg 1999 Wiegratz 1995 Wiegratz 2002 Wiik 1993 Winkler 1996 Worsley 1980		
Meta-analysis	Verweij LM, et al. (2011) [53]	Databases: Medline, Embase, PsychInfo Cochrane Library, SportDiscus, Current Controlled Trials; Between 1980-November 2009	Physical activity or dietary behaviours or both	**Included studies:** - 43 RCTs met inclusion criteria, 22 RCTs were included in meta-analysis Study quality: (Randomization/ Dropout rate/ intention-to-treat): - double-check, Chochrane Handbook was used, GRADE was used; 1 studie – excellent quality, 11 – good, 20 – poor and 11 – fair quality Descriptive statistics: - 26 studies: Physical activity and dietary behaviours - 14 studies: only physical activity	See study references	1-	low quality of studies. Moderate-high heterogeneity

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
		Search strategy was reported Inclusion criteria: English, RCTs, targeting physical activity or dietary behaviours or both of employers, weight releted outcome measures		- 3 studies: only dietary behaviours - Participants: number varied: 33-18,210 participants; age: 18-67; 7 studies included only men, 4 studies – only women, 32 studies – men and women; 16 studies included white color workers, 9 – blue color workers, 19 studies – n.a., 9 studies included participants with high cardiovascular risk - Different outcomes (cardiovascular risk reduction or disease prevention – 17 studies, 17 studies – improve physical activity, 8 – health promotion, only 2 studies aimed obesity prevention or weight control) - Lenth of intervention: 4 week to 3 years, 11 studies – short follow-up (< 6 month) and 32 studies – long follow up. Heterogeneity: moderate-high Publication bias: n.a. **Results (for weight):** Reduce of body weight, BMI, body fat - Moderate Evidenz for both (Physical activity and dietary behaviours): significant reduce body weight (9 studies, 5 – good quality, mean difference (MD): -1.19 kg/m2, 95% CI -1.64 to -0.74, but in 3 good quality studies – non significant differences); significant reduce BMI (11 studies, MD -0.34 kg/m2, 95% CI -0.46 to -0.22); significant reduce body fat (3 studies; MD – 1.12%, 95% CI -1.86 to -0.38); WC n.s. (MD -1.08, 95% CI -4.18 to 2.02) - Low evidence for only physical activity: (reduce of body weight: MD – 1.08 kg, 95% CI – 1.79 to – 0.36); BMI (MD – 0.50 kg/m2; 95% CI -0.65 to -			

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
				0.34); body fat (MD -0.56%; 95% CI -2.53 to 1.42), WC n.s. (MD – 1.31, 95% CI – 3.62 to 1.00) - Sensitivity analyses were reported (only fair-low quality of studies, small studies)			
Systematic Review	Vuillemin A, et al. (2011) (the Hope project) [54]	Studies published from January up to December 2099 Databases: PubMed, Embase, Cinahl, Psychinfo, SportDiscus, Web of Science, Cochrane Only search elements were reported Inclusion criteria were reported (date, aim = increasing physical activity, adult participants, specifically carried out in a worksite setting,	Work site physical activity interventions (counselling, exercise training, active commuting, walking)	**Included studies:** - 33 european studies: 20 RCT, 2 with cluster-randomised design, 2 – non-randomised tirals, 2 – before-after studies, 9 with pre-post design - 15 studies with obesity-related outcome, Only one study with obesity-related outcome as primary outcome Study quality: (Randomization/ Dropout rate/ intention-to-treat): - dobble-check,quality assestment (11 criteria score), 17 studies with high quality Descriptive statistics: - setting – Europe (1 study from Germany), intervention: counseling – 2 RCT, exercise training – 10 RCT, active commuting – 4 RCT, walking – 4 RCT Heterogeneity: n.a Publication bias: n.a. **Results (for weight):** no evidence or only incolclusive evidence for a effect on obesity-related outcomes	33 studies were included (See study references)	1-	Only one study with obesity-related outcome as primary outcome : quality assestment n.a. Heterogeneity n.a. publicationbias n.a.

Studien-typ	Autoren, Jahr	Untersuchte Studien/ Materialien	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien/ Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
		Europe, primary prevention studies)					

c) Einzelstudien

Artikel (Autor, Jahr)/ Studien-typ	Anzahl der Patienten/ Patienten-merkmale	Intervention/ ggf. Nachverfolgung	Vergleichs-intervention	Outcomes	Ergebnisse	Evidenz-niveau (z.B. SIGN)	Bemerkungen
Ter Bogt NC, et al. (2009) [55] RCT Ter Bogt NC, et al. (2011) [56] RCT (3-years-follow-up)	457 patients overweight or obese mean age: 56 years sex : 52% women with either hypertension or dyslipidemia, or both from 11 general practice locations in the Netherlands	Intervention group: visits to a nurse practitioner (NP) and one feedback session by telephone for lifestyle counseling with guidance of NP using a standardized computerized software program.	Control group: usual care from their general practitioner (GP-group)	Changes in body weight, waist circumference, blood pressure, and blood lipids	Intervention group: more weight losers and stabilizers compared to control group: (77% vs 65%; p<0.05) Men: mean weight losses were 2.3% for the intervention group and 0.1% for the control group (p<0.05) Women: mean weight losses were in intervention und control groups 1.6% Control group: obese people lost more weight (-3.0%) than the non-obese (-1.3%; p<0.05) Not significant: Mean waist circumference decreased by 2.4 cm in intervention group and by 1.2 cm in control	1+	Randomisation procedere, exclusion criteria, dropouts were reported There are statistically significant difference between women for intervention and control groups : in age, hypertention, physical activity,but in follow-up study (authors conclusion) Lifestyle counseling by NPs did not lead to significantly better prevention of weight gain compared with GPs. In the majority in both groups, lifestyle counseling succeeded in preventing (further)weight gain.

Artikel (Autor, Jahr)/ Studien-typ	Anzahl der Patienten/ Patienten-merkmale	Intervention/ ggf. Nachverfolgung	Vergleichs-intervention	Outcomes	Ergebnisse	Evidenz-niveau (z.B. SIGN)	Bemerkungen
					group (p=0.07) Follow-up 2011 : difference in mean (SD) weight change between groups: n.s. (NP group, −1.2% [5.8%], and GP-group, −0.6% [5.6%] [P=0.37]) (=Contrary to the results after 1 years) approximately 60% of the participants in both groups were weight losers after 3 years. change of waist circumference between groups : n.s. (NPgroup, −0.8 [7.1] cm andGP-UCgroup 0.4 [7.2]cm[P=.11]) Intention-to-treat analysis did not substantially alter the results after 3 years.		
Mediano MF, et al. (2010) [57]	203 women from Brazil middle age: 25–45 years	Intervention group (=home-based exercise) received booklet on aerobic exercise that could be practiced at	Control received only dietary counseling aimed at a energy restriction of 100–300 calories per	weight loss and others (HDL-cholesterol, triglycerides, glucose, HOMA-IR)	Intervention group: - greater weight loss in the first 6 months (−1.4 vs. −0.8 kg; p=0.04), but after 12 months: no	1-	Randomisation procedere was reported, the study was not blinded, relevant outcome (weight loss) was measured, intention-to-treat analysis was reported

Artikel (Autor, Jahr)/ Studien-typ	Anzahl der Patienten/ Patienten-merkmale	Intervention/ ggf. Nachverfolgung	Vergleichs-intervention	Outcomes	Ergebnisse	Evidenz-niveau (z.B. SIGN)	Bemerkungen
RCT		home (3 times/ week - 40 min/ session), in low-moderate intensity, during 12 months AND dietary counseling aimed at a energy restriction of 100–300 calories per day	day		differences between groups (−1.1 vs. −1.0; p=0.20) - HDL-cholesterol showed major change in itervention group : increased at month 12 of 18.3 mg/dl in the intervention group compared to 9.5 in the control group (p<0.01)		But: BMI and HDL-cholesterol are different between intervention and control groups (p=0.03 and p=0.04)
Haakstad LA, et al. (2011) [58] RCT	105 sedentary, nulliparous pregnant women Mean age: 30.7 (SD +/-4) Pre-pregnancy BMI: 23.8 (+/- 4.3 kg/m2) The majority from Norway (n=94) Participants with disease that could interfere with participation were excluded	Exercise group (n=52): 60 min. supervised aerobic dance and strength training for 60 min, at least twice per week for a minimum of 12 weeks	Control group (n=53): participants were asked not to change their usual physical pattern	Main outcomes: aternal weight gain and the proportion of women whose weight gain exceeded the IOM recommendations	Sign. difference between exersise and control groups; only participants who attended 24 exercise sessions (n=14) differed sign. from controls (p=0.006): Weight gain during pregnancy 11.0 kg. (SD +/- 2.3 kg) vs. 13.8 kg. (+/- 3.8 kg), p=0.01; No difference between the groups in the proportion of women gaining more weight than recommended by the IOM	1+	Assessor blinded Randomisation: simple computerised randomisation programm ITT High drop out rate
Phelan S, et al. (2011)	Pregnant (3.5 week gestation), normal-weight	Behavioral intervention (social learning theory) to	Standard care (n=201): regularly visits to they	Primary outcome. Proportion of women with the excessive	In NW women, in intervention group: decreased % who exceeded	1+	Assessor (clinical and staff) blind The retention at the 6 months

Artikel (Autor, Jahr)/ Studien-typ	Anzahl der Patienten/ Patienten-merkmale	Intervention/ ggf. Nachverfolgung	Vergleichs-intervention	Outcomes	Ergebnisse	Evidenz-niveau (z.B. SIGN)	Bemerkungen
[59] RCT	women (NW, n=201) and overweight or obese (OW/OB ; n=200) Avarage age = 28.8 y. Inclusion: gestational age between 10 and 16 week, BMI between 19.8 and 40 kg/m2, nonsmoking, adults, fluency in English, assess to telephone, singeleton pregnancy. Exclusion: major health or psychiatric disorders, weight loss durign pregnancy, ≥3 miscarriages	prevent weight gain (n=200) : Face-to-face visit ; weekly mailed materials that promoted an appropriate weight gain, healthy eating and exersise ; individual graphs for weight gain ; telephone-based feedback	prenatal care providers, standatd conseling	gestational weight gain on the basis of IOM guidelines 1990 Proportion of women at or below their pregravid weight at 6 months postpartum	IOM recommendations (40.2% compared with 52.1%, p=0.003, OR 0.38, 95% CI 0.20 to 0.87), but no sognificant effect in OW/OB group (p=0.33) At 6 months: In Intervention group: increased % of women who returned to they pregravid weight (30.7% compared with 18.7%, p=0.005 ; OR 2.1, 95% CI 1.3 to 3.5)		postpartum was 82 % ITT Computer generated randomisation in randomly varied block sizes Power analysis Flow chart The groups are similar at baseline
Ilmonen J, et al. (2011) [60]	256 women recruited in South-West Finland from April 2002 to November 2005	Nutrition counselling to modify dietary intake according to current	control	primary outcome measures applied were mothers' anthropometric measurements, most	During pregnancy: mean total weight gain =14.8 (SD 4.8) kg did not differed between the groups (p =0.981): diet/ probiotics 14.8	1+	Focused question randomization was conducted and the list generated by a statistician (TP) not involved in

Artikel (Autor, Jahr)/ Studien-typ	Anzahl der Patienten/ Patienten-merkmale	Intervention/ ggf. Nachverfolgung	Vergleichs-intervention	Outcomes	Ergebnisse	Evidenz-niveau (z.B. SIGN)	Bemerkungen
RCT	72% (185/256) were followed up till 12 months postpartum Exclusion: multipara, metabolic or chronic comorbidities (with the exception of allergic disease)	recommendations: dietary (lowered intakes of butter and cheese and increased intakes of margarines and vegetable oil) intervention groups were randomized to receive probiotics Lactobacillus rhamnosus GG (ATCC 53103) and Bifidobacterium lactis (diet/probiotics) or placebo (diet/placebo) capsules Duration: up to 12 months postpartum		importantly BMI and adiposity defined as awaist circumference of 80 cm or more, and the proportion of body fat over the 12 months' postpartum period. Secondary outcomes were dietary intakes of foods and nutrients and a healthy eating index during the postpartum period.	(SD 4.4) kg, diet/placebo 14.7 (SD 5.0) kg and control/placebo 14.8 (SD 5.2) kg; proportions of women falling within the recommended range of weight gain were similar (p=0.100): 49.3% in the diet/probiotics group, 39.7% in the diet/placebo groupand 31.4% in the control/placebo group at 6 months postpartum: risk of central adiposity: lowered in the diet/probiotics group compared with the control/placebo group (OR 0.30, 95%CI 0.11-0.85, p= 0.023 adjusted for baseline BMI); diet/placebo group did not differ from the controls (OR 1.00, 95% CI 0.38-2.68, p = 0.994) (NNT) with diet/probiotics to prevent one woman from developing a waist circumference of 80 cm or more was 4. Healthy eating pattern at 12 months postpartum (p = 0.001) and BMI prior to		recruitment or study visits, according to computer-generated block randomization of six women Randomization to receive probiotics or placebo in the dietary intervention groups was conducted in double-blind manner and to receive placebo in the control group in single-blind manner ITT

Artikel (Autor, Jahr)/ Studien-typ	Anzahl der Patienten/ Patienten-merkmale	Intervention/ ggf. Nachverfolgung	Vergleichs-intervention	Outcomes	Ergebnisse	Evidenz-niveau (z.B. SIGN)	Bemerkungen
					pregnancy ($p < 0.001$) were determinants of BMI at 12 months postpartum (adjusted for dietary intervention and exercise)		

Thema: Therapie

Aggregierte Evidenz

a) Leitlinien

Thema - Indikationen, Therapieziele, Therapievoraussetzungen

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung

SIGN (2010): Management of Obesity A national clinical guideline [4]	**Therapieziele/Therapieindikationen**
	Empfehlungen:
	- The aim of weight loss and weight maintenance interventions should be to:
	  - improve pre-existing obesity-related comorbidities
	  - reduce the future risk of obesity-related comorbidities
	  - improve physical, mental and social well-being.
	- Weight loss targets should be based on the individual's comorbidities and risks, rather than their weight alone:
	  - in patients with BMI 25-35 kg/m2 obesity-related comorbidities are less likely to be present and a 5-10% weight loss (approximately 5-10 kgs) is required for cardiovascular disease and metabolic risk
		Recommended best practice based on the clinical experience of the guideline development group	n. a.	Domäne 3 (DELBI) 19 Punkte
				Bei der Suche nach Evidenz wurden systematischen Methoden angewandt

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	reduction. - in patients with BMI > 35 kg/m2 obesity-related comorbidities are likely to be present therefore weight loss interventions should be targeted to improving these comorbidities; in many individuals a greater than 15-20% weight loss (will always be over 10 kg) will be required to obtain a sustained improvement in comorbidity. - Some patients do not fit these categories. Patients from certain ethnic groups (eg South Asians) are more susceptible to the metabolic effects of obesity and related comorbidity is likely to present at lower BMI cut-off points than in individuals of European extraction. The thresholds for weight loss intervention should reflect the needs of the individual. **Therapievoraussetzungen** Chapter 8 “Assessment in adult” Empfehlungen: - When assessing patients with obesity, comorbidities and coexistent risk factors should be taken into account in the history and examination with further investigation as appropriate. - Tests of liver function should be considered in patients with obesity. - Healthcare professionals should discuss willingness to change with patients and then target weight loss interventions according to patient willingness around each component of behaviour required for weight loss, eg specific dietary and/or activity changes. - The Healthy Living Readiness Ruler is recommended to facilitate discussions with patients contemplating weight loss behaviours. (see Annex 4). - Patients should be encouraged to make sustainable lifestyle changes and given support to avoid weight cycling.	best practice of the guideline development group best practice of the guideline development group D best practice of the guideline development group best practice of the guideline development group best practice of		

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	- Weight history, including previous weight loss attempts, should be part of the assessment of patients with obesity.	the guideline development group C		
	- Healthcare professionals should be aware of the possibility of binge-eating disorder in patients who have difficulty losing weight and maintaining weight loss. - Weight management programmes should not exclude patients with binge-eating disorder.	best practice of the guideline development group		
	Zitierte Literatur:	3	Verheijden, 2005 (R. 109)	
	- Assessing motivation for behaviour change: - In order to target interventions appropriately, healthcare professionals need to consider the willingness of a patient to undertake the necessary behaviour change required for effective weight management.	1++	Bridle, 2005 (R. 110)	
	- A systematic review of RCTs examined the effectiveness of health behaviour change interventions (eg around smoking cessation, dietary change, alcohol intake reduction, and increasing physical activity), based on the Transtheoretical 'Stages of Change' model. The review found only limited evidence for the effectiveness of stage-based interventions for behaviour change.	1+, 3	Marshall, 2003 (R. 111)	
	- Despite the common-sense appeal of the assessment of 'readiness to change' using the Transtheoretical 'Stages of Change' model, current evidence does not support this approach to intervention. An RCT examined the effectiveness of using stages as a basis for physical activity intervention. Both stage-matched and mismatched materials led to significant differences in level of physical activity at six months compared to no intervention at all. Booklet-based	1+, 3		

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	interventions encouraging physical activity change are useful to induce short term physical activity changes. - Algorithms that attempt to stage readiness to change may be more effective if tied explicitly to the specific behaviours targeted by the intervention, rather than broad general behaviours, and multiple algorithms may be required. - Weight cycling: - Two cross-sectional studies have shown that the prevalence of BED in the community is around 3% compared with around 30% in patients seeking weight management services. Amongst those in weight loss programmes, BED was significantly more common in females (29.7%) compared with males (21.8%, p=0.02). - People with BED are heavier, are more likely to be overweight as a child, demonstrate weight cycling, and have higher levels of psychological comorbidity including anxiety, depression and personality disorders compared to those without BED - Binge-Eating-Disorder: - A systematic review of seven RCTs comparing group behavioural interventions in patients with BED found that cognitive behavioural therapy (CBT) was effective in reducing binge-eating behaviour but there was no significant weight loss in any group. (R. 128) The effectiveness of CBT in reducing binge frequency but without influencing weight was also confirmed in an RCT with two years follow up. (R. 129,130) In these studies reduction in binge eating rather than weight loss was the intervention goal. - A brief four item questionnaire has been developed to facilitate discussion around binge-eating disorder in primary care (see Annex 6).	3 3 1+ n. a.	Sutton, 2003 (R. 112); Vallis, 2003 (R. 113); Boudreaux, 2003 (R. 114) Spitzer, 1992 (R. 124); Spitzer, 1993 (R. 125) Yanovski, 1993, (R. 126); Jirik-Babb, 2003 (R. 127) Brownley, 2007 (R. 128); Devlin, 2005 (R. 129); Devlin, 2007 (R. 130) Bruce, 1996 (R. 131)	
NICE (2006): Obesity guidance on the prevention, identification,	**Therapieindikationen** - 1.7.2.9 - Assessment of the health risks associated with overweight and obesity in adults should be based on BMI and waist circumference as follows.	n. a.	n. a.	Domäne 3 (DELBI) 17 Punkte Bei der Suche nach Evidenz wurden systematischen

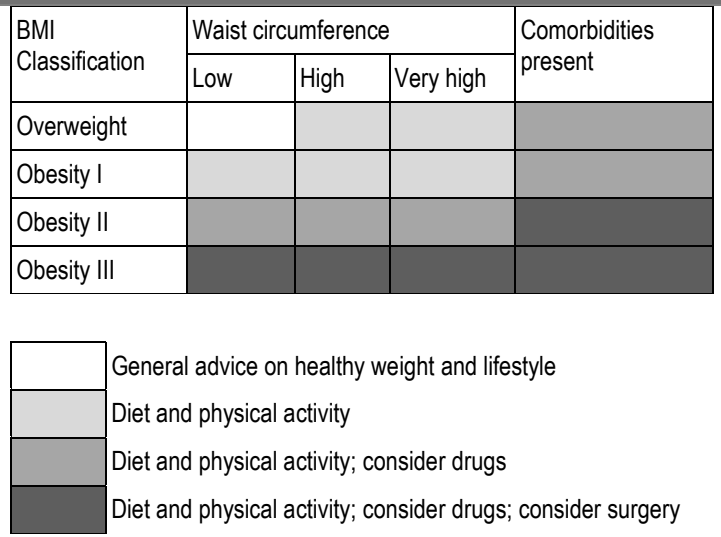
<table>
<tr><th>Quelle</th><th>Text</th><th>Evidenz- bzw. Empfehlungs-grad</th><th>Literaturbelege</th><th>Methodische Bewertung</th></tr>
<tr><td>assessment and management of overweight and obesity in adults and children [7]</td><td>
<table>
<tr><td rowspan="2">BMI classify-cation</td><td colspan="3">Waist circumference</td></tr>
<tr><td>Low</td><td>High</td><td>Very high</td></tr>
<tr><td>Overweight</td><td>No increased risk</td><td>Increased risk</td><td>High risk</td></tr>
<tr><td>Obesity I</td><td>Increased risk</td><td>High risk</td><td>Very high risk</td></tr>
</table>
- For men, waist circumference of less than 94 cm is low, 94–102 cm is high and more than102 cm is very high. For women, waist circumference of less than 80 cm is low, 80–88 cm is high and more than 88 cm is very high.
- 1.7.2.11
- The level of intervention to discuss with the patient initially should be based as follows.
<table>
<tr><td rowspan="2">BMI Classification</td><td colspan="3">Waist circumference</td><td rowspan="2">Comorbidities present</td></tr>
<tr><td>Low</td><td>High</td><td>Very high</td></tr>
<tr><td>Overweight</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Obesity I</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Obesity II</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Obesity III</td><td></td><td></td><td></td><td></td></tr>
</table>
<table>
<tr><td></td><td>General advice on healthy weight and lifestyle</td></tr>
<tr><td></td><td>Diet and physical activity</td></tr>
<tr><td></td><td>Diet and physical activity; consider drugs</td></tr>
<tr><td></td><td>Diet and physical activity; consider drugs; consider surgery</td></tr>
</table>
- Note that the level of intervention should be higher for patients with</td><td></td><td></td><td>Methoden angewandt</td></tr>
</table>

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	comorbidities (see section 1.7.3 for details), regardless of their waist circumference. The approach should be adjusted as needed, depending on the patient's clinical need and potential to benefit from losing weight.			
ICSI (2011): Health Care Guideline: Prevention and Management of Obesity (Mature Adolescents and Adults) [5]	**Therapieindikationen** - BMI 25-30: Lifestyle changes and behavioral management. - + major comorbid condition or 3 minor comorbid conditions: medication therapy may be initiated starting at a BMI of 27 or greater (P. 1; 13) - BMI 30-35: Lifestyle changes, behavioral management and medication therapy. - BMI 35-40: Lifestyle changes, behavioral management and medication therapy. - + 1-2 minor comorbid conditions: surgical options; - Bariatric surgery is indicated in carefully selected patients with a body mass index greater than or equal to 40 or 35-39.9 who are at a very high absolute risk for increased morbidity or premature mortality well-informed in disease management, psychologically stable and accepting of operative risks. (P. 20) BMI 40+: Lifestyle changes, behavioral management, medication therapy and surgical options.	n. a.	n. a.	Domäne 3 (DELBI) 12 Punkte Bei der Suche nach Evidenz wurden keine systematischen Methoden angewandt Keine Literaturangaben bei Overview, nur bei Annotations

Thema: Basisprogramm

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
ICSI (2011): Health Care Guideline: Prevention and Management of Obesity (Mature Adolescents and Adults) [5]	- Weight management includes physical activity, nutrition and behaviour management strategies. - Successful weight-loss maintenance is sustained by a combination of lower calorie intake and increased physical activity. Analysis of data from the National Weight Control Registry indicates weight-loss maintainers have an average intake of 1,400 kcal/day and get one hour of moderate activity per day, and eat breakfast daily. - Daily, weekly and short-term goals are important. High-intensity weekly face-to-face meetings produce the best results.	M, R, C	n. a. Franz, 2007 [M]; Freedman, 2001 [R] Wing, 2001 [R]; McGuire, 1998 [C] n. a.	Domäne 3 (DELBI) 12 Punkte Bei der Suche nach Evidenz wurden keine systematischen Methoden angewandt Keine Literaturangaben bei Overview, nur bei Annotations
SIGN (2010): Management of Obesity A national clinical guideline [4]	Empfehlungen: - Weight management programmes should include physical activity, dietary change and behavioural components. - Reducing inactivity should be a component of weight management programmes. Zitierte Literatur: - Diet plus physical activity: There is consistent evidence that combined diet and physical activity is more effective for weight loss than diet alone. - Diet plus physical activity plus behavioral therapy: A combination of physical activity (varying in level from three supervised sessions plus exercise information to recording of 30-45 minutes of activity four to five times week), behaviour therapy (components as listed below) and diet (either calorie deficit or a low calorie diet) is more effective for weight loss compared with diet alone. In a meta-analysis of five studies, median weight change was –4.60 kg (range –3.33 kg to –5.87 kg) for the	A best practice of the guideline development group 1+ 1++	n. a. n. a. NICE, 2006 (R. 64); Avenell, 2004 (R. 98); Curioni, 2005 (R. 132); Norris, 2004 (R. 133) NICE, 2006 (R. 64)	Domäne 3 (DELBI) 19 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt **CAVE:** siehe auch hier im Text 1.8 „Gewichtsreduk-tionsprogramme“: kommerzielle und internetbasierte Programme

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	combined intervention and –0.48 kg (range 0.53 kg to –2.40 kg) for diet alone. - The addition of exercise and behavioural therapy to diet programmes in patients with, or at elevated risk of, type 2 diabetes confers additional benefit in terms of weight loss. - The Counterweight® programme using a multifaceted approach (dietary manipulation, exercise and behaviour modification and pharmacotherapy) has been evaluated as feasible for delivery in primary care.	1+ 2 +	Norris, 2004 (R. 133); Norris, 2005 (R. 134) Laws, 2004 (R. 135); McQuigg, 2005 (R. 136); Counterweight project team, 2008 (R. 137)	
NICE (2006): Obesity guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children [7]	- 1.7.1.4 - The components of the planned weight-management programme should be tailored to the person's preferences, initial fitness, health status and lifestyle - 1.7.4.2 - When choosing treatments, the following factors should be considered: - the person's individual preference and social circumstance and the experience and outcome of previous treatments (including whether there were any barriers) - their level of risk, based on BMI and waist circumference (see recommendations 1.7.2.9 and 1.7.2.11) - any comorbidities. - 1.7.4.11 - The level of intensity of the intervention should be based on the level of risk and the potential to gain health benefits (see recommendation 1.7.2.11). - 1.7.3.2 - Any comorbidities should be managed when they are identified, rather than waiting until the person has lost weight. - 1.7.2.11 - The level of intervention to discuss with the patient initially should be based as follows.	n. a. n. a. n. a. n. a. n. a.	n. a. n. a. n. a. n. a. n. a.	Domäne 3 (DELBI) 17 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	 - Note that the level of intervention should be higher for patients with comorbidities (see section 1.7.3 for details), regardless of their waist circumference. The approach should be adjusted as needed, depending on the patient's clinical need and potential to benefit from losing weight. - 1.7.4.1 - Multicomponent interventions are the treatment of choice. Weight management programmes should include behaviour change strategies (see recommendations 1.7.4.15–17) to increase people's physical activity levels or decrease inactivity, improve eating behaviour and the quality of the person's diet and reduce energy intake. - Evidence Statements - Overall, physical activity (minimum of 45 minutes three times a week) and diet (600 kcal/deficit or low fat) is effective for weight loss: a change of approximately –7 kg (95% CI -7.88 to -5.87, range –	1 + 1 ++	(aus Section 5 Lit. S. 685-715); (4) Avenell A; (3) Agency for Healthcare Research and Quality. (46) Shaw K.; (47) Smith J; (48)McTigue KM (49) McLean N (aus Section 5 Lit. S. 685-715) 13,78-87	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	1.70 kg to –10.40 kg) compared with no treatment at 12 months. - Median weight change across all studies was approximately –5.10 kg (range 0.70 kg to –8.70 kg) for physical activity and diet and 1.30 kg (range 2.40 kg to –0.60 kg) for no treatment (n = 5 comparisons) - One study showed a combination of physical activity (30 minutes of moderate exercise daily plus supervised resistance training twice a week) and diet (classified as calorie deficit) resulted in weight change of –3.50 kg (95% CI -4.27 to -2.73) compared with information at 12 months. - Absolute weight changes were –4.50 kg for the activity and diet compared with –1.00 kg for information (n = 1 comparison) - Overall, physical activity (minimum of 45 minutes three times a week) and diet (600 kcal/deficit or low fat) is effective for weight loss: a change of approximately –1.95 kg (95% CI -3.22 to -0.68) range –1.00 kg to –3.60 kg) compared to diet alone at 12 months - Median weight change across all studies was approximately -5.60 kg (range –5.10 kg to –8.70 kg) for physical activity and diet and –4.10 kg (range –4.00 kg to –5.10 kg) for diet alone (n = 5 comparisons) - Overall, a combination of physical activity (varying in level from three four sessions over 12 months to 30–45 minutes four to five times week), behaviour therapy (situational control, including cue avoidance, self-monitoring of calorie intake, eating behaviours and pulse rate, management of eating behaviours, relapse prevention, goal setting, cognitive reframing and coping imagery, stimulus control, social assertion, reinforcement techniques for enhancing motivation, cognitive strategies for replacing negative thinking with more positive statements and constructive self-statements), and diet (either calorie deficit or a low-calorie diet) is effective for weight loss: a change of –4.22 kg (95% CI -4.80 to -3.64, range –2.20 kg to –4.88 kg) compared with control (no treatment) at 12 months - Median weight change across all studies was approximately –4.60 kg (range –3.33 kg to –5.87 kg) for the combined intervention	1 + 1 ++	88-90 13,27,81-87	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	and –0.48 kg (range 0.53 kg to –2.40 kg) for diet alone (n = 5 comparisons) - Overall, a combination of physical activity (minimum 150 minutes per week), behaviour therapy (behaviour change goals and problem solving, goal setting, menu planning, self-efficacy, consideration of body image, social support, social eating, removing road blocks, positive thinking, dealing with high-risk situations and slips, cue elimination, stress management and relapse prevention, self-monitoring, problem solving, managing cues, stimulus control, positive assertion, positive thinking, holiday eating, social support, motivation, role playing, modelling food tasting and grocery store tours) and diet (either calorie deficit or a VLCD) is effective for weight loss: a change of –3.82 kg (95% CI -4.63 to -3.02, range 1.70 to –8.85) compared with information alone - Median weight change across all studies was approximately –3.90 kg (range 2.50 kg to –8.00 kg) for the combined intervention and 0.15 kg (range 0.85 kg to –0.50 kg) for information (n = 6 comparisons) - One study showed a combination of physical activity (individualised level), behaviour therapy (self-monitoring, stimulus control, reinforcement, cognitive change), and diet (calorie deficit) was associated with a summary estimate of weight change of –5.80 kg (WMD 95% CI –8.91 to –2.69, based on one comparison) compared with behaviour therapy (enhancing body acceptance, disentangling self-worth from weight, barriers transformation, increased support and assertion, self-monitoring) alone - Absolute weight changes were –5.90 kg for the combined group compared with –0.10 kg for behaviour therapy. (n = 1 comparison) - One study showed a combination of physical activity (approximately 45 minutes five times a week maximum), behaviour therapy (stimulus control, problem solving,; reducing barriers, exercising in different weather conditions), and diet (VLCD 800-1000kcal/day and 1200-1500kcal for maintenance) was associated with a summary estimate of weight change of –7.00 kg (WMD 95% CI –10.90 to –	1 ++ 1 ++ 1 +	91-102 55,58,77,103-108 112	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	3.10, based on one comparison) compared with physical activity and behaviour therapy - Absolute weight changes were –7.4 kg for the combined approach compared with –0.40 kg for activity and behaviour therapy (n = 1 comparison)	1 +	58,77	
CMA (2006): Canadian clinical practice guidelines on the management and prevention of obesity in adults and children [8]	- CMAJ recommend a comprehensive lifestyle intervention for overweight and obese people. - CMAJ recommend comprehensive lifestyle interventions (combining behaviour modification techniques, cognitive behavioural therapy, activity enhancement and dietary counselling) for all obese adults. - CMAJ recommend an energy-reduced diet and regular physical activity as the first treatment option for overweight and obese adults (…) to achieve clinically important weight loss and reduce obesity-related symptoms. - CMAJ recommend diet and exercise therapy for overweight and obese people with risk factors for type 2 diabetes (…). - CMAJ recommend diet and exercise therapy for overweight and obese people with risk factors for (…) cardiovascular disease.	A / 1 A / 1 A / 2 A / 1 A / 2	n. a. 39, 46, 47, 48 32, 33, 34, 35, 36 38, 39, 40 41, 42	Domäne 3 (DELBI) 15 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt

Thema: Ernährungstherapie

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
ICSI (2011): Health Care Guideline: Prevention and Management of Obesity (Mature Adolescents and Adults)	Empfehlungen: Overview of Management Recommendations: Nutrition (balanced healthy eating plan or lower calorie balanced eating plan) - Encourage at least five servings of fruits and vegetables per day, whole grains with a fiber intake of 20-35 grams of fiber daily, less than or equal to 30% of calories from fat (7%-10% of calories from saturated fat, less than or equal to 1% from trans fat).	n. a.	n. a.	Domäne 3 (DELBI) 12 Punkte Bei der Suche nach Evidenz wurden keine systematischen Methoden angewandt

<table>
<tr><th>Quelle</th><th>Text</th><th>Evidenz- bzw. Empfehlungs-grad</th><th>Literaturbelege</th><th>Methodische Bewertung</th></tr>
<tr><td>[5]</td><td>
- For weight loss, encourage calorie reduction by evaluating portion sizes and journaling food intake.
- Provide tips for managing eating in social situations, dining out, take-out foods and food label reading.
- Provide referral to a dietitian, nutritionist or structured medically supervised weight loss program if available.
- Consider the use of meal replacements or very low calorie diet (VLCD) under medical supervision to help achieve weight loss in patients who are interested in such programs.
Zitierte Literatur :
- Dietary guidance should be individualized and tailored to food and beverage preferences; it should allow for flexible approaches to reducing calorie intake. Achieving weight loss by a reduction in calorie intake. A moderate decrease in calories (500-1,000 kcal per day) can result in a progressive weight loss of 1-2 pounds per week
- A weight-loss eating plan that supplies at least 1,000-1,200 kcal/day for women and 1,200-1,600 kcal/day for men
- Table 6: *Lower-Calorie Meal Plan for Weight Loss
<table>
<tr><td>Nutrient</td><td>Recommended Intake</td></tr>
<tr><td>Calories</td><td>500-1,000 kcal/day reduction from usual intake</td></tr>
<tr><td>Total fat</td><td>30% or less of total calories</td></tr>
<tr><td>Trans fat</td><td>Less than or equal to 1% of total calories</td></tr>
<tr><td>Saturated fat</td><td>7%-10% of total calories</td></tr>
<tr><td>Monounsaturated fat</td><td>Up to 15% of total calories</td></tr>
<tr><td>Protein</td><td>15% of total calories</td></tr>
<tr><td>† Carbohydrates, complex, from variety of vegetables, fruits</td><td>55% of total calories</td></tr>
</table>
</td><td>R

R

n. a.</td><td>National Heart, Lung and Blood Institute, 2000 [R]

National Heart, Lung and Blood Institute, 1998 [R]

NHLBI, 2000; NHLBI 2002</td><td>Keine Literaturangaben bei Overview, nur bei Annotations</td></tr>
</table>

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	<table><tr><td>and whole grains</td><td></td></tr><tr><td>Fiber</td><td>Equal to or greater than 25-35 grams</td></tr></table>			
	- † The RDA (recommended daily allowance) for carbohydrates has been established as a minimum of 130 grams per day for adults and children (Institute of Medicine of the National Academies, 2002 [NA]).	NA	Institute of Medicine of the National Academies, 2002 [NA]	
	- An eating plan that is balanced and consistent with other national dietary guidelines	A	Esposito, 2003 [A]	
	- The lower the combined intake of saturated and trans fat and the lower the dietary cholesterol intake, the greater the cardiovascular benefit will be	R	USDA, 2005 [R]	
	- All low-calorie diets will produce weight loss in the short term (3 to 12 months)	M, R	Bravata, 2003 [M]; Freedman, 2001 [R]; National Heart, Lung and Blood Institute, 1998 [R]	
	- People who are insulin resistant may respond better to a lower-carbohydrate meal plan (< 30% carbohydrate)	A	Garder, 2007 [A]	
	- Weight-loss recommendations that exclude food groups and/or restrict macronutrients substantially below the dietary reference intakes and RDAs can cause nutrient deficiencies and increase health risks	R	Bonow, 2003 [NA]; Freedman, 2001 [R]	
	- Another meal planning approach is utilizing meal replacements. This typically involves using frozen meals, formula shakes or bars or prepackaged meals to control portion sizes and simplify food decisions. Drinks and bars are used to replace two meals and one snack per day. Most meal replacements contain 200-400 calories, and additional servings of fruits and vegetables are recommended. Weight maintenance usually involves replacing one meal per day	R, M	Delahanty, 2002 [R]; Heymsfield, 2003 [M]; Kushner, 2003a [R]	
	- VLCDs (very low calorie diets) should be used only for weight-loss therapy by experienced practitioners with specialized monitoring and use of supplements.	R	National Heart, Lung and Blood Institute, 2000 [R]	
	- If VLCDs are used, weight loss can be expected in the first six months (~20 kg); however, there is rapid regain between 6 to 12 months if a maintenance program is not included. Weight loss is typically not maintained without ongoing dietary and behavioral support	C, A	Paisey 2002 [C]; Torgerson, 1999 [A]	
	- Successful weight-loss maintenance is sustained by a combination of lower calorie intake and increased physical activity	M, R, C	Franz, 2007 [M]; Freedman, 2001 [R]; Wing, 2001 [R]; McGuire, 1998 [C]	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	- A low-glycemic-index diet is not more effective than traditional low-fat diet for weight loss or weight maintenance in general but may be beneficial for patients with certain risk factors such as insulin resistance - More studies are needed to determine long-term effect on hunger and satiety, as well as possible genetic predictors of dietary success	A A	Gardner, 2010 [A] Ebbeling, 2005 [A]; Thompson, 2005 [A]	
SIGN (2010): Management of Obesity A national clinical guideline [4]	Empfehlungen: - Dietary interventions for weight loss should be calculated to produce a 600 kcal/day energy deficit. Programmes should be tailored to the dietary preferences of the individual patient. - W hen discussing dietary change with patients, healthcare professionals should emphasise achievable and sustainable healthy eating. - Where very low calorie diets are indicated for rapid weight loss, these should be conducted under medical supervision. Zitierte Literatur : - Weight loss via dietary intervention requires modifications to the type, quantity and/or frequency of food and drink consumed to achieve and maintain a hypocaloric intake. A weight loss of approximately 0.5 kg per week results from a loss of adipose tissue that entails an energy deficit of 3,500 kcal per week. This requires a daily energy deficit of at least 500 kcals per day. - Reducing energie intake: The 2006 NICE guideline compares various dietary interventions. It is largely based on a comprehensive health technology assessment (HTA) which systematically reviewed RCTs of dietary interventions in overweight and obese patients with a minimum of 12 months follow up. Reporting issues in the HTA meant that 600 kcal/day deficit diets and low-fat diets were considered together. Median weight change across 12 comparisons was a loss of 4.6 kg (range –0.60 kg to –7.20 kg) for a 600 kcal deficit diet or low-fat diet and a gain of 0.60 kg (range +2.40 kg to –1.30 kg) for usual care. There were clear benefits with regard to clinical outcomes such as prevention of diabetes and improvement in hypertension. These effects appeared to persist for up to	A best practice of the guideline development group D n. a. 1 ++	n. a. n. a. n. a. Lean, 1986 (R. 149) Avenell, 2004 (R. 98)	Domäne 3 (DELBI) 19 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	three years. - low and Very Low Calorie diets: - Low calorie diets (LCD, 800-1800 kcal/day) and very low calorie diets (VLCD,<800 kcal/day) are associated with modest weight loss (5-6%) at 12 months follow up. Although VLCD are associated with greater weight loss in the short term (three to four months) this difference is not sustained at 12 months. - The British Dietetic Association specialist group on obesity management has produced a position statement on the use of very low energy diets, which recommends close medical and dietary supervision. - Food composition: - Both low carbohydrate (<30 g/day) and low-fat (<30% of total daily energy) diets are associated with modest weight loss at 12 months. A meta-analysis comparing low carbohydrate/high protein (LC/HP) diets with low-fat/high carbohydrate (LF/HC) diets found that the LC/HP diets were more effective for weight loss at six months but that the difference between strategies was not significant at 12 months. - A large RCT (n=811) with follow up to two years concluded that reduced calorie diets result in clinically meaningful weight loss regardless of which macronutrients they emphasise. - Commercial diets: - A variety of commercial weight reduction programmes (Atkins, low carbohydrate; Ornish, LEARN, very low fat; and Zone macronutrient ratios), are associated with a modest reduction in body weight and a reduction in several cardiac risk factors in overweight and obese premenopausal women at 12 months. Zone, LEARN and Ornish produce comparable results. Atkins was associated with significantly greater weight loss and more favourable metabolic effects at 12 months than Zone. - In an RCT of commercial weight loss programmes in the UK (Dr Atkins' new diet revolution, Slim-Fast plan, Weight Watchers pure points programme, and Rosemary Conley's eat yourself slim diet and	1 ++ 4 1 ++ 1 ++ 1 ++	Gilden Tsai, 2006 (R. 150) DOM UK, 2007 (R. 151) Hession, 2009 (R. 152); Nordmann, 2006 (R. 153) Sacks, 2009 (R. 154) Gardner, 2007 (R. 155) Truby, 2006 (R. 156)	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	fitness plan), all groups lost weight and body fat at six months compared to control (average weight loss 5.9 kg) but there was no difference between groups. At 12 months follow up all diets resulted in a clinically useful weight loss of around 10% in participants who had kept to their original diet. - In adults with known hypertension, dyslipidemia, or fasting hyperglycaemia, a range of commercial weight reduction programmes (Atkins, Weight Watchers, Ornish, Zone) is associated with a modest reduction in body weight and a reduction in several cardiac risk factors at one year. Increased adherence resulted in more weight loss and a greater reduction in cardiac risk factors. - Glycaemic load/glycaemic index diets: - One systematic review of glycaemic load diets was identified. This included studies in which subjects were not classified as obese. Studies were generally small with short term follow up. There is insufficient evidence on which to base a recommendation. - Mediterranean diet: - A systematic review which combined observational and intervention studies identified eight controlled intervention studies. Follow up ranged from one month to 2.5 years. Only two of the studies had one year or more follow up and had selected an obese population. In these two studies the Mediterranean diet group lost significantly more weight than the control group who were given either information on a healthy diet or prescribed a low-fat diet. The need for a consistent universal definition of the mediterranean diet was highlighted. There is insufficient evidence on which to base a recommendation.	1 ++ 1 ++ 1 + 1 +	Dansinger, 2005 (R. 157) Thomas, 2007 (R. 158) Buckland, 2008 (R. 159)	
NICE (2006): Obesity guidance on the prevention, identification, assessment and management of	- 1.7.4.30 Reduktion des Fettverzehrs/ mäßig energiereduzierte Mischkost - Diets that have a 600 kcal/day deficit (that is, they contain 600 kcal less than the person needs to stay the same weight) or that reduce calories by lowering the fat content (low-fat diets), in combination with expert support and intensive follow-up, are recommended for sustainable weight loss. - Niedrig kalorische Diät / Mahlzeitenersatz 1.7.4.31	1 ++	(4) HTA: Avenell A, Broom J, Brown TJ, Poobalan A, Aucott L, Stearns SC et al. Systematic review of the long-term effects and economic consequences of treatments for obesity and implications for health improvement, 2004. S. 685 Nicht einbezogen: Ley SJ, Metcalf PA,	Domäne 3 (DELBI) 17 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
overweight and obesity in adults and children [7]	- Low-calorie diets (1000–1600 kcal/day) may also be considered, but are less likely to be nutritionally complete. - Sehr niedrig kalorische Diät (max. 800 –1000 kcal.) 1.7.4.32 - Very-low-calorie diets (less than 1000 kcal/day) may be used for a maximum of 12 weeks continuously, or intermittently with a low-calorie diet (for example for 2–4 days a week), by people who are obese and have reached a plateau in weight loss. - Weitere positive gesundheitliche Effekte diätetischer Massnahmen 1.7.4.28 - People should be encouraged to improve their diet even if they do not lose weight, because there can be other health benefits. Overall, a 600 kcal deficit diet or low-fat diet is more effective in lowering total cholesterol levels than usual care: a change of approximately –0.21 mmol/l (95% CI -.34 to -0.08, range –0.34 mmol/l to –0.08 mmol/l) at 12 months - Median change across studies was approximately –0.37 mmol/l (range –0.23 mmol/l to –0.42 mmol/l) for a 600 kcal deficit diet or low-fat diet and –0.15 mmol/l (range –0.03 mmol/l to –0.23mmo/l) for usual care - A 600 kcal deficit diet or low-fat diet is also more effective in lowering levels of LDL-cholesterol (–0.13 mmol/l, 95% CI -0.26 to 0.00), HDL-cholesterol (+0.06 mmol/l, 95% CI 0.03 to 0.09), triglycerides (–0.19 mmol/l, 95% CI -0.31 to -0.06), systolic blood pressure (–3.78 mmHg, 95% CI -5.53 to -2.03), and diastolic blood pressure (–3.44mmHg, 95%CI -4.86 to -2.01) than usual care at 12 months (n = 4 comparisons) - Overall, a 600 kcal deficit diet or low-fat diet is more effective in lowering total cholesterol levels than a PSMF (food-based, with a calorie content in the range of 1400–1900 kcal/day): a change of approximately –0.18 mmol/l (95% CI -0.35 to -0.02, range –0.15 mmol/l to –0.37 mmol/l) at 12 months - Median change across studies was approximately –0.21 mmol/l (range –0.14 mmol/l to –0.26 mmol/l) for a 600 kcal deficit diet or low-	1 + 1 + 1 ++ 1 ++ 1+	Scragg RK, Swinburn BA. Long-term effects of a reduced fat diet intervention on cardiovascular disease risk factors in individuals with glucose intolerance. Diabetes Res Clin Pract 2004; 63(2):103-112. HTA s.o. daraus: 819) de Waard F, Ramlau R, Mulders Y, de Vries T, van Waveren S. A feasibility study on weight reduction in obese postmenopausal breast cancer patients. 1993; 2(3):233-238. HTA s.o., daraus: (20) Stenius-Aarniala B, Poussa T, Kvarnstrom J, Gronlund EL, Ylikahri M, Mustajoki P. Immediate and long term effects of weight reduction in obese people with asthma: randomised controlled study.[see comment][erratum appears in BMJ 2000 Apr 8;320(7240):984]. BMJ 2000; 320(7238):827-832. ab S. 685 Section 5 (23) Dansinger ML, Gleason JA, Griffith JL,	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	fat diet and +0.01 mmol/l (range +0.16 mmol/l to –0.11mmo/l) for a PSMF (food-based, with a calorie content in the range of 1400–1900 kcal/day). - But the PSMF appears to be more effective in improving HDL-cholesterol levels (+0.08 mmol/l, 95% CI 0.03 to 0.18), and triglyceride levels (–0.28 mmol/l, 95% CI -0.48 to -0.09) than a 600 kcal deficit diet or low-fat diet at 12 months (n = 3 comparisons)	1 +	Selker HP, Schaefer EJ. Comparison of the Atkins, Ornish, Weight Watchers, and Zone diets for weight loss and heart disease risk reduction: a randomized trial. JAMA 2005; 293(1):43-53.	
	- In people with insulin resistance, one study showed that a 600 kcal deficit diet or low-fat diet resulted in a lowering of fasting plasma glucose of –0.28 mmol/l (95% CI -0.47 to -0.09) compared to usual care at 12 months. Absolute changes were –0.21 mmol/l for the 600 kcal deficit diet or low-fat diet compared with +0.07 mmol/l for usual care (n = 1 comparison)	1 +	Studie aus (4) nicht explizit zitiert	
	- In people with a family history of diabetes, one study showed that a low-fat diet resulted in lowering of total cholesterol levels of –0.42 mmol/l (95% CI -0.75 to -0.09) compared with a low-calorie diet at 12 months. Absolute changes were –0.18 mmol/l for the low-fat diet compared with +0.24 mmol/l for the low-calorie diet (n = 1 comparison)	1 +	(30) Pascale RW, Wing RR, Butler BA, Mullen M, Bononi P. Effects of a behavioral weight loss program stressing calorie restriction versus calorie plus fat restriction in obese individuals with NIDDM or a family history of diabetes. Diabetes Care 1995; 18(9):1241-1248.	
	- In people with type 2 diabetes, one study showed significant lowering of fasting plasma glucose (–4.50 mmol/l, 95% CI -7.07 to -1.93) and %HbA1c (–2.60%, 95% CI -4.36 to -0.84) at 18 months after use of a protein sparing modified VLCD (meal replacements or food based, 400 kcal/day) alternating with a low-calorie diet compared with continuous use of a low-calorie diet (n = 1 comparison)	1 +	Aus (4) nicht explizit zietiert	
	- One study showed that a low-calorie diet, resulted in an increase in HDL-cholesterol levels of +0.10 mmol/l (95% CI 0.01 to 0.19) compared with a very-low-fat diet at 12 months. Absolute changes were +0.09 mmol/l for the low-calorie diet compared with –0.01 mmol/l for a very-low-fat diet (n = 1 comparison)	1 ++	(23) Dansinger ML, Gleason JA, Griffith JL, Selker HP, Schaefer EJ. Comparison of the Atkins, Ornish, Weight Watchers, and Zone diets for weight loss and heart disease risk reduction: a randomized trial. JAMA 2005; 293(1):43-53.	
	- One study showed that a PSMF (based on food, calorie content 1700–1800 kcal/day), resulted in an increase in HDL-cholesterol of +0.10 mmol/l (95% CI 0.02 to 0.18) compared with a very-low-fat diet at 12 months. Absolute changes were +0.09 mml/l for the PSMF		(23) Dansinger ML, Gleason JA, Griffith JL, Selker HP, Schaefer EJ. Comparison of the Atkins, Ornish, Weight Watchers, and Zone diets for weight loss and heart disease risk reduction: a randomized trial. JAMA	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	compared to –0.01 mmol/l for a very-low-fat diet (n = 1 comparison) - No significant differences were seen between diets for other outcomes at 12 months - 1.7.4.26 - Dietary changes should be individualised, tailored to food preferences and allow for flexible approaches to reducing calorie intake. - 1.7.4.34 - In the longer term, people should move towards eating a balanced diet, consistent with other healthy eating advice. - 1.7.4.33 - Any diet of less than 600 kcal/day should be used only under clinical supervision - 1.7.4.27 - Unduly restrictive and nutritionally unbalanced diets should not be used, because they are ineffective in the long term and can be harmful.	n. a. n. a. n. a. n. a.	2005; 293(1):43-53. (4) n. a. n. a. n. a. n. a.	
CMA (2006): Canadian clinical practice guidelines on the management and prevention of obesity in adults and children [8]	- CMAJ suggest that the optimal dietary plan for achieving healthy body weight and dietary counselling for adults, adolescents and children be developed with a qualified and experienced health professional (preferably a registered dietitian) together with the individual and family to meet their needs. - CMAJ recommend that a nutritionally balanced diet (designed to reduce energy intake) be combined with other supportive interventions to achieve a healthy body weight in overweight and obese people of all ages and to ensure the maintenance of growth in adolescents and youth - CMAJ suggest a high-protein or a low-fat diet (within acceptable macronutrient distribution ranges indicated in the Dietary Reference Intakes) as a reasonable short-term (6–12 months) treatment option for obese adults as part of a weight-loss program. - Niedrig kalorische Diät/ Mahlzeitersatz: Meal replacements may be considered as a component of an energy-reduced diet for selected adults interested in commencing a dietary weight-loss program.	B / 2 C / 4 B / 2 C / 2	54, 55, 56 n. a. 57, 58 59, 60	Domäne 3 (DELBI) 15 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt

Thema: Bewegungstherapie

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
ICSI (2011): Health Care Guideline: Prevention and Management of Obesity (Mature Adolescents and Adults) [5]	Empfehlungen: Overview of Management Recommendations: Physical activity - Minimally, all patients should be encouraged to do at least 10 minutes of physical activity above what they are already doing each day and gradually increase the amount of time, followed by an increase in intensity. - Ideally, all patients should meet the current recommendations of 60 minutes of moderate-intensity activity on most days per week. This can be done in 10-minute increments. - Patients with chronic activity limitations (e.g., arthritis, respiratory dysfunction, neuropathy, morbid obesity) should be evaluated and managed to establish or enhance patient mobility. - Small bouts of physical activity, not generally considered exercise, such as taking the stairs, parking farther away, exercising while watching TV, standing rather than sitting and activity breaks from screens (TV, computer, other media) are also important for healthy body weight. Zitierte Literatur: - Physical inactivity, or sedentary lifestyle, has been previously identified as an independent risk factor for cardiovascular disease by the American Heart Association - Physical inactivity is currently seen as a key contributor to the obesity problem. With approximately 60% of adults in the United States overweight - While physical activity has long been recognized as an important component of a healthy lifestyle and longevity - Some of the confusion arises from inherent individual variability in response to exercise - Evidence still remains that increasing calorie expenditure by increasing physical activity is necessary for improved weight-loss outcomes and weight maintenance	 n. a. n. a. n. a. n. a. R D B C A, R, M	 n. a. n. a. n. a. n. a. Fletcher, 1992 [R] Flegal, 2002 [D] Paffenbarger, 1986 [B] Skinner, 2001 [C] Esposito, 2003 [A]; Rejeski, 2002 [A]; National Heart, Lung and Blood Institute,	Domäne 3 (DELBI) nur 12 Punkte Bei der Suche nach Evidenz wurden keine systematischen Methoden angewandt Keine Literaturangaben bei Overview, nur bei Annotations

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	- Improved outcomes for long-term weight reduction occur when a low-calorie intake is combined with increased physical activity and behavior therapy	A, R, M	2000 [R]; Miller, 1997 [M] Diabetes Prevention Program Research Group, 2002 [A]; Rejeski, 2002 [A]; Freedman, 2001 [R]; Tuomilehto, 2001 [A]; Chao, 2000 [A]; National Heart, Lung and Blood Institute, 2000 [R]; National Heart, Lung and Blood Institute, 1998 [R]; Miller, 1997 [M]	
	Specific Roles for Physical Activity in Obesity Acute weight loss: - Without some control of caloric intake, studies suggest difficulty losing weight with exercise alone. There is a 2 kg weight loss that is additive to dietary loss when patients exercise more than 150 minutes per week	B	Jakicic, 2011 [B]	
	- There appear to be gender differences in exercise effect while on ad libitum diets. Men were more likely to lose weight while women only prevented weight gain	A	Donnelly, 2003 [A]	
	- The magnitude of the changes was judged of limited biological significance. Gender differences in training response were noted	C	Wilmore, 1999 [C]	
	Metabolic fitness with or without weight loss - The literature supports a role for physical activity in improving metabolic syndrome with 5% to 10% weight loss	R	Goldstein, 1992 [R]	
	- Intermittent exercise, two 15-minute brisk walks five days per week, did not result in weight loss but did significantly improve HDL and insulin levels in moderately obese females	A	Donnelly, 2000 [A]	
	- In men, weight loss induced by increased daily physical activity without caloric restriction reduced abdominal obesity and insulin resistance. Exercise without weight loss reduced abdominal fat and improved cardiovascular fitness but not insulin levels	A	Ross, 2000 [A]	
	- Obese men and women with impaired glucose tolerance who received lifestyle intervention and exercise counseling had improved weight loss and significantly reduced progression to diabetes	A	Tuomilehto, 2001 [A]	
	- There are studies of physical activity that do not show an independent metabolic effect beyond weight loss. In obese women, aerobic exercise and resistance exercise had no additional affect over diet alone on weight	A	Janssen, 2002 [A]	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	loss, change in regional adiposity nor improvement in insulin or lipid levels			
	Physical activity prescription:			
	- Over 20 years ago it was suggested that physicians write individualized exercise prescriptions	R	Gibson, 1983 [R]	
	- Certain commercially available products such as pedometers and heart rate monitors may be helpful to patients in order to monitor the daily physical activity levels	A	Stovitz, 2005 [A]	
	Duration			
	- The current American College of Sports Medicine position is 30 minutes of moderate-intensity activity on most days per week	R	American College of Sports Medicine, 2001 [R]	
	- Multiple short bouts of exercise for 10 minutes duration also achieved cardiovascular improvement and weight loss with better program adherence	A	Jakicic, 1995 [A]	
	- It has been found that moderate-intensity physical activity between 150 and 200 minutes/week will improve weight loss in conjunction with moderate diet restriction. If this amount of physical activity is used alone without diet restriction, there is only modest weight loss	R	Donnelly, 2009 [R]	
	- The Institute of Medicine has recommended 60 minutes a day of total physical activity time to control body weight. Prescribing a weekly energy expenditure of 2,500 kcal (~ 300 cal /day) improved weight loss for overweight men and women compared to the standard 1,000 kcal/week (~150 cal/day)	A	Jeffery, 2003 [A]	
	Intensity			
	- Physical activity intensity can be quantified by caloric expenditure per minute or hour. The estimation of calories used depends on weight and intensity of movement. There are extensive reference tables for caloric expenditure by occupation, household activities, recreation and sports (Table 7)	NA	Katch, 1993 [NA]	
	Table 7: Energy Expended in Common Physical Activities:			

Quelle	Text			Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	Light (less than 3.0 METs or less than 4 kcal/min)	Moderate (3.0-6.0 METs or 4-7 kcal/min)	Hard/Vigorous (greater than 6.0 METs or greater than 7 kcal/min)			
	Walking slowly (strolling) (1-2 mph)	Walking briskly (3-4 mph)	Walking briskly uphill or with a load			
	Cycling, stationary (less than 50 W)	Cycling for pleasure or transportation (less than or equal to 10 mph)	Cycling, fast or racing (greater than 10 mph)			
	Swimming, slow treading	Swimming, moderate effort	Swimming, fast treading or crawl			
	Conditioning exercise, light stretching	Conditioning exercise, general Calisthenics	Conditioning exercise, stair ergometer, ski machine			
	——	Racquet sports, table tennis	Racquet sports, single tennis, racquetball			
	Golf, power cart	Golf, pulling cart or carrying clubs	——			
	Bowling	——	——			
	Fishing, sitting	Fishing, standing/casting	Fishing in stream			
	Boating, power	Canoeing leisurely (2.0-3.9 mph)	Canoeing rapidly (greater than or equal to 4 mph)			
	Home care, carpet sweeping	Home care, general cleaning	Moving furniture			
	Mowing lawn, riding mower	Mowing lawn, power mower	Mowing lawn, hand mower			

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	Home repair, carpentry | Home repair, painting | ——		Journal of the American Medical Association, 1995 Feb 1; 273(5):404.	
	- Another measure of activity intensity is the metabolic equivalency. The metabolic equivalency is defined as the energy expenditure for sitting quietly at rest. For the average adult this is 1 kcal/kg body weight/hour. A compendium of activities with their metabolic equivalency values can be used to estimate total energy expenditure: (metabolic equivalency value for the activity) x (weight in kgs) x (activity time)	n. a.	Ainsworth, 2000 [R]; Ainsworth, 1993 [R]	
	- Although there is consensus on the value of physical activity in obesity management, there is not a standard format for recommending physical activity. The closest examples in the literature are Project PACE (Physician-based Assessment and Counseling for Exercise) (Patrick, 1994 [NA]) and the Activity Pyramid developed by Norstrom at Park Nicollet HealthSource (Park Nicollet Medical Foundation, 1999 [R]).	R	Patrick, 1994 [NA]; Park Nicollet Medical Foundation, 1999 [R]	
	- Office-based assessment of physical activity was pioneered by Project PACE. The one-page questionnaire determines the patient's level of physical activity and readiness to increase activity. The counseling protocols are designed to tailor the message to different patient needs. The program may be administered by physicians, nurses or other health professionals	NA, R	Patrick, 1994 [NA] Swinburn, 1998 [A]	
	- Written advice to exercise was found to be more effective than just verbal recommendation	NA		
	- Yet, activity prescriptions seem more difficult to write than drug prescriptions. Individualized activity prescriptions appear to be very context-dependent. They must take into account individual motivation, self-efficacy, type of activity, available resources, potential physical constraints or possible medical contraindications	A	CME Resource, 2004 [R]	
	- The "dosages" must be individualized to current patient capacity and then titrated toward improvement	R	Bhaskarabhatla, 2004 [R]; Ward, 1991 [R]	
	- Patient handouts for improving physical activity can be very informative and helpful but often have a target population in mind. Handouts for older patients	R	Barry, 1993 [R]	
	- Patient handouts for improving physical activity can be very informative	R	CME Resource, 2004 [R]; Patrick, 1994 [NA]	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	and helpful but often have a target population in mind. Handouts for older patients can be extended to obese patients with similar current activity capacity. - A prototype general Physical Activity Prescription is offered in Appendix C. It represents a composite of key features suggested from the literature	R, NA		
SIGN (2010): Management of Obesity A national clinical guideline [4]	Empfehlungen: - Overweight or obese individuals should be supported to undertake increased physical activity as part of a multicomponent weight management programme. - Clear and realistic activity goals should be set and individuals should be encouraged to use relevant support mechanisms in order to increase their chances of maintaining their activity on a long term basis (eg regular interactions with appropriately trained professionals, the opportunity to participate in group sessions, and support from family members and others undertaking the exercise programme). Overweight and obese individuals should be made aware of the significant health benefits associated with an active lifestyle, many of which are independent of weight loss (eg decreased risk of cardiovascular disease, enhanced social opportunities, improved self efficacy and confidence). - Overweight and obese individuals should be prescribed a volume of physical activity equal to approximately 1,800-2,500 kcal/week. This corresponds to approximately 225-300 min/week of moderate intensity physical activity (which may be achieved through five sessions of 45-60 minutes per week, or lesser amounts of vigorous physical activity). - I t is important to ensure that individuals have no contraindications to exercise before commencing a physical activity programme. The physical activity readiness questionnaire (PAR-Q) provides a quick and validated mechanism for determining whether individuals should undergo further screening investigations prior to embarking on a programme of increased physical activity. - Moderate intensity physical activity increases the rate of breathing and body temperature, but conversation is comfortable at this pace. Heart rate is in the range 55-70% of age-predicted maximum (220 minus age). For	A best practice of the guideline development group B best practice of the guideline development group best practice of	n. a. n. a. n. a. n. a. n. a.	Domäne 3 (DELBI) 19 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	obese, sedentary individuals, brisk walking (ie walking at faster than normal pace) often constitutes moderate intensity physical activity.	the guideline development group		
	- Energy is expended at a faster rate during vigorous activity compared with moderate intensity activity, which means that the same energy can be expended in a shorter period of time. In vigorous intensity physical activity, conversation is harder, but still possible. Heart rate is 70-90% of age-predicted maximum. Some individuals may prefer this approach, as it is less time consuming, but vigorous exercise is probably not appropriate for the very obese (BMI > approximately 35 kg/m2).	best practice of the guideline development group	n. a.	
	- Physical activity can be accumulated over the course of the day in multiple small sessions (of at least 10 minutes duration each) and does not need to be performed in a single session.	best practice of the guideline development group	n. a.	
	- Sedentary individuals should build up to their physical activity targets over several weeks, starting with 10-20 minutes of physical activity every other day during the first week or two of the programme, to minimise potential muscle soreness and fatigue. Individuals choosing to incorporate vigorous intensity activity into their programme should do this gradually and after an initial 4-12 week period of moderate intensity activity.	best practice of the guideline development group	n. a.	
	- W alking is an excellent form of physical activity for overweight and obese people. Walking one kilometre (0.62 miles) on flat ground burns approximately 60 kcal for a 70 kg person and 90 kcal for a 100 kg person. Such weight-bearing physical activity may be difficult for some individuals with BMI over approximately 35 kg/m2, particularly for those with joint problems. In these individuals, gradually increasing non-weight-bearing moderate intensity physical activities (eg cycling, swimming, water aerobics, etc) should be encouraged.	best practice of the guideline development group	n. a.	
	Zitierte Literatur:			
	- Effectiveness of physical activity:			
	- The 2006 NICE guideline conducted a systematic review of RCTs on the effectiveness of physical activity for weight loss in obese individuals. RCTs were sourced primarily from three reviews.	n. a.	McTigue, 2003 (R. 85); Avenell, 2004 (R. 98); Shaw, 2005 (R. 160)	
	- In a meta-analysis of three small RCTs, weight loss at 12 months was			

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	significantly greater with physical activity than (study waiting list) control.64 When physical activity was compared with diet (600 kcal/day deficit or low-fat) weight loss at 12 months was significantly greater in the diet group.64 The volume of physical activity reported in these studies was very low. Physical activity (minimum of 45 minutes, three times per week) combined with diet (600 kcal/day deficit or low-fat) results in significantly greater weight loss at 12 months than diet alone. Median weight change across three studies was a loss of 5.60 kg (range –5.10 kg to –8.70 kg) for physical activity and diet and a loss of 4.10 kg (range –4.00 kg to –5.10 kg) for diet alone.	1 ++	NICE, 2006 (R. 64)	
	- Physical activity dose: - Three studies performed non-randomised post hoc analyses of diet plus physical activity intervention programmes to determine whether the amount of physical activity actually undertaken (rather than the amount of physical activity prescribed) influenced the extent of weight loss/maintenance. These studies quantified physical activity in terms of minutes completed or energy expended. Individuals who undertook more than 200-250 min/week of physical activity of at least moderate intensity or expended approximately 2,200-2,500 kcal/week (equivalent to >300 min/week of moderate intensity physical activity) achieved greater weight loss than those who expended approximately 1,000 kcal/week (approximately 150 min/week of moderate intensity physical activity).	2 ++	McTiernan, 2007 (R. 161); Jakicic 2003 (R. 162); Tate, 2007 (R. 163); Jeffery, 2003 (164)	
	- This is consistent with international consensus guidelines			
	- Prescription of higher physical activity targets only resulted in significantly greater weight loss when participants received additional support (inclusion of family members in programme, small group meetings with exercise coaches, small monetary incentives) to help them to achieve their activity goals.	4 2 ++, 4	Saris, 2003 (R. 80)	
	- When additional support is not provided, prescription of physical activity targets greater than 1,000 kcal/week does not result in significantly greater weight loss than prescription of 1,000 kcal/week of physical activity.	2 ++, 4	Jeffery, 2003 (164)	
	- Studies of the effects of prescription of resistance exercise on weight			

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	loss are limited. One study compared resistance exercise (two 45 minute sessions of weight training per week) with standard care (information leaflet on aerobic exercise) and found that resistance exercise led to significantly greater reductions in percentage body fat and intra-abdominal fat than control, but no difference in BMI or body mass. - One study directly compared the effect of resistance exercise with walking on BMI and waist/hip ratio but compared groups after 23 months of unsupervised follow up, making it difficult to determine the relative efficacy of the two exercise modes	1+ 1+	Schmitz, 2007 (R. 165) Kukkonen-Harjula, 2005 (R. 166)	
NICE (2006): Obesity guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children [7]	Gewichtsreduktion: - 1.7.4.18: Adults should be encouraged to increase their physical activity even if they do not lose weight as a result, because of the other health benefits physical activity can bring, such as reduced risk of type 2 diabetes and cardiovascular disease. Adults should be encouraged to do at least 30 minutes of at least moderate-intensity physical activity on 5 or more days a week. The activity can be in one session or several lasting 10 minutes or more. - Evidence Statements: - Overall, physical activity (minimum of 30 minutes three times a week) is effective for weight loss: a change of approximately –3 kg (95% CI _4.00 to -2.18, range –2.00 kg to –4.60 kg) compared to no treatment at 12 months - Median weight change across all studies was approximately -2.60 kg (range –0.90 kg to –4.00 kg) for physical activity and 0.60 kg (range 0.30 kg to 1.10 kg) for no treatment (n = 3 comparisons) - One study showed physical activity (60 minutes of three times a week) resulted in a weight change of –2.36 kg (95% CI -4.41 to -0.31) compared with information at 18 months - Absolute weight changes were –3.46 kg for activity compared with –1.10 kg for information (n = 1 comparison) - Overall, physical activity alone (minimum of 30 minutes three times a week) was less effective for weight loss than diet alone at 12 months:	n. a. 1 ++ 1 +	n. a. NICE : Lit.verz. ab S.685! 5,10,13 58,77	Domäne 3 (DELBI) 17 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	a change of +3 kg (95% CI 2.28 to 4.35, range 3.10 kg to 3.80 kg). - Median weight change across all studies was approximately –2.60 kg (range –0.90 kg to –4.00 kg) for physical activity and –6.40 kg (range-4.00 kg to –7.20 kg) for diet alone. (n = 3 comparisons)	1 ++	5,10,13	
	Zusätzliche Effekte der körperlichen Aktivität:			
	- 1.7.4.18 Adults should be encouraged to increase their physical activity even if they do not lose weight as a result, because of the other health benefits physical activity can bring, such as reduced risk of type 2 diabetes and cardiovascular disease. Adults should be encouraged to do at least 30 minutes of at least moderate-intensity physical activity on 5 or more days a week. The activity can be in one session or several lasting 10 minutes or more.	n. a.	n. a.	
	- Evidence Statements - Other benefits of physical activity (alone or in combination) include delay of onset of diabetes in people with impaired glucose tolerance, increased motility in older people with arthritis, reduction in the risk of developing hypertension and other cardiovascular events, reduction in medication use for comorbidities, improved quality of life - Physical activity, either alone or in combination, improves other clinical outcomes, such as lipids and blood pressure. However, any improvements may not be maintained in the longer term (up to 36 months) - No effect on cardiovascular fitness was observed based upon exercise intensity or duration	1 ++ 1 + 1 +	(10) Wood PD, (13) Anderssen SA, (27) Pavlou KN, (55) Wing RR, (58) Messier SP, (77)Nicklas BJ, (78) Donnelly JE, Kirk EP (79) Donnelly JE, Hill JO, (80) Kirk EP, Jacobsen DJ, (81) Anderssen SA, (82) Anderssen S, Holme I, (83) Anderssen SA, Haaland A, (84) Reseland JE, Anderssen SA, (85) Torjesen PA, Birkeland KI, (86) Wood PD, Stefanick ML, (87) Kiernan M, King AC, (88) Lindstrom J, Louheranta A. (89) Tuomilehto J, Lindstrom J, (90) Eriksson J, Lindstrom J,.(108) Wolf AM, (88) Lindstrom J, Louheranta A, (89) Tuomilehto J, Lindstrom J, (90) Eriksson J, Lindstrom J,	
	Gewichtserhaltung		Siehe Statement 11	
	- 1.7.4.20 Adults should be encouraged to build up to the recommended levels for weight maintenance, using a managed approach with agreed goals. Recommended types of physical activity include activities that can be incorporated into everyday life, such as brisk walking, gardening or cycling, supervised exercise programmes, other activities, such as	n. a.	n. a.	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	swimming, aiming to walk a certain number of steps each day, or stair climbing. - Any activity should take into account the person's current physical fitness and ability. - People should also be encouraged to reduce the amount of time they spend inactive, such as watching television or using a computer. - 1.7.4.19 To prevent obesity, most people should be advised they may need to do 45–60 minutes of moderate-intensity activity a day, particularly if they do not reduce their energy intake. People who have been obese and have lost weight should be advised they may need to do 60–90 minutes of activity a day to avoid regaining weight. Negative Effekte körperlicher Aktivität: - 15 No evidence statements can be made as reporting of harms and adverse events was rare and ad hoc	n. a. n. a.	n. a. n. a.	
CMA (2006): Canadian clinical practice guidelines on the management and prevention of obesity in adults and children [8]	Gewichtsreduktion - CMAJ suggest long-term, regular physical activity, which is associated with maintenance of body weight or a modest reduction in body weight for all overweight and obese people. - Physical activity and exercise should be sustainable and tailored to the individual. CMAJ recommend that the total duration be increased gradually to maximize the weightloss benefits. - CMAJ suggest physical activity (30 minutes a day of moderate intensity, increasing, when appropriate, to 60 minutes a day) as part of an overall weight-loss program Art der körperlichen Aktivität: - Physical activity and exercise should be sustainable and tailored to the individual. CMAJ recommend that the total duration be increased gradually to maximize the weightloss benefits. Berücksichtigung der körperlichen Verfassung - All those considering initiating a vigorous exercise program are encouraged to consult their physician or health care team professionals	B / 2 A / 2 B / 2 A / 2 C / 4	61, 62 63, 64, 65 62, 63 63, 64, 65 n. a.	Domäne 3 (DELBI) 15 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	Zusätzliche Effekte der körperlichen Aktivität: - Endurance exercise training may reduce the risk of cardiovascular morbidity in healthy postmenopausal women, and we suggest its use for adults with an increased BMI.	B / 2	n. a.	

Thema: Verhaltenstherapie

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
ICSI (2011): Health Care Guideline: Prevention and Management of Obesity (Mature Adolescents and Adults) [5]	Empfehlungen: Overview of Management Recommendations: - Identify behaviors that may lead to increased weight gain: for example, stress, emotional eating, boredom and poor sleep. - Help patients set specific, measurable, time-limited goals to decrease calorie intake and increase physical activity as appropriate. - Suggest patients weigh themselves at least weekly and record the amount and type of food/beverages consumed and physical activity completed. - Provide support and encourage patients to also seek support from family, friends and support groups in order to assist them with their eating, activity and weight goals. Zitierte Literatur:	n. a.	n. a.	Domäne 3 (DELBI) 12 Punkte Bei der Suche nach Evidenz wurden keine systematischen Methoden angewandt Keine Literaturangaben bei Overview, nur bei Annotations
	- A key component of successful weight loss and maintenance is regular self-monitoring of energy intake, expenditure and body weight. Participants in weight-loss trials who regularly self-monitor their diet and activity tend to lose more weight compared to those who don't	A, D	Boutelle, 1999 [A]; Boutelle, 1998 [D]	
	- Evidence from the National Weight Control Registry (NWCR), which was created to compile data on individuals who were successful at losing at least 13.6 kg and maintaining that loss for one year or more, shows that over 75% of these successful weight-loss maintainers report weighing themselves at least once a week - Siehe auch langfristige Gewichtsreduktion	D	Klem, 1997 [D]	
	Follow up: - Weight loss requires frequent follow-up (initially weekly) with planned education/counseling by health care providers to be most effective (i.e., improve adherence)	A, R	Rejeski, 2002 [A]; Tuomilehto, 2001 [A]; Chao, 2000 [A]; National Heart, Lung and Blood Institute, 2000 [R]	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
SIGN (2010): Management of Obesity A national clinical guideline [4]	Empfehlungen: - Individual or group based psychological interventions should be included in weight management programmes. - Psychological interventions should be tailored to the individual and their circumstances. - The range of appropriate psychological interventions and strategies includes: self monitoring of behaviour and progress, stimulus control (where the patient is taught how to recognise and avoid triggers that prompt unplanned eating), cognitive restructuring (modifying unhelpful thoughts/thinking patterns), goal setting, problem solving, assertiveness training, slowing the rate of eating, reinforcement of changes, relapse prevention, strategies for dealing with weight regain. Zitierte Literatur: - A meta-analysis conducted for the 2006 NICE guideline examined studies combining psychological interventions into weight management programmes. Studies were sourced mainly from four key reviews. - A systematic review compared psychological interventions for weight loss in overweight or obese patients with control (no treatment). Two studies (n=1,254) were identified which had duration of 12 months or longer. Both found a beneficial effect for behavioural therapy over control. - A combination of active support for diet plus behavioural therapy (problem solving, relapse prevention, stimulus control, dealing with problem situations, assertion, and behaviour chain analysis) is effective for weight loss at 12 months. Median weight change across three studies was a loss of approximately 3.86 kg (range –2.10 kg to –5.50 kg) for active support and a loss of 0.50 kg (range –0.30 kg to –0.70 kg) for passive intervention (advice or self help). In a comparison of diet plus behavioural therapy versus diet alone at 12 months, a combination of diet and behavioural therapy (cue avoidance, self monitoring, stimulus control, slowing rate of eating, social support, planning, problem solving, assertiveness, cognitive	A best practice of the guideline development group best practice of the guideline development group n. a. 1++ 1++	n. a. n. a. n. a. NICE, 2006; Studien: McTigue, 2003 (R. 85); Avenell, 2004 (R. 98); Shaw, 2005 (R. 160); Smith, 2005 (R. 167) Shaw, 2005 (R. 160) NICE, 2006 (R. 64)	Domäne 3 (DELBI) 19 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	restructuring, modifying thoughts, reinforcement of changes, relapse prevention, strategies for dealing with weight gain) was more effective for weight loss than diet alone. This was based on two small studies. Median weight loss was 7.70 kg (low calorie diet plus behavioural therapy) and 12.89 kg (protein sparing modified fast plus behavioural therapy) compared with a loss of 0.9 kg for LCD alone and a loss of 4.70 kg for protein sparing modified fast alone. Involving family members (usually spouse/partner) in behavioural treatment programmes is generally more effective for weight loss than targeting the overweight individual alone. - A well conducted systematic review comparing group versus individual interventions included five RCTs. At 12 months, significantly greater weight loss was found in the group based interventions; weighted mean difference of 1.4 kg weight loss (95% CI, -2.7 to -0.1 kg, p=0.03). Sub-analyses showed that increased effectiveness was associated with the use of financial reward and with psychologist-led interventions. In two of the five trials no explicit details were given on the training received by facilitators delivering group interventions.	1++	Paul-Ebhohimhen, 2009 (R. 168)	

NICE (2006): Obesity guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children [7]	Allgemeine/umfassende Empfehlungen zur Verhaltenstherapie:
	- 1.7.4.15: Any behavioural intervention should be delivered with the support of an appropriately trained professional.
	- Evidence Statement: Behaviour therapy and additional support was provided most often by dietitian and/or people with behavioural treatment or psychological expertise. Other personnel who delivered interventions were physicians, physiotherapists, health educators, graduate students, occupational therapist, and specially trained GPs
	Verhaltensmodifizierende Strategien:
	- 1.7.4.16: Behavioural interventions for adults should include the following strategies, as appropriate for the person:
	  - self monitoring of behaviour and progress
	  - stimulus control
	  - goal setting
	  - slowing rate of eating
		1++
		
		Mind. 1 +
			Literatur aus Section 5 : (4) Avenell A; (46) Shaw K ; (47) Smith J; (48) McTigue KM
			
			Section 5:
			(4) Avenell A
			(46)Shaw K
			(47)Smith J
			(48) McTigue KM
				Domäne 3 (DELBI) 17 Punkte
				Bei der Suche nach Evidenz wurden systematischen Methoden angewandt

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	- ensuring social support - problem solving - assertiveness - cognitive restructuring (modifying thoughts - reinforcement of changes - relapse prevention strategies for dealing with weight regain.		(49) McLean N (50) Dunn C (51) Rubak S	
	- Evidence Statement - Overall, a combination of active support for diet (VLCD or low-calorie diet) and behaviour therapy (problem solving, relapse prevention, stimulus control, dealing with problem situations, assertion, behaviour chain analysis) is effective for weight loss: a change of approximately –4 kg (95% CI -5.77 to -1.70, range -1.40 kg to –5.20 kg) compared with a passive approach (advice or self-help) at 12 months - Median weight change across all studies was approximately -3.86 kg (range –2.10 kg to –5.50 kg) for active support and -0.50 kg (range –0.30 kg to –0.70 kg) for passive intervention (n = 3 comparisons) - One study showed a combination of active support for a VLCD diet and behaviour therapy resulted in weight change of –5.20 kg (95% CI -8.07 to -2.33) compared with a passive approach (advice or self-help) at 12 months	1 ++	(4) dabei wurden von diesem HTA 3 Studien (52,53,54) ausgeschlossen: (52) Kaplan RM, (53) Hakala P (54) Karvetti RL zusätzlich: (56) Munsch S	
	- Absolute weight changes were –5.50 kg for the VLCD compared with –0.30 kg for usual care (n = 1 comparison) - One study showed a combination of diet and behaviour therapy (self-monitoring, goal setting, cognitive restructuring, problem solving, and environmental management) resulted in weight change of –3.51 kg (95% CI -5.60 to -1.42) compared to a healthy lifestyle information at 18 months - Absolute weight changes were –4.61 kg for the diet and behaviour therapy compared with –1.10 kg for information (n = 1 comparison)	1 +	(55) Wing RR	
	- Overall, a combination of diet (low-calorie diet and PSMF 400-500kcal/day food based) and behaviour therapy (cue avoidance, self-monitoring, stimulus control, slowing rate of eating, social support,	1 +	(57) Stahre L	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	planning, problem solving, assertiveness, cognitive restructuring, modifying thoughts, reinforcement of changes, relapse prevention, strategies for dealing with weight gain) is effective for weight loss: a change of approximately –7.6 kg (95% CI -11.96 to -3.36, range –6.80 kg to –8.19 kg) compared with diet alone at 12 months.			
	- Median weight change across all studies was –7.70 kg low-calorie diet and behaviour therapy and –12.89 for PSMF and behaviour therapy compared with –0.90 kg for low-calorie diet alone and –4.70 kg for PSMF alone (n = 2 comparisons)	1 +	(66) Hakala P; (67) Jones SE	
	- One study showed a combination of a PSMF diet (400–500 kcal/day based on food) and behaviour therapy resulted in weight change of –8.19 kg (95% CI -13.64 to -2.74) compared with diet alone at 12 months	1 +	(37) Wadden TA(37) Wadden TA	
	- Absolute weight changes were –12.89 kg for the VLCD compared with –4.70 kg for usual care (n = 1 comparison)			
	- One study showed a combination of intensive behaviour therapy and VLCD (combination of 200 or 800kcal.day and 600kcal/day deficit) resulted in weight change of –1.18 kg (95% CI -4.16 to 1.80) compared with a less intensive approach at 12 months.			
	- Absolute weight changes were –7.58 kg for the intensive programme compared with –6.40 kg for the less intensive programme			
	- Contacts were every 2 weeks for 12 months, then six meetings in the next 12 months for the intensive group compared with meetings every 3 months in the less intensive group. Both groups met twice a week during the VLCD period (n = 1 comparison)	1 +	Aus (4); Studie nicht explizit zitiert	
	- One study showed a combination of 20 weeks' behaviour therapy (self-monitoring, goal setting, stimulus control) with a low-calorie diet and physical activity followed by 12 months of relapse prevention training was less effective for (+ 4.97 kg, 95% CI 0.46 to 9.48) compared with a combination of the 20 weeks' programme followed by 12 months of group problem solving.	1+	Aus (4); Studie nicht explizit zitiert	
	- Absolute weight changes were –5.85 kg for the relapse prevention compared with –10.82 kg for problem solving (n = 1 comparison)			
	- 1.7.4.7: To encourage the patient through the difficult process of changing			

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	established behaviour, healthcare professionals should praise successes – however small – at every opportunity.	n. a.	n. a.	
CMA (2006): Canadian clinical practice guidelines on the management and prevention of obesity in adults and children [8]	Allgemeine / umfassende Empfehlungen zur Verhaltenstherapie: - CMAJ suggest that individuals willing to participate in weight management programs be provided with education and support in behaviour modification techniques as an adjunct to other interventions.	B / 2	43, 44, 45	Domäne 3 (DELBI) 15 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt

Thema: Gewichtsreduktionsprogramme

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
SIGN (2010): Management of Obesity A national clinical guideline [4]	Commercial diets: - A variety of commercial weight reduction programmes (Atkins, low carbohydrate; Ornish, LEARN, very low fat; and Zone macronutrient ratios), are associated with a modest reduction in body weight and a reduction in several cardiac risk factors in overweight and obese premenopausal women at 12 months. Zone, LEARN and Ornish produce comparable results. Atkins was associated with significantly greater weight loss and more favourable metabolic effects at 12 months than Zone. - In an RCT of commercial weight loss programmes in the UK (Dr Atkins' new diet revolution, Slim-Fast plan, Weight Watchers pure points programme, and Rosemary Conley's eat yourself slim diet and fitness plan), all groups lost weight and body fat at six months compared to control (average weight loss 5.9 kg) but there was no difference between	1 ++ 1 ++	Gardner, 2007 (R. 155) Truby, 2006 (R. 156)	Domäne 3 (DELBI) 19 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt **CAVE:** - Kapitel 9 der Leitliie zum Thema: „Weight management

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	groups. At 12 months follow up all diets resulted in a clinically useful weight loss of around 10% in participants who had kept to their original diet. - In adults with known hypertension, dyslipidemia, or fasting hyperglycaemia, a range of commercial weight reduction programmes (Atkins, Weight Watchers, Ornish, Zone) is associated with a modest reduction in body weight and a reduction in several cardiac risk factors at one year. Increased adherence resulted in more weight loss and a greater reduction in cardiac risk factors. Internet-based weight management programmes - Empfehlung: - Delivery of evidence based weight management programmes through the internet should be considered as part of a range of options for patients with obesity. Zitierte Literatur: - Internet-based weight management programmes are associated with modest weight loss and positive effects on weight loss maintenance. Increased weight loss is associated with increasing log-in frequency and incorporation of online therapist-led behavioural components. - Such programmes are, by definition, restricted to participants who are computer literate and have access to the internet. This limits the generalisability of the findings. - Study results are inconsistent regarding the value of adding in-person support to internet programmes and the benefits of this to weight loss and maintenance.	1 ++ B 1 + 1 + 1 +	Dansinger, 2005 (R. 157) N. a. Weinstein, 2006 (R. 138) Harvey-Berino, 2002 (R. 139); Harvey-Berino, 2004 (R. 140); Gold, 2007 (R. 141)	programmes and support for weight loss maintenance in adults", - restliche Inhalte hier im Text 1.4 Basisprogramm

Thema: Adjuvante medikamentöse Therapie

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung

ICSI (2011): Health Care Guideline: Prevention and Management of Obesity (Mature Adolescents and Adults) [5]	Empfehlungen:
	Overview of Management Recommendations:
	- Evaluate for medications that may promote weight gain, and change when appropriate to a more weight-neutral alternative.
	- Pharmacotherapy for weight loss should be included only in the context of a comprehensive treatment strategy that includes physical activity and nutritional support.
	- Phentermine and orlistat are safe for most patients when carefully monitored by a physician; they may be part of a program for weight management or maintenance, which should include nutrition and physical activity changes when indicated.
	
	Zitierte Literatur:
	- Pharmacotherapy, when used for six months to one year, along with lifestyle modification including nutrition and physical activity, produces weight loss in obese adults. Behavioral modification programs including dietary and exercise counseling typically result in a 5% weight loss
	- The average weight loss with pharmacological agents is 10%-15% of initial weight
	- Patient monitoring:
	  - To be considered successful weight maintenance, weight regain should be less than 3 kg (6.6 lb.) in two years and there should be a sustained reduction in waist circumference of at least 4 cm
	- Phentermine:
	  - Primary pulmonary hypertension has been identified in relation to the use of several anorexiant medications, especially when the duration of therapy exceeded three months
	  - These included aminorex and fenfluramine (therefore, the combination medication of phenterminefenfluramine)
	  - In the case of aminorex, this serious side effect led to the withdrawal
		n. a.
		
		n. a.
		
		n. a.
		
		R
		
		D
		
		R
		
		M, C
		
		R
		
		X
			N. a.
			
			N. a.
			
			N. a.
			
			Klein, 2002 [R]
			
			Frank, 2004 [D]
			
			National Heart, Lung and Blood Institute/NIH, 1998 [R]
			
			McCann, 1997 [M]; Abenhaim, 1996 [C]
			
			Bray, 2004 [R]
			
			Apovian, 1999 [X]
				Domäne 3 (DELBI) 12 Punkte
				Bei der Suche nach Evidenz wurden keine systematischen Methoden angewandt
				Keine Literaturangaben bei Overview, nur bei Annotations

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	of this medication from the market - Cardiac valvular insufficiency is associated with use of fenfluramine (therefore, phentermine-fenfluramine). This led to the removal of phentermine-fenfluramine and its isomer dexfenfluramine from the market	R	Bray, 2004 [R]	
	- Patients taking phentermine or any other anorexiant should have their blood pressure monitored carefully during treatment due to the possibility of increased blood pressure as a side effect of this medication. However, one study showed no significant differences in blood pressure between placebo-treated patients and patients treated with phentermine	A	Kim, 2006 [A]	
	Efficacy:			
	- Phentermine is an anorexiant that is widely available in the United States and is effective in weight loss. In one large meta-analysis study, phentermine was associated with an average of 3.6 kg (7.9 lbs.) additional weight loss at six months as compared to placebo	n. a.	Pharmacological and Surgical Treatment of Obesity, Shekelle, 2004	
	- Three long-term studies have been done with phentermine, ranging from 14 weeks to 36 weeks and showing an average weight loss of 8.7%-13% body weight compared to 2%-5.1% with placebo	R	Bray, 2004 [R]	
	- Orlistat: Efficacy: Patients taking orlistat as part of a program of nutritional and physical activity changes can expect a weight loss of 3.9 to 10.6 kg after one year of treatment and 4.6 to 7.6 kg after two years of treatment. A weight loss of at least 5% of initial body weight at one year is reported by 30% to 73% (vs. 13% to 45% of patients taking placebo); a weight loss of at least 10% of initial body weight at one year is reported by 10% to 41% (vs. 4% to 21% of patients taking placebo	A, M	Torgeson, 2004 [A]; Rissanen, 2003 [M]; Hauptman, 2000 [A]; Rossner, 2000 [A]; Sjostrom, 1998 [A]	
	- Sibutramine: no longer on market: - In October 2010, the FDA recommended against continued prescribing and use of sibutramine because of potential unnecessary cardiovascular risks to patients with known cardiovascular disease. The FDA requested the manufacturer of sibutramine voluntarily stop marketing the drug in the United States based on data from the Sibutramine Cardiovascular Outcomes (SCOUT) trial. The	A	James, 2010 [A]	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	manufacturer has complied with that request - The FDA's most recent recommendation is based on data gathered from the SCOUT trial which suggest that the small benefit of weight loss, without evidence of other potential health benefits related to weight loss, are outweighed by even a small risk of an adverse cardiovascular outcome caused by the drug - Non-Prescription and alternative medicine: - The short- and long-term adverse effects of these agents are largely unknown. Since many herbal products are not standardized, the content of the ingredients can vary substantially from the label and among lots of the same product - Patients who use non-prescription or herbal preparations should be cautioned about adverse effects, drug interactions and the potential impurities of herbal products - Safety and adverse effects - In these patients who were on sibutramine, there was an increased risk of vascular disease from the drug after a mean of 3.5 years of exposure	A D R A	James, 2010 [A] Gurley, 2000 [D] Miller 1998 [R]; Winslow, 1998 [R] James, 2010 [A]	
SIGN (2010): Management of Obesity A national clinical guideline [4]	Empfehlungen: Orlistat - Orlistat should only be used where diet, physical activity and behavioural changes are supported. - Orlistat should be considered as an adjunct to lifestyle interventions in the management of weight loss. Patients with BMI ≥28 kg/m2 (with comorbidities) or BMI ≥30 kg/m2 should be considered on an individual case basis following assessment of risk and benefit. - Therapy with orlistat should be continued beyond 12 weeks only if the patient has lost at least 5% of their initial body weight since starting drug treatment. Therapy should then be continued for as long as there are clinical benefits (eg prevention of significant weight regain). This may involve medication use outside current licence. Ongoing risks and benefits should be discussed with patients. Zitierte Literatur: Orlistat	best practice of the guideline development group A best practice of the guideline development group	n. a. n. a. n. a.	Domäne 3 (DELBI) 19 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	- The 2006 NICE guideline meta-analysis of 15 RCTs and found that orlistat (120 mg three times a day) in combination with a weight-reducing diet is more effective for weight loss maintenance than placebo and diet at 12 months. Median weight loss across fifteen studies was approximately 5.4 kg (range –3.3 kg to –10.6 kg) for orlistat and 2.7 kg (range –0.9 kg to –7.6 kg) for placebo	1 ++	NICE , 2006 (R. 64)	
	- This superiority of orlistat over placebo was also reported in two studies presenting data at 24 months and one study which reported at 48 months.	1 ++	Hauptmann, 2000 (R. 169); Rossner, 2000 (R. 170); Torgerson, 2004 (R. 171)	
	- Orlistat causes small decreases in total cholesterol (0.3-0.4 mmol/l vs diet alone at 12 months), %Hb1Ac (0.23% vs diet alone at 12 months) and systolic and diastolic blood pressure compared to diet alone. Orlistat (120 mg three times a day) plus lifestyle changes significantly decreased the progression to type 2 diabetes compared with placebo plus lifestyle changes: a 37.3% decrease in the risk of developing diabetes at four years. In people with impaired glucose tolerance at baseline, the decrease in the risk of developing diabetes was 45% at four years.	1 ++	NICE , 2006 (R. 64)	
	- Orlistat treatment is associated with increased rates of gastrointestinal events. These are usually mild and transient. The summary of product characteristics states that “The possibility of experiencing gastrointestinal adverse reactions may increase when orlistat is taken with a diet high in fat (eg in a 2,000 kcal/day diet,>30 % of calories from fat equates to>67 g of fat). The daily intake of fat should be distributed over three main meals. If orlistat is taken with a meal very high in fat, the possibility of gastrointestinal adverse reactions may increase.”	1 ++	n. a.	
NICE (2006): Obesity guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children	Allgemein: - 1.7.5.1: Pharmacological treatment should be considered only after dietary, exercise and behavioural approaches have been started and evaluated. - 1.7.5.2: Drug treatment should be considered for patients who have not reached their target weight loss or have reached a plateau on dietary, activity and behavioural changes alone. - 1.7.5.3: The decision to start drug treatment, and the choice of drug, should be made after discussing with the patient the potential benefits and	n. a. n. a.	Orlistat: n.a. Sibutramine: Wadden,T.A. 2001; Wadden,T.A. 2000; Wadden,T.A. 2005 n. a.	Domäne 3 (DELBI) 17 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
[7]	limitations, including the mode of action, adverse effects and monitoring requirements, and their potential impact on the patient's motivation. When drug treatment is prescribed, arrangements should be made for appropriate healthcare professionals to offer information, support and counselling on additional diet, physical activity and behavioural strategies. Information on patient support programmes should also be provided.	n. a.		
	- 1.7.5.4: Prescribing should be in accordance with the drug's summary of product characteristics.		n. a.	
	- 7.5.19: Therapy should be continued beyond 3 months only if the person has lost at least 5% of their initial body weight since starting drug treatment. (See also recommendation 1.7.5.16 for advice on targets for people with type 2 diabetes.)	n. a.	n. a.	
	- 1.7.5.12: If there is concern about the adequacy of micronutrient intake, a supplement providing the reference nutrient intake for all vitamins and minerals should be considered, particularly for vulnerable groups such as older people (who may be at risk of malnutrition) and young people (who need vitamins and minerals for growth and development).	n. a.	n. a.	
	- 1.7.5.13: People whose drug treatment is being withdrawn should be offered support to help maintain weight loss, because their self-confidence and belief in their ability to make changes may be low if they did not reach their target weight.	n. a.	n. a.	
	- 1.7.5.14: Regular review is recommended to monitor the effect of drug treatment and to reinforce lifestyle advice and adherence.	n. a.	n. a.	
	- 1.7.5.15: Withdrawal of drug treatment should be considered in people who do not lose enough weight (see recommendations 1.7.5.19 and 1.7.5.24 for details).	n. a.	n. a.	
	- 1.7.5.16: Rates of weight loss may be slower in people with type 2 diabetes, so less strict goals than those for people without diabetes may be appropriate. These goals should be agreed with the person and reviewed regularly.	n. a.	n. a.	
	Sibutramin:			
	- 1.7.5.22: Sibutramine should be prescribed only as part of an overall plan for managing obesity in adults who meet one of the following criteria:		n. a.	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	- a BMI of 27.0 kg/m2 or more and other obesity-related risk factors such as type 2 diabetes or dyslipidaemia; - a BMI of 30.0 kg/m2 or more. - Evidence Statement: Of the 13 included trials, the majority included people with a BMI or 27 kg/m2 or more (n = 7). […] - 1.7.5.11: Pharmacological treatment may be used to maintain weight loss, rather than continue to lose weight. - Evidence Statements: Sibutramine can be more effective than placebo in weight maintenance after 18 months, having 43% of participants maintaining 80% or more of their original 6 month weight loss compared with 16% in the placebo group (n = 1 study). - Evidence from one trial suggests that sibutramine helped maintain at least 5% of weight loss in 69% of participants, and 10% weight loss in 46% of the participants after 18 months. However, participants who did not achieve 5% weight loss over 6 months of treatment were excluded from the maintenance phase (n = 1 study). - 1.7.5.23: Sibutramine should not be prescribed unless there are adequate arrangements for monitoring both weight loss and adverse effects (specifically pulse and blood pressure). - 1.7.5.24: Therapy should be continued beyond 3 months only if the person has lost at least 5% of their initial body weight since starting drug treatment. (See also recommendation 1.7.5.16 for advice on targets for people with type 2 diabetes.) - 1.7.5.25: Treatment is not currently recommended beyond the licensed duration of 12 months. Orlistat: - 1.7.5.18: Orlistat should be prescribed only as part of an overall plan for managing obesity in adults who meet one of the following criteria: - a BMI of 28.0 kg/m2 or more with associated risk factors; - a BMI of 30.0 kg/m2 or more. - Evidence Statement: Of the 19 included trials, the majority included people with a BMI or 28 kg/m2 or more (n = 10), or of 30 or more (n = 8). […]	n. a. n. a. n. a. 1++ n. a. 1+ 1+ n. a. n. a. n. a. n. a. n. a.	n. a. n. a. n. a. n. a. n. a. n. a. n. a. n. a. n. a. n. a.	

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	- 1.7.5.20: The decision to use drug treatment for longer than 12 months (usually for weight maintenance) should be made after discussing potential benefits and limitations with the patient. - Evidence Statement: Two studies showed the effect on weight change over the subsequent 12 months when orlistat was withdrawn after the initial 12 months treatment. People who continued on orlistat regained, on average, approximately half as much weight as those on placebo (+3.2 kg vs +5.6 kg, p < 0.001).(n = 2 studies). - Evidence Statement: Orlistat treatment is associated with increased rates of gastrointestinal events. However, these are frequently mild and transient. Nicht relevante Empfehlungen: - 1.7.5.21: The coprescribing of orlistat with other drugs aimed at weight reduction is not recommended. - Evidence Statement: There is no evidence on the combining of orlistat and sibrutamine. The actions of the drugs are not synergistic and the prescribing of a combination of these drugs is not recommended in the Summary of product characteristics.	1 ++ n. a. 1 ++ 1 ++ n. a. 4	Avenell,A. 2004; O'Meara,S. 2004 n.a. Avenell,A. 2004; O'Meara,S. 2004 Avenell,A. 2004; O'Meara,S. 2004 (vermutlich; nicht direkt zuzuordnen) n. a.	
CMA (2006): Canadian clinical practice guidelines on the management and prevention of obesity in adults and children [8]	Allgemein: - CMAJ suggest the addition of a selected pharmacologic agent for appropriate overweight or obese adults, who are not attaining or who are unable to maintain clinically important weight loss with dietary and exercise therapy to assist in reducing obesity-related symptom. - CMAJ suggest the addition of a selected pharmacologic agent for overweight or obese adults with type 2 diabetes, impaired glucose tolerance or risk factors for type 2 diabetes, who are not attaining or who are unable to maintain clinically important weight loss with dietary and exercise therapy, to improve glycemic control and reduce their risk of type 2 diabetes. Orlistat: - CMAJ suggest that orlistat be considered to aid in weight reduction and	B B / 2	Torgerson,J.S. 2004; Hanefeld,M. 2002; Finer,N. 2000; Davidson,M.H. 1999; Sjostrom, L. 1998; James,W.P. 2000; Torgerson,J.S. 2004; Hanefeld,M. 2002; Bakris,G. 2002; Kelley,D.E. 2002; Miles,J.M. 2002; Hollander,P.A. 1998; McNulty,S.J. 2003; Sanchez-Reyes,L. 2004	Domäne 3 (DELBI) 15 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	weight maintenance when added to a regimen of lifestyle intervention among adolescent.	B / 1	n. a.	
	Nicht relevante Empfehlungen:			
	- There is insufficient evidence to recommend in favour of or against the use of herbal remedies, dietary supplements or homeopathy for weight management in obese persons	C / 4	Paranjpe,P. 1990; Karlsson,C. 1998; Lacey,J.M. 2003; Mhurchu,C.N. 2004; Bahadori,B. 1997; Boozer,C.N. 2002; Pasman,W.J. 1997; Johannsson,G. 1997; Albert,S.G. 2004; Herrmann,B.L. 2004; Pittler,M.H. 1999; Bray,G.A. 1999; Ernst,E. 1998	

Thema: Langfristige Gewichtsstabilisierung

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
ICSI (2011): Health Care Guideline: Prevention and Management of Obesity (Mature Adolescents and Adults) [5]	- The literature shows more support for the role of physical activity in preventing weight regain	R, C	Pronk, 1994 [R]; Jeffery, 1984 [C]	Domäne 3 (DELBI) 12 Punkte
	- A 16-week randomized control trial with a one-year followup on 40 obese women found that diet plus lifestyle activity may be a suitable alternative to diet plus structured aerobic activity	A	Andersen, 1999 [A]	Bei der Suche nach Evidenz wurden keine systematischen Methoden angewandt
	- Total weight loss was not improved with aerobic exercise or strength training, but regular exercisers regained significantly less weight at the one-year follow-up	A	Wadden, 1998 [A]	
	- Long term weight maintenance: New evidence shows that weight maintenance is improved with > 250 minutes/week of moderate physical activity after weight loss. However, no evidence from well-designed randomized control trials exists to judge the effectiveness of physical activity for prevention of weight regain after weight loss Long-term weight maintenance may require as much physical activity as expended during the weight-loss phase.	R	Donnelly, 2009 [R]	Keine Literaturangaben bei Overview, nur bei Annotations
	- Long-term weight maintenance may require as much physical activity as			

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	expended during the weight-loss phase. As cited previously, data from the National Weight Control Registry indicates that weight-loss maintainers get one hour or more of moderate activity per day. - Verhaltenstherapie: - Relapse prevention: Restarts are common in behavior change. Patients who relapse should be encouraged to try again when they are ready. In fact, a permanent change may never be achieved. The relapse prevention model (RPM), originally developed to address cognitive and behavioral factors associated with the relapse process for addictive behaviors (e.g., alcohol abuse) (Marlatt, 1984 [R]), has been shown to be helpful for long-term weight management (Baum 1991 [A]; Perri, 1984 [A]). A key component of relapse prevention model is its distinction between "lapses" and "relapse." Lapses are defined as a "single event, a reemergence of a previous habit, which may or may not lead to the state of relapse,"whereas "relapse" refers to a full return to an unhealthy state. An individual's response to a "lapse" is thought to determine the likelihood of relapse. The "abstinence violation effect" is the reaction to a behavioral slip, guilt and perceived loss of control; when this occurs an individual is more likely to experience a full relapse. Alternatively, when framed as a "lapse," people can respond proactively to a slip in behavior, thus avoiding complete relapse. - Additional relapse prevention strategies may include helping individuals manage lapses in behavior, identifying high-risk situations for relapse, enhancing skills for coping with these situations and increasing self-efficacy for avoiding relapse.	R A R	Marlatt, 1984 [R] Baum 1991 [A]; Perri, 1984 [A] Larimer, 1999 [R])	
SIGN (2010): Management of Obesity A national clinical guideline [4]	Zitierte Literatur: - A number of factors are associated with weight loss maintenance. Interventions may centre around physical activity, diet, medication or behavioural/psychological aspects and may be linked to the primary weight loss intervention. - In a 40 week study, physical activity and eating control were predictive of weight maintenance following a very low calorie diet.	2 + 2 +	Leermakers, 1999 (R. 142); Van Baak, 2003 (R. 143); LeCheminant, 2005 (R. 144) Fogelholm, 1999 (R. 145)	Domäne 3 (DELBI) 19 Punkte Bei der Suche nach Evidenz wurden systematischen Methoden angewandt

Quelle	Text	Evidenz- bzw. Empfehlungs-grad	Literaturbelege	Methodische Bewertung
	- Weight loss medication has been shown to be effective for maintenance of weight loss following a very low calorie diet. - A large RCT (n=1,032) of overweight and obese adults who had lost at least 4 kg during a six month weight loss programme found that, over a 30 month period, monthly personal contact (10-15 minute telephone call) provided modest additional benefit in sustaining weight loss when compared to interactive technology (access to interactive website) or self directed control (minimum intervention comparison condition). - A well conducted RCT of a behaviour change intervention showed significant benefits in weight loss maintenance in favour of the intervention based on self regulation theory and daily weighing, when compared to the control condition (receiving information about diet, exercise and weight management). This difference was particularly prominent when the self regulation theory based intervention was delivered face-to-face as opposed to via the internet.	1 + 1 + 1 +	Mathus-Vliegen, 2005 (R. 146) Svetkey, 2008 (R. 147) Wing, 2006 (R. 148)	

b) Systematischer Review, Metaanalyse, HTA

Studien-typ	Autoren, Jahr	Einschluss-kriterien/ Angaben zu systemati-scher Recherche	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien / Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
Meta-analysis	Wu T, et al. (2009) [61]	RCTs Search strategy Medline (Pubmed) and Cochrane Library From 1966 to	Diet-plus-exercise vs. diet-only Outcomes: weight and body mass index (BMI) before and after the intervention Primary outcome: change in body	**Included studies:** Study quality: (Randomization/ Dropout rate/ intention-to-treat): - 18 RCTs - three studies stated their randomization procedures (12,16,20) - none of the studies mentioned allocation concealment	(24) Wing RR et al.; Diabetologia 1988; 31:902–909 (16) Leighton RF et al; Arch Intern Med1990;150:1016–1020 (21) Svendsen OL et al; Am J Med 1993;95:131–	1+	none of the studies mentioned allocation concealment Quality of RCTs: blinding reporting in only

Studien-typ	Autoren, Jahr	Einschluss-kriterien/ Angaben zu systemati-scher Recherche	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien / Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
		30. June 2007 Language selection: only English Keywords were reported Population: obese or overweight adults compared Diet-plus-exercise (D + E) vs. diet-only (D) dietary programme being identical in both intervention groups Duration minimum 6 months	weight	- one study mentioned that they did have blinding of outcome measurement (12) - only two studies had a 0% dropout rate (12,13), in which intent-to-treat analysis was conducted; the rest of the studies did not conduct intention-to-treat analyses - dropout rates for the interventions were lower than 30%, except one study (19) with 50–65% dropout rate - sensitivity analysis (excluded studies with high dropout rate): the overall results died not change Descriptive statistics: - mean age of the study population ranged from 36 to 55 years - mean weight ranged from 70 to 100 kg - mean BMI from 25 to 38 kg m2 - ten studies included both men and women, and three included only women (11,21,22), four included only men (13,15,18,23) - length of intervention varied from 3 months to 6 years - length of the subsequent follow-up without active intervention varied from 0 to 2.5 years - ten studies reported results as change in weight and seven studies as change in BMI Heterogeneity: - there are no significant heterogeneity P-values (for heterogeneity) were mentioned	140 (13) Hellenius ML et al; Atherosclerosis 1993;103:81–91 (23) Williams PT et al; Metabolism 1994;43:655–663 (9) Anderssen SA et al; J Intern Med 1996;240:203–209 (19) Skender ML et al; J Am Diet Assoc 1996;96:342–346 (17) Pan XR et al; Diabetes Care 1997;20:537–544 (22) Wadden TA et al; J Consult Clin Psychol 1998;66:429–433 (25) Wing RR et al; Diabetes Care 1998;21:350–359 (20) Stefanick ML et al; N Engl J Med 1998;339:12–20 (11) Fogelholm M et al; Arch Intern Med 2000;160:2177–2184 (18) Reseland JE et al;		one study ITT reporting

Studien-typ	Autoren, Jahr	Einschluss-kriterien/ Angaben zu systemati-scher Recherche	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien / Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen

				- random effect model was used
				Publication bias:
				- formal statistical testing (funnel plots, Begg and Egger test) did not suggest publication bias
				Results:
				- **D + E programme produced greater long-term weight loss than only D programme:**
				  - pooled weight loss: 1.14 kg (95% CI 0.21 to 2.07) or 0.50 kg m-2 (95% CI 0.21 to 0.79) greater for D + E group than only D group
				  - pooled standardized mean difference between D + E and D groups was -0.25 (95% CI -0.36 to -0.14)
				- Subgroup analysis:
				  - Intervention time: difference in weight loss was significantly greater (p-value 0.03) for - interventions with a duration longer than 1 year (mean differences= - 0.35) than that for interventions of shorter duration (mean differences= - 0.07)
				  - No statistical significant differences in results by baseline age, obesity, sex, population, comorbidities and duration of follow-up after the active intervention
					Am J Clin Nutr 2001;73:240–245
					(14) Kiernan M et al; Obes Res 2001;9:770–777
					(10) Brekke HK et al; Diabetes Res Clin Pract 2005;70:225–234
					(15) Kukkonen-Harjula KT et al; Prev Med 2005;41:784–790
					(12) Heilbronn LK et al; JAMA 2006;295:1539–1548
					(26) Messier SP et al; Arthritis Rheum 2004;50:1501–1510		

Studien-typ	Autoren, Jahr	Einschluss-kriterien/ Angaben zu systemati-scher Recherche	Welche Behandlungen wurden geprüft	Charakteristik eingeschlossener Studien / Befunde in Bezug auf Therapiewirkungen	Literaturbelege	Evidenz-niveau (SIGN)	Meth. Bemerkungen
Meta-analysis	Anderson LM, et al. (2009) [39]	RCTs, non-randomised studies, cohort designs, time serie Following Databases were used: Medline, Embase, Cinahl, Cochrane library et al. Up to 2005 Keywords were reported Language restriction: only English	Worksite interventions (nutrition and physical activity programs) Outcomes: different weight related outcomes including weight in pounds or kilograms, BMI and percentage body fat	**Included studies:** Study quality: (Randomization/ Dropout rate/ intention-to-treat): - 47 studies: 31 RCTs, 12 non-randomised studies, 3 cohort designs, 1 time series - Quality assessment: “Community Guide” was used; - Studies with greatest or moderate design suitability and good or fair quality of execution were included - Random effect model - Only 2 RCTs reported intention-to-treat analysis (35, 47) - Many of the studies reported insufficient statistical information for statistical pooling with CIs - Randomization procedures, allocation concealment, blinding, drop outs n. a. Descriptive statistics: - Outcome measure at least 6-12 months from the start of intervention program - any weight status: normal, overweight, obese - Intervention: worksite health promotion programs including nutrition or physical activity programs or both with different implementations-strategies - Separate analysis of studies comparing intervention to untreated control and intervention to multiple treatment arm - The behaviour focus of 27 studies was on diet and physical activity, 10 – diet only, 10 – physical	(27) Abrams DB, Follick MJ. J Consult Clin Psychol 1983; 51(2):226 –33. (31) Anderson J, Dusenbury L. AAOHN J 1999; 47(3):99–106. (34) Briley ME, et al.J Am Diet Assoc 1992; 92(11):1382– 4. (37) Cook C, et al N Z Med J 2001; 114(1130):175–8. (39) DeLucia J, et al. J Subst Abuse 1989;1:203–8. (44) Forster JL, et al. J Occup Med 1985; 27(11):8084–8. (46) Furuki K, et al. J Occup Health 1999; 41:19 –26. (48) Gomel M, et al. Am J Public Health 1993;83(9):1231– 8. (52) Jeffery RW, et al. Am J Public Health 1993;83(3):395– 401. (54) Karlehagen S, Ohlson CG. Prev Med 2003;	1-	Heterogeneity: Results of Q-test n.a., only “not significant” Randomization procedures, allocation concealment, blinding, drop outs, publications bias not reported

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				activity only - Duration was < 6 months in 19 studies, 6-9 months in 14 studies, 12-18 months in 8 studies, > 18 months in 6 studies - Different data were not reported (age in 70 % of studies, socioeconomic data and information about jobs in 40 % of studies, the size of worksite in 64 % of studies) Heterogeneity: - Q-Statistik was used - Analysis part II: 9 RCTs (outcome weight in pounds): Q-Test for heterogeneity was not significant Publication bias: - N. a. **Results:** - Analysis part I: all study design were used; - Analysis part II: effects separately by study design: - Analysis part II: RCTs: - 9 RCTs; outcome weight in pounds: pooled effect was **- 2.8 pounds (95% CI -4.63 to - 0.96)** in favour of intervention - 3 RCTs (47, 49, 53): physical activity behaviours alone: effect was - 2.24 pounds (95% CI -6.49 to +2.00) - 5 RCTs (38, 58, 60, 62, 65): physical activity and diet: effect was - 3.18 pounds (95% CI -5.88 to -0.5) - One study (40): diet alone: weight loss was	37(3):219 –25. (57) Lovibond SH, et al. J Behav Med 1986;9:415–37. (58) Muto T, Yamauchi K. Prev Med 2001;33(6):571–7. (59) Nilsson PM, et al. Scand J Work Environ Health 2001; 27(1):57–62. (60) Nisbeth O, et al. Patient Educ Couns 2000; 40(2):121–31. (61) Oden G, et al. Fitness Bus 1989;4:198 –204. (64) Pohjonen T, Ranta R. Prev Med 2001 Jun; 32(6): 465–75. (65) Pritchard JE, et al. Nutr Diet 2002 Jun; 59(2):87–96. (29) Anderson JV et al. J Occup Med 1993;35(8): 800–4. (36) Cockcroft A, et al. Occup Med (Lond) 1994; 44(2):70–6. (41) Elberson KL, et al.		

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				-1.71 (95% CI -8.38 to +4.95) - 6 RCTs; outcome BMI: pooled effect was -0.47 (95% CI -0.75 to -0.19) in favour of intervention - 3 cluster RCTs (37, 42, 48) reported BMI outcomes in 6 months: pooled effect was -0.25 (95% CI -0.64 to + 0.14) - Subgroup analysis: no association between program effectiveness and focus of program or behavioral focus - But: small number of studies in each category	Outcomes Manag Nurs Pract 2001; 5(2):82– 6. (47) Gerdle B, et al. J Occup Rehabil 1995; 5(1):1–16. (51) Hedberg GE, et al. Occup Environ Med 1998; 55(8):554–61. (72) Wier LT, et al .Aviat Space Environ Med 1989; 60: 438–44. (30) Anderson J, Dusenbury L. AAOHN J 1999; 47(3):99 –106. (45) Fukahori M, et al. J Occup Health 1999;41(2):76–82. (53) Juneau M, et al. Am J Cardiol 1987; 60:66 –77. (55) Krishnan N, et al. Indian J Ind Med 2004;8(2):29 –33. (63) Peterson G, et al. Behav Ther 1985;16(A2):213–22. (68) Shimizu T, et al .J Occup Health 2004;46(3):205–12. (79) Steinhardt M, et al. J		

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					Psychol 1999;133(5):495–513. (26) Borenstein M, Englewood NJ: Biostat, 2006. (33) Briley ME, et al. J Am Diet Assoc 1992;92(11):1382– 4. (35) Bruno R, et al. Prev Med 1983;12(4):523–32. (38) Crouch M, et al. Prev Med 1986;15:282–91. (43) Erfurt JC, et al. Am J Health Promot 1991;5(6): 438–48. (56) Linenger JM, et al. Am J Prev Med 1991;7(5):298 –310. (62) Okayama A ,et al. Environ Health Prev Med 2004; 9(4):165–9 (42) Elliot DL, et al. Am J Health Behav 2004;28(1):13–23. (40) Drummond S, Kirk T. J Hum Nutr Diet 1998;11:473–85. (67) Robison JI, et al. Med		

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					Sci Sports Exerc 1992;24(1):85–93. (69) Talvi AI, et al. Occup Med (Lond) 1999 Feb;49(2):93–101. (32) Barratt A, et al. Am J Public Health 1994;84(5):779–82. (28) Aldana SG, et al. J Occup Environ Med 2005;47(6):558–64 (49) Grandjean PW, et al. J Sports Med Phys Fitness 1996;36(1):54 –9. (50) Harvey HL. Dissert Abstr Int B: Sci Eng 1998;60(2B) (66) Proper KI, et al. Am J Prev Med 2003;24(3):218 –26. (70) Thorsteinsson R, et al. Scand J Prim Health Care 1994;12(2):93–9.		

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Systematic Review/ Meta-analysis	Witham MD, et al. (2010) [62]	RCTs Search strategy: 13 electronic databases (Medline, Cochrane, Embase et al.)	Diet, physical activity and mixed approaches Outcomes: weight, BMI, total cholesterol, high-density lipoprotein (HDL) cholesterol, low-density	**Included studies:** Study quality: (Randomization/ Dropout rate/ intention-to-treat): - 9 RCTs - all studies reported random allocation - insufficient detail were in most trials regarding adequate allocation concealment - some studies specified intention-to-treat analysis	(15) Glasgow RE et al; Patient Educ Couns 1997; 32: 175–84. (14) Whelton PK et al ; JAMA 1998; 279: 839–46 (10) Mengham LH et al; Pract Diab Int 1999; 16: 5–8	1-	Significant statistical heterogeneity Publications bias analysis not exist insufficient detail about allocation

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		Search date was reported Search terms were reported weight loss was a primary aim of the intervention follow-up data at a minimum of 1 year were available mean age of groups was ≥60 years mean baseline BMI was ≥30 kg/m2 trials with placebo or no intervention for the control group and trials comparing active intervention groups	lipoprotein (LDL) cholesterol, triglycerides, fasting glucose, HbA1c and blood pressure, deaths, hospitalization, morbidity, quality of life, measures of physical function and exercise capacity	in their protocols - 2/9 studies clearly performed intention-to-treat analyses; insufficient detail was given in 3/9 - most studies gave numbers of withdrawals, but only four gave reasons for withdrawal or dropout - baseline treatment and control groups were well balanced in all nine studies - Blinding: only one study clearly reported that the team in charge of patients' usual care was blinded to the intervention, or that those measuring outcomes were blinded to treatment group Descriptive statistics: - with one exception [10], the included trials were all carried out in the USA - most studies targeted patients with a specific disease entity (diabetes mellitus, coronary artery disease, osteoarthritis) - studies were a mixture of single-centre and multi-centre trials - some interventions were conducted in community or primary care settings and some in secondary care settings - all studies examined patients who were living in the community rather than in institutional settings - two studies had a mean baseline BMI of >35 kg/m2 [11, 12] - one trial [11] targeted black and white adults with diabetes living in medically underserved rural communities	(16) Toobert DJ et al; Ann Behav Med 2000; 22: 1–9 (13, 22) Messier SP et al; Arthritis Rheum 2004; 50: 1501–10 Rejeski WJ et al; Health Psychol 2002; 21: 419–26 (11) Mayer-Davis EJ et al; Am J Public Health 2004; 94: 1736–42 (17, 18 = PATH (Positive Action for Todays Health) Trial) Irwin ML et al; JAMA 2003; 289:323–30; Frank LL et al; Obes Res 2005; 13: 615–25 (19) Crandall J et al; J Gerontol A Med Sci 2006; 61A: 1075–81 (12) Villareal DT et al; J Clin Endocrinol Metab 2008; 93: 2181–7		concealment Post hoc subgroup analysis

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				- all trials provided dietary advice, with the exception of PATH trial, which provided physical activity advice [17, 18] - in two trials, it was not clear whether this was low-fat dietary advice [10, 14]. - two trials did not report giving physical activity advice [10, 15], and three trials provided facilities for undertaking physical activity [12, 13, 17, 18]. Heterogeneity: - random effects model was used - I2 tests for heterogeneity across analyses were performed, and possible sources of heterogeneity were explored - For weight: Significant statistical heterogeneity (I2 = 89%; P < 0.001) Publication bias: - n. a. in analysis - "it is possible that unpublished studies exist that have not been included" **Results (for weight):** - overall weighted mean difference change comparing intervention and control groups at 12 months was −3.0 kg (95% CI −5.1 to −0.9, P = 0.005) - Post hoc subgroup analysis (according to the type of intervention): - trials that provided physical activity advice with dietary advice appeared to provide greater weight loss (change in weight of −3.8			

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				kg; 95% CI −6.22 to −1.38, P = 0.02) - two studies for which weight change was extrapolated from BMI change [15, 16] gave a change in weight of −3.3 kg (95% CI −5.8 to −0.8, P = 0.009) - Studies with a clearly defined weight loss goal such as defined weight loss or calorie restriction [10–12, 14] showed a change in weight of −4.0 kg (95% CI −7.3 to −0.7), compared with −1.3 kg (95% CI −2.9 to 0.3, P < 0.001 for difference) in those without a defined goal [15–17]			
Systematic Review	Kastorini CM, et al. (2010) [63]	Databases: Pubmed, Scopus and Embase Studies in English, until December 2009, reporting data Search terms: combinations of key words relating to disease (coronary heart disease, obesity, body weight) and	Mediterranean diet (vs. low fat, low carbohydrates et al. Diet)	**Included:** 21 RCTs and 14 prospective/cross-sectional studies Study quality: n.a. Heterogeneity:n.a. Publication bias:n.a. **Results (for weight):** Not all studies show protective effects on body weight; Observational studies (adherence to the Mediterranean diet, obesity and cardiovascular risk factors): indicate that subjects closer to the Mediterranean diet decreased both their body weight and CVD risk factors Clinical trials evaluating the relationship between adherence to the Mediterranean diet, obesity and cardiovascular risk factors: are in accordance with	Tuttle KR, et al. Am J Cardiol 2008 Fung TT, et al. Am J Clin Nutr 2005 Panagiotakos DB, et al. Nutrition 2006 Panagiotakos D, et al. Nutr Metab Cardiovasc Dis 2009 Tzima N, et al. Lipids Health Dis 2007 Sanchez-Tainta A, et al. Eur J Cardiovasc Prev Rehabil 2008 Panagiotakos DB, et al. Asia Pac J Clin Nutr 2007 Tyrovolas S, et al. Int J	1-	Reporting quality of studies n.a.

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		Mediterranean diet		results from observational studies.	Food Sci Nutr; 2009 de Lorgeril M, et al. Lancet 1994 Esposito K, et al. JAMA 2003 Esposito K, et al. JAMA 2004 Esposito K, et al. Ann Intern Med 2009 Buscemi S, et al. Eur J Clin Invest 2009 Vincent-Baudry S, et al. Am J Clin Nutr 2005 Shai I, et al. N Engl J Med 2008 Elhayany A, et al. Diabetes Obes Metab 2010 Rallidis LS, et al. Am J Clin Nutr 2009 Toobert DJ, et al. Diabetes Care 2003 Ambring A, et al. Clin Sci (Lond) 2004 Bos MB, et al. Nutr Metab Cardiovasc Dis; 2009 Goulet J, et al. Atherosclerosis 2003		

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					Andreoli A, et al. Eur J Clin Nutr 2008 Estruch R, et al. Ann Intern Med 2006 Michalsen A, et al. Eur J Clin Nutr 2006 Rodriguez-Villar C, et al. Diabet Med 2004 Lerman RH, et al. Nutr Metab (Lond) 2008;5:29.		
Systematic Reviews	Södlerlund A, et al. (2009) [64]	Databases: Medline, Cochrane, Cinahl ect. RCTs Adults Physical training = part of treatment Healthy overweight or obese subjects At least one year follow up/likelihood of maintenance	Physical exercise. Diet, behaviour therapie	**Included studies:** 12 RCTs were included Descriptive statistics: see results Heterogeneity: n.a. Publication bias: n.a. **Results:** Weight loss: in seven studies body weight decreased significantly in Intervention groups. At the end of the Intervention period the effect size of the average weight lass was greatest in two studies that combined diet with aerobic training. In one study the effect sizewas negative at the end of the Intervention period, signlfying a weight gain Follow-ups in eight of the studies: for two years; the rest of the studies had Interventions that continued one year or more. The follow- ups showed	Fogelholm M, et al. Journal of Obesity and Related Metabolie Disorders 1999 King AC,et al. Health Psychology 1997 Kukkonen-Harjula K, et al. Preventive Medicine 2005 Skender ML, et al. Journal of the American Dietetic Assoecation 1996 Wadden TA, et al. Journal of Consuling and Clinical Psychology 1998 Weinstock RS, Archives of Interna! Mediclne 1998 Jakicic JM, et al. Journal of the American Medical	1+	Small studies, publication bias analysis n.a.

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		English Between 1995-2006 Inclusion criteria: RCT; the subjects had to be adults; treatment: physical tralning or exercise; overweight or obese subjects but otherwise healthy; the Intervention groups include at least 15 subjects; at least one-year follow-up alter the Intervention or if there was no follow-up then the intervention had to be at least 12		significantly lower weight gains after Interventions that included moderately intense aerobic trainlng and emphasized increased, individual, daily activity in three studies there was no significant dlfference in welght gain among the Intervention groups during follow-up. The biggest effect size at follow-up (1.09) occurred in a study in which diet, behaviour therapy and individual aerobic trainlng were combined in one of the Intervention groups (52 weeks training and follow-up = three months) The smallest effect size at follow-up (-0.79 (largest increase in weight)) occurred in a study in which only aerobic training took place four to six hours per week with an HRR Intensity of 60% in one of the two Intervention groups (raining period was 40 weeks lang; follow-up - a little over a year Conclusion: The biggest effect size: at follow up: at the group in which diet, individual aerobic training and behaviour therapy were combined The smallest effect size: in the group this only aerobic training	Association 1999 Jefferey R, et al. Journal of Consultingand Clinical Psychology 1998 Perri MG, et al. Journal of Consulting and Clinical Psychology 1997 Andersen RE, Jotrrnal or the Arnerican Medical Association 1999;		

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		months in order to increase the likelihood of maintenance of the results; published in English between 1995 and 2006.					
Cochrane Review	Tuah NA, et al. (2011) [65]	Databases: The Cochrane Library (until 10, 2010), MEDLINE (until Dezember 2010), EMBASE (until January 2011) and PSYCHINFO (until Januar 2011) Inclusion criteria: RCT using TTMSOC as a model, theoretical	Intervention: Theoretical model “Stages of Change”=TTM SOC Theoretical framework or guideline in designing lifestyle modification strategies, mainly dietary and physical exercise versus a comparison intervention of usual care Control: Usual advice on diet or advice on physical	**Included studies:** Study quality: (Randomization/ Dropout rate/ intention-to-treat): - 5 RCTs - Only one study: reported allocation concealment - Blinding: 1 study - No selective reporting: 1 study - Flow chart available - Two authors assessed each trial independently - Inter-rater agreement for key bias indicators (e.g. allocation concealment, incomplete outcome data) was calculated using the kappa statistic Descriptive statistics: - 3910 participants (1834 in interventions group and 2076 in control group) - Adults, aged 18 years and over, who are overweight or obese - Participants with co-morbidities, such as diabetes,	Dinger 2007 Johnson 2008 Jones 2003 Logue 2005 Steptoe 2001	1+	Gute methodische Qualität 1 low risk of bias trial and 4 High risk of bias trials (reporting bias, selection bias)

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		framework or guideline in designing lifestyle modification strategies, mainly dietary and physical exercise versus a comparison intervention of usual care; one of the outcome measures of the study was weight loss; and participants were overweight or obese adults	exercise Primary outcomes: weight loss, health-related quality of life; Other outcomes: change in physical activities behaviour and dietary intake, adverse events including relapse into unhealthy behaviour and weight gain; morbidity; death from any cause; costs.	heart diseases and hypertension will be included in the review - length of intervention from six weeks to 24 months, with a median length of nine months - AE: Death and weight gain are the two adverse events reported by the included trials Heterogeneity: - I2 statistic Publication bias: - Funnel plot **Results (for weight):** - Intervention: limited impact on weight loss (about 2 kg or less) - no conclusive evidence for sustainable weight loss - other outcomes: significant change in physical activities behaviour and dietary intake in combination with TTM SOC - TTMSOC was used inconsistently as a theoretical framework for intervention in the trials			
Meta-analysis	Thorogood A, et al. (2011) [66]	RCTs Inclusion criteria: Trials with isolated aerobic	Moderate-intensity aerobic exercise programs	**Included studies:** Study quality: (Randomization/ Dropout rate/ intention-to-treat): - 14 RCTs were included in SR, 6 RCTs were included in M-A	Nishijima H, et al. Med Sci Sports Exerc. 2007; Alves JG, et al. Am J Public Health 2009;99(1):76-80.	1+	Publication bias analysis n.a.

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		exercise longer 12 week and at least 120 minutes per week were included. Obese and overweight individuals, intention-to-treat analysis was used Through January 2010 Medline and Cochrane date bases		- 1847 patients were included - Flow diagram - PRISMA Statement was used - 4 studies reported blinding - 3 studies did not conceal allocation after randomisation - ITT = inclusion criterion Descriptive statistics: - Includes studies/Duration: 2 studies (265 patients) had a 12-month exercise intervention, 4 studies (861 patients) had a 6-month intervention, and 8 studies (414 patients) had a 12-16-week intervention - 4 studies had patient populations with a mean age>60 years and 1 study recruited only young patients aged between 19 and 23 years - 2 studies were located in Japan, 1 – in Brasil, 11 – in Europe or North America Heterogeneity: - random effects model was used Publication bias: - n. a. **Results (for weight):** - Six-month programs were associated with a modest reduction in weight (weighted mean difference 1.6 kg; 95% confidence interval [CI], 1.64 to 1.56) and waist circumference (weighted mean difference 2.12 cm; 95% CI, 2.81 to1.44)	Irwin ML, et al. JAMA. 2003;289(3):323-330. Anderssen S, et al. Nutr Metab Cardiovasc Dis. 1995; Lambers S, et al. Clin Rehabil. 2008;22(6):483-492. Blumenthal J, et al. Arch Intern Med. 2000;160(13):1947. Hellenius M, et al. Atherosclerosis. 1993; Posner J, et al. J Am Geriatr Soc. 1992;40(1):1. Bonanno JA, et al. Am J Cardiol. 1974;33(6):760-764. Raz I, et al. Isr J Med Sci. 1994;30(10):766-770. DiPietro L, et al. J Am Geriatr Soc. 1998;46(7):875. van Aggel-Leijssen DP, Int J Obes Relat Metab Disord. 2001;25(1):16-23 Abe T, et al. Med Sci Sports Exerc. 1997;29(12):1549-1553.		

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				- Twelve-month programs were associated with modest reductions in weight (weighted mean difference 1.7 kg; 95% CI, 2.29 to 1.11) and waist circumference (weighted mean difference 1.95 cm; 95% CI, 3.62 to 0.29)			
Meta-analysis	Ismail I, et al. (2012) [67]	Electronic database searches were performed in AMED, MEDLINE, MEDLINE Daily Update, PREMEDLINE (via OvidSP), SPORTDiscus, CINAHL (via EBSCO), EMBASE and Web of Science from earliest record to November 2010. The search strategy combined terms covering the	aerobic exercise (AEx) and progressive resistance training (PRT) on visceral adipose tissue (VAT)	**Included studies:** - 35 studies Study quality: - flow chart reported - two reviewers - Included studies met a minimum quality threshold defined as having met all inclusion criteria; Study quality was further assessed by two researchers in a blinded manner using a modified assessment scale created by Downs & Black - All included studies specified their hypotheses, main outcomes, participant characteristics, interventions, main findings, variability estimates, statistical tests, accuracy of measures and randomization procedure. Eight studies did not report adverse events while five studies did not provide an adequate description of the control group. Eighteen studies - reported the reliability of the VAT measure. Only two studies made an attempt to blind study participants to the intervention they received, and only two studies made an attempt to blind those measuring the main outcome of the intervention Descriptive statistics:	Donelly J, et al. Med Sci Sports Exerc 2009 Brochu M, et al. J Clin Endocrinol Metab 2009 Cuff DJ, et al Diabetes Care 2003 Giannopoulou I, et al. J Clin Endocrinol Metab 2005 Hunter GR, et al.Obesity 2010 Ibáñez J, et al. Obesity 2010 Irving BA, et al. Med Sci Sports Exerc 2008 Irwin ML, et al J Am Med Assoc 2003 Janssen I, et al. Diabetes Care 2002 Kim E, et al. Jpn J Phys Fitness Sports Med 2008 Ku YH, et al. J Int Med Res 2010	2+	High heterogeneity;

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		areas of strength training, aerobic exercise training and visceral fat (Included studies: RCTs in which aerobic exercise or progressive resistance training in isolation or combination were employed for 4 weeks or more in adult humans, where computed tomography (CT) or magnetic resonance imaging (MRI) was used for quantification		- 2145 individuals (702 male; 1422 female; 21 not reported) participated in the trials - Seventeen studies exclusively recruited female participants, five studies exclusively recruited male participants, with 11 studies recruiting both men and women; Sex was not reported in one study - The mean age of participants ranged from 28–83 years, and 11 studies did not report mean age - 18 studies had participants who were classified on average as obese, 15 as overweight and two within normal range - Fourteen studies specifically recruited obese participants, nine studies recruited participants with type 2 diabetes, three studies with metabolic syndrome and two studies recruited Asian-only cohorts - 27 studies that conducted AEx training, the frequency of AEx was most commonly 3 d per week (10 of 27 studies) followed by 5 d per week - frequency for PRT was most commonly 3 d per week (9 of 13 studies), with three studies training with PRT 2 d per week - Six studies combined AEx and PRT training, three of which conducted training on 3 d per week and one study conducted on 4 d, 5 d and 6 d per week Heterogeneity: - see results Publication bias: - Funnel plot and Eggers test, result n.a.	Kwon HR, et al. Korean Diabetes J 2010 Kwon HR, et al. Korean Diabetes J 2010 Nicklas et al. Am J Clin Nutr 2009 Park SK, et al .J Physiol Anthropol Appl Human Sci 2003 Poehlman ET, et al J Clin Endocrinol Metab 2000 Ross R, et al. Obes Res 2004 Schmitz KH, et al. Am J Clin Nutr 2007 Boudou P, et al. Eur J Endocrinol 2003 Rice B, et al. Diabetes Care 1999 Ross R, et al. Ann Intern Med 2000 Ross R, et al. J Appl Physiol 1996 Thong FSL, et al .Am J Physiol Endocrinol Metab 2000 Binder EF, et al. J Gerontol A Biol Sci Med		

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		of visceral adipose tissue pre- and post-intervention		**Results (for weight):** - significant pooled effect size (ES) for the comparison between AEx therapy and control (ES = -0.23, 95% CI: -0.35 to -0.12; P < 0.001). Significant heterogeneity among studies was observed (I2 = 71.0%, P < 0.001); After re-analysis via random effects model with this outlier removed, there remained a significant pooled ES (-0.33, 95% CI: -0.52 to -0.14; P < 0.01) - non-significant pooled ES for the comparison between PRT therapy and control (ES = 0.05, 95% CI: -0.10 to 0.20; P = 0.52); random effects model: 0.09, 95% CI: -0.17 to -0.36; P = 0.49); - in nine studies which directly compared AEx with PRT, the pooled ES did not reach statistical significance (ES = 0.20, 95% CI: -0.02 to 0.42; P = 0.08; random effects model ES = 0.23, 95% CI: -0.02 to 0.50; P = 0.07 favouring AEx); I2 = 20.1%, P = 0.26 - pooled ES did not reach statistical significance for interventions that combined AEx and PRT therapy vs. control (ES = -0.27, 95% CI: -0.46 to -0.08; P < 0.01; random effects model: -0.28, 95% CI: -0.69 to 0.14; P = 0.19); I2 = 87.1%, P < 0.01	Sci 2005 Garr DB, et al. Diabetes 2005 Coker RH, et al. Metab Syndr Relat Disord 2009 DiPietro L, et al .J Am Geriatr Soc 1998 Janssen I, et al .Int J Obes 1999 McTiernan A, et al. Obesity 2007 Short KR, et al. Diabetes 2003 Sigal RJ, et al. Ann Intern Med 2007 Slentz CA, et al. Appl Physiol 2005 Stewart KJ, et al .Am J Prev Med 2005 Mourier A, et al. Diabetes Care 1997		
Meta-analysis	Shikany JM, et al. (2011) [68]	Databases: PubMed, Web of Science	Modified carbohydrate diet (MCD)=South	**Included studies:** Study quality: (Randomization/ Dropout rate/ intention-to-treat):	Aude et al., Arch intern med 2004 Maki et al, Am J Clin	1-	4 RCTs, data from three RCTs were obtained

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		Studies published from 1950 up to April 2010 Key word: "south beach" Inclusion criteria: design, intervention = MDS, weight loss and related anthropometric measure are outcomes Exluded: non RCTs, trials focused on weight mantainance, trials in patients undergoing gastric bypass surgery	Beach diet compared with various control diets on weight loss	- 4 RCTs were included - Flow diagram - ITT Descriptive statistics: - Included studies/Duration: 12-36 week - 24 week follow up: available from 3 studies - 506 adult patients were included Heterogeneity: - Heterogeneity of studies - Fixed and random effects models were used Publication bias: - n. a. **Results (for weight):** Forest plot was used 4 RCTs: weight loss was in all 4 studies after 12 and 24 week better in MCD group; results for BMI and waist circumference were different: BMI was better in MCD group after 12 week and better after 24 week in only 3 studies; Waist circumference was better in MCD group after 12 and 24 week in only one study Fixed effects model: Significant greater weight loss (after 12 week:-1.66; CI -1.98, -1.34; after 24 week: -1.20; CI -1.73, -0.68), BMI (after 12 week: -0.53; CI -0.66, -0.41; after 24 week: : -0.43; CI -0.62, -0.23) and waist circumference (after 12 week: -1.02; CI -1.49, -0.54;	nutrition 2007		from sponsor Only 1 RCT was identified through search process Only two included studies were published The raw data from study 1 were n.a. p.b analysis n.a. results after 36 week (=duration of one included study) n.a. High drop out and missing rate Study question is clearly focussed Different control diets ITT analysis Multiple imputation to handle missing data Heterogeneity of

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				after 24 week: : -0.69; CI -1.29, -0.09) reduction after 12 and 24 week Random effects model: Results only minimal different to Fixed effects model, but not significant difference in waist circumference after 24 week (-0.91; CI -2.42,0.60)			studies (Fixed and random effect model were used) CI were reported
Meta-analysis	Esposito K, et al. (2011) [69]	Databases: PubMed, Embase, Scopus, Cochrane Trials from inception to January 2010 Search strategy was reported, no language restrictions were used Inclusion criteria: design, outcome: body weight, BMI Exclusion criteria were reported (lack of	Mediterranean diet (=MD) versus control diet	**Included studies:** Study quality: (Randomization/ Dropout rate/ intention-to-treat): - 16 RCTs were included - PRISMA checklist was used - Flow diagram is available - Two investigators independently assessed the eligibility of studies, consensus procedure was used - Jadad scala of methodology quality was used - CI were reported Descriptive statistics: - 3436 adult participants (1848 assigned to mediterranean and 1588 assigned to control diet) were included - 4 trials did not reported weight in kilogram - Countries: USA, Europe, Israel Heterogeneity: - High Heterogeneity of studies (Q2 and I2 statistic) - random effects model was used - subgroup analyses were performed to explore	Esposito et al, 2003, JAMA Mc Manus et al, 2001, Int J Obes Relat Metab Disord Esposito et al, 2004, JAMA Esposito et al, 2009, Ann Intern Med Shai et al, (low fat) 2008, N Engl J Med Elhayany et al, (LCM) 2010, Diabetes Obes Metab De Lorgeril et al 1994, Lancet Rodriges Villar et al, 2004, Diabetes med Bos et al, 2009, Nutr Metab Cardiovask Dis Fernandez Puebla et al, 2003, Nutr Metab	1+	High methodological Quality of Study, But: The interventional mediterranean diet and control diet varied between the trials High heterogeneity Sensitivity analysis was reported Were are no evidence for Publication bias

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		randomisation, lack of control diet group, samples with less as 15 patients, follow up less as 4 week et al)		heterogeneity Publication bias: - Begg funnel plot and Egger test were used - There are no evidence for Publication bias **Results (for weight):** Forest plot was used Random effects analysis: Significant greater effect on weight in MD group (Mean difference between groups –1.75 kg, CI -2.86 to -0.64 kg) and on BMI (Mean difference between groups –0.57 kg/m2, CI -0.93 to -0.21 kg/m2), the effect was greater in association with energy restriction (mean weight: -3.88 kg) or increased physical activity (mean weight -4.01 kg) Sensitivity analysis: the effect of MD was no longer statistically significant then diet was no associated with energy restriction or increased physical activity and in trials with a shorter follow up (less as 6 month)	Cardiovask Dis Estruch et al (olive oil), 2006, Ann intern med Toolbert et al 2003, Diabetes Care Vincent-Baudry, Am J clin nutr, 2005 Michalsen Eur J clin Nutr Tuttle et al, Am J Cardiol 2008 Rallidis et al, 2009 Am J Clin Nutr		
Meta-analysis	Burke LE, et al. (2011) [70]	Databases: Medline, PsychInfo Published between 1993-2009 Key words were reported Search	Three components of self monitoring in behavioural weight loss studies: diet, exercise and self weighing Primary outcome:	**Included studies:** Study quality: (Randomization/ Dropout rate/ intention-to-treat): - 22 observational studies - 8 were reports from randomized clinical trials testing behavioural weight loss interventions Descriptive statistics: - 15 studies focused on dietary self monitoring, 1 –	Linde.JA. ,et al. Ann Behav Mfed.2005 Baker RC, 1et al. Behav Ther 1993 Helcel DL et al. ,J Am Diet 2007; Tate DF, et al. JAMA. 2001; Gokee-LaRose J, et al. Int	2-	No restrictions on design or size homogenous samples Flow chart

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		limiters: English language, human beings Manual search of reference sections of the included studies were performed Inclusion criteria: conducted in the USA, reported between 1989 and 2009, investigated the effect of self monitoring on weight loss and reported the use of self monitoring diet, physical activity or self-weighing	weight loss and weight maintenance	on self monitoring exercise, 6 – on self weighting - 6 studies were secondary data analysis or ancillary studies of existing weight loss programs - The use of technology (Internet, personal digital ass., electronic digital scales)- reported in 5 studies - Population: predominantly white and women - 4 studies did not report the racial and ethnic composition Heterogeneity: - N. a. Publication bias: - n.a. **Results:** Significant association between self monitoring and weight loss: - Self monitoring dietary intake: all 15 studies found significant associations between self monitoring and weight loss - Self monitoring physical activity: only one of three studies specifically examined the role of self-monitoring exercise in relation to weight loss - Self monitoring weight: one study showed that greater weight loss was associated with increased frequency of self weighting; in the weight gain prevention trial only daily weighting was associated with weight loss and less frequent weighting was associated with weight gain; in 2	J Behav Nutr Phys Act. 2009: Van Wormer Am J Prev Med 2009; Burke LE, et al. 2006; Yon ßA, et al J Behav Med. 2007 Welsh EM 2009; Boutelle KN 1998; Boutelle KN 1999 Baker RC, et al. 1998: Nothwehr F 2005; Hollis JF et al. 2008; Carels RA, et al. 2005 Carels RA, et al. 2008 Burke LE, et al. 2009 Shay LE, et al. 2009; Butryn ML. et al. 2007; Wing RR. Et al. 2006; Tate DF, et al. 2006: Wadden TA. et al. 2005		

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				randomized trials: daily self			
Systematic Review	Pearson ES 2012 [71]	inclusion criteria: a) utilized goal setting as the primary intervention or principal component thereof for effecting dietary and/or physical activity behavior change; (b) targeted an overweight and/or obese adult population based on relevant BMI values, or adults who self-identified a need for weight loss as confirmed by the	Goal setting (e.g. education sessions, self-monitoring records),	**Included studies:** Study quality: (Randomization/ Dropout rate/ intention-to-treat): 18 studies START evaluations criteria (Specificity, Timing, Acquisition, Rewards and feedback, and Tools) Descriptive statistics: The participants involved in the selected studies were included based on varying sets of overweight and/or obesity criteria: participants were in 2 studies overweight as identified in pounds or kilograms desired to lose 15 pounds (2 studies) wanted to join a weight loss program (2 studies) The average age of participants ranged from 24 to 50 years old the majority of the study populations were female Mean percent overweight and BMI values were between 15–50% and 29.7–35.2 kg/m2 6 Studies examined the effects of goal setting on dietary behaviors, 4 studies: physical activity behaviors, or a combination of the two (8 studies) Intervention length within the studies occurred mostly between 4 and 8 weeks (7 studies); or 10–19 weeks (7 studies); The length in three studies extended over the course	Burnett KF, et al J Consult Clin Psychol 1985;33:698–703. Chapman SL, et lal J Consult Clin Psychol 1978;46:1588–9. Jarvie GJ, et al Behav Therapist 1985;8:187–8. Dubbert PM, et al Behav Res Ther 1984;21:221–42. Jeffery RW, et al Amer J Clin Nutr 2003;78:684–9. Baron P, et al. Can J Behav Sci 1981;13:161–70. Baron P, et al. Int Rev Appl Psychol 1982;31:369–82. Ureda JR. Et al Health Educ Behav 1980;7:163–85. VanWormer JJ. J Appl Behav Anal 2004;37:421–5. Wing RR, et al Addict Behav 1981;5:139–44.	2+	Publication bias analysis n.a.

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		researchers; (c) occurred in a non-primary care setting whereby participants were self-referred from the local community; Studies were published in English before January 2010. Exclusion criterien were reported Databases : Medline, CINAHL, PsycINFO, SCOPUS, EMBASE, Web of Science, ProQuest Nursing Journals, and Physical Education		of 6, 9, and 18 months (3 studies) Follow-up assessments occurred at differing intervals among the studies and ranged from eight weeks to 30 months post-intervention. S.T.A.R.T. evaluation criteria were applied Heterogeneity: n.a. Publication bias: N. a. **Results:** Developing specific goals that are in close proximity, involve the participant in acquisition, and incorporate regular feedback, are common features in this context; - Specificity: Sixteen of the 18 studies employed specific goals as part of their behavior change protocols (e.g., restrict daily caloric intake by 750 calories; walk 7000 steps per day for one week); two of these 16 interventions also combined goals of a more general nature such as 'reduce caloric intake'; Significant behavioral and physiological changes (e.g., decreased food consumption, weight loss) were found in two studies that compared the impact of explicitly defined goal setting conditions with general or no goal treatment groups - Timing: With the exception of the two studies where goal content was not specified, 16 studies endorsed the use of proximal or daily goals either in isolation, or in combination with distal or weekly	Booth AO et al Health Educ Res 2008;23:371–81. Donaldson JM, et al Behav Intervent 2009;24:73–83. Schneider PL, et al Sci Health Promot 2006;21:85–9. Taylor CB et al Behav Therapist 1991;22:229–36. VanWormer JJ, et al Am J Health Behav 2009;33:445–54. Sperduto WA, et al Addict Behav 1986;11:337–40. Zegman M, et al Addict Behav 1983;8:319–22.		

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		Index.		goal setting; When comparisons were made to distal or no goal groups, findings revealed some favourable outcomes for proximal goal setting as evidenced by changes in eating behaviour s and weight loss. Alternatively, was found greater reductions in caloric consumption in the distal goal setting group during treatment; however, attrition rates in this same group were also higher compared with the proximal group. - Acquisition: Thirteen studies within this review incorporated assigned goals, or goals that were both assigned and self determined. No studies assessed the impact of acquisition on outcome variables independently. - Rewards and feedback: 12 studies incorporated a feedback component which was delivered in person, over the telephone, or technologically via e-mail or through a computer program; Types of feedback included: reviewing goals and making modifications as required; computer printouts and graphs detailing goal progression; problem solving discussions concerning difficulties with goal attainment; encouragement to set more challenging goals; praise, support, and reinforcing messages for achieving goals; and the provision of relevant education information. feedback on progress was incorporated as a component within the larger intervention and was not assessed independently in any of the studies with respect to behavioral outcomes. - Tools: Participant education was a salient feature			

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				in 13 studies and was delivered either as part of a baseline period or the formal intervention. In an effort to facilitate the self-monitoring process and bring the attainment of behavioral goals to fruition; multiple assistive devices were integrated into the interventions. These included items such as calorie-counting booklets, exercise and nutritional manuals and diaries, self-monitoring ards, mouthful counters, pedometers, heart-rate monitors, home scales, social support, behavioral contracts, portable computers, and internet-based programs.			
Systematic Review	Gordon J, et al. (2011) [72]	No study design, langugae, publication status or age restrictions were imposed Pre-specified protocol based on Cochrane Collaboration methods Medline, Embase, Health Management Information Consortium,	Weight management interventions in the community pharmacy setting All studies had multy-component interventions (unspecific lifestyle recommendations, pharmacist advise, pharmacist visits, nutritional advise etc.) Primary outcome; change in weight (and other anthropometry,	**Included studies:** - 1RCT, 1 non-randomized controlled trial, 8 uncontrolled studies Study quality: (Randomization/ Dropout rate/ intention-to-treat): - All studies had reporting and methodological weaknesses indicating risk of bias - 2/10 studies clearly performed ITT analyses - Withdrawal rates likely to cause bias in 4/10 - Blinding measuring outcomes to treatment group was unclear in 2 controlled studies - Adequacy of sequence generation and allocation concealment was unclear in RCT - 1/10 incorporated a representative sample of service users Descriptive statistics: - Countries: USA 4/10, UK 3/10, 1 Switzerland, 1	Ahrens RA, et al. 2003 Bescoby S, et al. 2006; Botomino A, et al. 2008 Bradley C. et al. 2009 De Miguel E et al .2002 Lloyd KB et al. 2002; Lloyd KB, et al. 2007; Malone M et al. 2003; Schwartz SM et al. 2008 Toubro S, et al. 1999 Phrmakon. Denmark 2000. Winter H et al., 2007	2-	Quality assessment Focused question, Publication bias and heterogeneity n.a.

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		CINAHL, International Pharmacy Abstracts, Cochrane Controlled Trials Register, Database of Abstracts of Reviews of Effects, Health Information Resources and Pharm-line were used Jan 1999-June 2009 Keywords were reported	e.g. waist circumference, if reported) Secondary outcomes of any type	Spain, 1 Denmark - 8/10 studies used self-recruitment methods - 5/10 were single-centre, 5/10 were multicentre - 8/10 reported gender: women represented 70%. - Only 1 study reported a mean baseline BMI of >35 kg/m2 - 6/10 studies reported a mean BM on study entryl, 5/10 reported a mean BMI of 25-35 kg/m2 - All studies had multi-component intervention - all had dietary component but clear description only in 4/10 - 2 studies reported advise on physical activity - 5 studies provided specific behaviour change techniques (goal setting, self monitoring etc.) Heterogeneity: n.a. Publication bias: n.a. **Results (for weight):** Long term mean weight loss (12 months) measured in 3 uncontrolled studies ranged from 1.1 to 4.1 kg. This weight loss differed significantly in 2 studies (one of which compared high risk counselling group with statdard care and intensive counselling group, duration – 1 year); 4 uncontrolled studies reported statistically significant weight loss Short term weight loss: ranged from 0.5 to 5.6 kg at 6 months and 0.6 to 5.3 kg at 3 months; in 2 studies was weight loss at 6 months non significant Weight loss in 3 studies were unclear			

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Meta-analysis	Nordmann AJ, et al. (2011) [23]	Databases: MEDLINE, EMBASE, Biosis, Web of Science (all from their inception to January 2011), and the Cochrane Central Register of ControlledTrials Search Strategie was reported Inclusion: publication type; comparing Mediterranean with low-fat diets in either overweight/obese patients with at least one additional	Mediterranean diet vs. low-fat diet	**Included studies:** - 7 RCT: 6 RCTs included in meta-analysis 1 RCT included only in sensitivity, analysis due to validity concerns (Flow chart) Study quality: (Randomization/ Dropout rate/ intention-to-treat): - 5 studies had reported consealed allocation, 4 studies had blinded assessor, 6 studies had loss to follow up < 10 %, ITT-reporting is an inclusion criterion Descriptive statistics: - a total of 3650 patients - follow up: 2 years in 4 trials, 4 years in one trial, 6 years in one trial - Mediterranean diet was defined Heterogeneity: - Sign. Heterogeneity - Sens. Analysis: no qualitative differences Publication bias: - small number of included trials precluded - a sensitive exploration of publication bias, although the plots of standardized effect against precision for all outcomes did not indicate evidence for such a bias (p= n.s.) **Results (for weight):** Body weight, body mass index, and waist	Estruch R, et al.. Ann Intern Med. 2006;145(1):1-11; Esposito K, et al.. JAMA. 2003;289(14):1799-1804; Esposito K, et al. JAMA. 2004;292(12):1440-1446. Shai I, et al. N Engl J Med. 2008;359(3):229-241; Tuttle KR, et al.. Am J Cardiol. 2008;101(11):1523-1530. Esposito K, et al. Ann Intern Med. 2009;151(5):306-314.	1+	Sign. Heterogeneity

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		cardiovascular risk factor or patients with established coronary artery disease; RCT, minimum follow-up of 6 months; report ITT, data on changes of body weight, blood pressure, and lipid values. Quality assestment		circumference decreased more in subjects randomized to Mediterranean diets than in subjects randomized to low-fat diets. After 2 years: the weighted mean difference (WMD) in body weight between subjects randomized to Mediterranean and low-fat diets was 2.2 kg (95% confidence interval [CI], 3.9 to 0.6, P for heterogeneity <0.001, I2 =97%) the WMD in body mass index 0.6 kg/m2 (95% CI, 1 to 0.1, P for heterogeneity <0,.001, I2=94%) WMD in waist circumference 0.9 cm (95% CI, 2-0.2, P for heterogeneity <0.001, I2=92%)			

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Meta-analysis	Ross Middleton KM, et al. (2012) [73]	Databases: PubMED, PsychInfo and Cochrane Reviews Date: from 1980 until June 2011 Search terms were reported Included: RCT that assessed the impact of extended care on weight regain, after initial weight loss, in overweight and obese individuals; adults; studies included a randomized extended care component that focused on maintenance of weight loss;	Extended care (at least two sessions, delivered either in-person or via telephone by a trained interventionist, which focused on providing continuing support for behaviours associated with weight management) vs. control	**Included studies:** 11 RCT were included in the meta-analysis and an additional two were retained for qualitative analysis (flow chart) Study quality: (Randomization/ Dropout rate/ intention-to-treat): - 2 reviewer, the Physiotherapy Evidence Database (PEDro) scale was used, for included studies PEDro ranged from 5 to 8 (11-item in total), only four had post-test data with less than 15% attrition; only three studies with ITT Descriptive statistics: - majority of the studies used a problemsolving component, three further included relapse prevention training; - mean follow-up 16.1 months (range = 6–30 months); - average of 28.6 treatment contacts; Heterogeneity: - Random-effects modelling - Q-Statistik: no significant heterogeneity between studies, Q = 5.63, P = 0.845 Publication bias: - funnel plot and a fill-and-trim analysis: minimal evidence for publication bias (g = 0.321) **Results (for weight):** The effect of extended care on long-term weight loss	Baum JG, et al. J Behav Med 1991;14: 287–302. Carels RA, et al. Eat Behav 2008; 9: 228–237. Perri MG, et al. Arch Intern Med 2008; 168: 2347–2354. Perri MG, et al. J Consult Clin Psychol 1986; 54: 670–675. Perri MG, et al. J Consult Clin Psychol 1984; 52: 480–481. Perri MG, et al. J Consult Clin Psychol 1988;56: 529–534. Perri MG, et al. J Consult Clin Psychol 2001; 69: 722–726. Perri MG, et al. J Consult Clin Psychol 1984; 52:404–413. Svetkey LP, et al. JAMA 2008; 299: 1139–1148. Wing RR, et al. N Engl J Med 2006; 355: 1563–1571. Perri MG, et al. J Consult Clin Psychol 1987; 55:	1+	Relatively small number of articles; Quality of included studies: middle

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		extended care interventions delivered via the Internet were excluded due to concerns regarding the heterogeneity of methods used in these studies		maintenance varied by study, from g = 0.270 to 0.933; average effect was g = 0.385 (95% confidence interval: 0.281, 0.489; P <0.0001). This effect would lead to the maintenance of an additional 3.2 kg weight loss over 17.6 months post-intervention	615–617.		
Systematic Review	Esfahani A, et al. (2011) [74]	Literature search across MEDLINE (1950 to June 2009 Week 4), EMBASE (1980 to June 2009 Week 4), All EBM Reviews—Cochrane DSR, ACP Journal Club, DARE, CCTR, CMR, HTA, and NHSEED; search terms ‘‘glycemic index OR	low glycemic index (GI) and glycemic load (GL) diets on weight loss	GI, GL, and weight loss in adults: **Included studies:** 20 trials (19 controlled trials) (Included) Study quality: n.a. Descriptive statistics: - The majority of trials compared a low GI/GL diet to either low fat or high GI/GL controls; - several studies the GI/GL values were not reported: in one study the GI units were 55.5 and 63.9 (difference of 8.4 units) while in another 78.6 and 102.8 (difference of 24.2) for low- and high-GI diets - 1 study (Aston et al.) showed a nonsignificant weight - gain in both the groups (P =0.8). - 2 studies consisted of multiple interventions: in one study, four different diets (high protein/high GI or	For GI, GL, and weight loss in adults: Sichieri, et al (2007) Am. J. Clin. Nutr. 86, 707–713. Retterstol, et al. (2009) Clin. Nutr. 28, 213–215. Pereira, et al. (2004) JAMA 292, 2482–2490. Abete, I., et al. (2008) Clin. Nutr. 27, 545–551. Aston, L. M., et al. (2008) Int. J. Obes. (Lond) 32, 160–165. Bahadori, B., et al. (2005) Diabetes Obes. Metab. 7,290–293. Bouche, et al. (2002)	1(-)-2(-)	Quality of included studies was not assessed; included and excluded criteria are not clear, assessment of publication bias n. a. Weight loss was not a primary outcome measure in a number of the studies included in this meta-analysis; several studies were not

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		glycemic load" Included: clinical trials with dietary interventions of different glycemic indices with weight loss as the primary outcome; at least 7 days in duration and did not include studies with exercise as a cointervention.		low GI and high carbohydrate/high GI and low GI) led to similar reductions in weight (P 5 0.17 between treatments; In another study, three different diets (high calcium, high calcium/low GI and moderate calcium/moderate fiber diet) resulted in similar reductions in weight (P =0.88 between treatments). Heterogeneity: n.a. Publication bias: n.a. **Results:** Weight loss: - 4 trials reported statistically significant differences in weight loss between the treatments in favor low GI/GL diets over the control or other interventions; - In 10 of the other studies, low GI/GL diets enhanced weight loss by comparison to the control, though the differences were not statistically significantly. - 1 study (Bellisle et al.) showed better, albeit nonsignificant, weight reduction with a standard Weight Watchers diet by comparison to a Weight Watchers diet supplemented with low GI foods (24.5 6 3.4 kg vs. 24.0 6 3.1 kg; P= 0.68). BMI or fat mass: (13 controlled trials), only two reported statistically significant improvements with a low GI/GL diet by comparison to the control. Authors conclusion: In general, these studies showed much inconsistency in their findings. While a few studies found significantly greater weight loss on the	Diabetes Care 25, 822–828. Das, S. K., et al .(2007) Am. J.Clin. Nutr. 85, de Rougemont, A., et al (2007) Br. J. Nutr. 98, 1288–1298. Ebbeling, et al .(2005) Am. J. Clin. Nutr. 81, 976–982. Ebbeling, et al . (2007) JAMA 297, 2092–2102. Maki, et al .(2007) Am. J. Clin. Nutr. 85, 724–34. McMillan-Price, et al (2006) Arch. Intern. Med. 166, Pittas, et al. (2006) Obesity (Silver Spring) 14, 2200–2209. Raatz, S. K., et al (2005) J. Nutr. 135, 2387–2391. Slabber, M., et al. (1994) Am. J. Clin. Nutr. 60, 48–53. Sloth, B., et al. (2004) Am. J. Clin. Nutr. 80, 337–347. Thompson, et al. (2005) Obes.Res. 13, 1344–		designed to induce weight loss by restricting the caloric intake of the participants; none of these studies were designed specifically to compare weight regain between the groups; several studies the GI/GL values were not reported

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				low GI/GL diets, most of the other studies showed a non-significant trend that favored low GI/GL diets; suggesting that factors other than GI/GL may play a role.	1353. Bellisle, et al .(2007) Br. J. Nutr. 97, 790–798.		
Systematic Review	Tsai AG, et al. (2009) [75]	Literature search of MEDLINE, PubMed, Cochrane Systematic Reviews, CINAHL, and EMBASE (1950-January, 2009). Inclusion criteria for studies were: (1) randomized trial, (2) obesity intervention in US adults, and (3) conducted in primary care or explicitly intended to model a primary care	(1) PCP counseling alone, (2) PCP counseling + pharmacotherapy, and (3) "collaborative" obesity care (treatment delivered by a non-physician provider), Primary outcome: weight loss	**Included studies: 10 RCT** Study quality: doublecheck, CONSORT criteria were used to assess study quality: two as good quality and eight as fair Descriptive statistics: - Most studies provided low-(<1 visit per month) or moderate-intensity (at least one counseling visit per month) counseling, - Only two met the Task Force's recommendation of providing a highintensity intervention (at least two visits per month for the first 3 months) - Mean number of treatment contacts was 17 (over 7.5 months), 14.8 (over 13.5 months), and 7.2 (over 16 months) - Six studies gave explicit descriptions of the training and supervision of PCPs during the trial Heterogeneity:high Publication bias: n.a. **Results (for weight):** PCR counceling (4 studies): Weight losses ranged from 0.1 to 2.3 kg None of the four studies in which PCPs provided low- to moderate-intensity behavioral counseling alone, resulted in clinically significant weight loss	Ashley JM, et al Arch Intern Med. 2001;161:1599–1604. Ely AC, et al J Rural Health. 2008;24:125–32. Logue E, et al Obes Res. 2005;13:917–27. 29. Poston WS, Haddock CK, Pinkston MM, et al. et al J Intern Med. 2006;260:388–98. Martin PD, et al Obesity. 2008;16:2462–7. Cohen MD, et al Fam Med. 1991;23:25–8. Christian JG, et al Arch Intern Med. 2008;168:141–6. Hauptman J, et al. Arch Fam Med.2000;9:160–7. Ockene IS, et al Arch Intern Med. 1999;159:725–31. Wadden TA, et al N Engl J	1+	Clearly focused question, methodology was reported, study quality is assessed Publication bias n.a.

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		setting. Exclusion criteria: (1) intervention trials that were not primary care-based; (2) non-US studies; (3) pediatric trials; (4) studies based in primary care and related to obesity but that were not intervention trials (e.g., surveys). search terms “obesity OR obesity, morbid” and “primary health care” (for EMBASE; “primary medical care”).		PCR counceling + pharmacotherapie (3 studies): Weight losses ranged from 1.7 to 7.5 kg Collaborative obesity treatment (3 studies): Weight losses from 0.4 to 7.7 (in high-intensity study) kg	Med. 2005;353:2111–20.		
Systematic Review/	Leblanc E, et al. (2011)	Search: MEDLINE, the	behavioral-based treatment	**Included studies:** 58 trials of benefits of weight loss interventions,	The Diabetes Prevention Program: Diabetes Care.	1(+)-2(+)	High heterogeneity

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Meta-analysis	[76]	Cochrane Central Registry of Controlled Trials, and PsycINFO from January 1, 2005 through September 9, 2010; Relevant trials published prior to 2005 were identified through good-quality systematic reviews Included studies: randomized or controlled clinical trials (additionally, cohort or case-control studies for KQ 4) that involved behavioral-	Orlistat, metformin	reported in 98 publications : Trials that included behavioral-based treatment (38 trials) or the use of orlistat (18 trials) Study quality: - one good-quality trial of orlistat - 2 reviewers reviewed all abstracts - Quality assestment (USPSTF methods) is reported Descriptive statistics: - Trials that included behavioral-based treatment (n=13,495) or the use of orlistat (n=11,256) or metformin (n=2,652) - behavioral interventions : mean BMI values from 25 to 39 kg/m2 ; 3 of the trials were limited to obese persons, and the remaining included overweight as well as obese persons, usually requiring a BMI of at least 25 kg/m2. - medication trials : participants with BMI of at least 27 kg/m2. The mean BMI values in the medication trials were all in the obese range (32 to 38 kg/m2) ; 18 trials examined the effect of 120 mg tid of orlistat on some measure of weight over at least 12 to 18 months Heterogeneity: - Signifikant : See results Publication bias: - Results n.a. **Results (outcome: weight loss):** Behavioral treatment : meta-analysis (21 weight loss	1999;22:623-34. Hypertension Prevention Trial Research Group. Arch Intern Med. 1990; Anderssen S, et al Blood Press. 1995;4:343-9. Burke V, et al J Hypertens. 2005;23:1241-9. Christian JG, et al Arch Intern Med. 2008;168:141-6. Cohen MD, et al Fam Med. 1991;23:25-8. Cussler EC, et al Obesity (Silver Spring). 2008;16: Davis BR, et al Hypertension. 1992;19:393-9. Frey-Hewitt B, et al Int J Obes. 1990;14:327-34. Haapala I, et al .Public Health Nutr. 2009;12:2382-91. Irwin ML, et al. JAMA. 2003;289:323-30. Jeffery RW, et al .J Consult Clin Psychol.		

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		based treatment or the use of orlistat or metformin for weight loss or weight maintenance in adults in settings that are generalizable to U.S. primary care. Additional studies were included for the evaluation of weight loss treatment harms; Only outcomes reported at 12 months or longer were included Excluded trials: excluded trials with control groups		trials) reporting kilograms or pounds lost at 12 to 18 months estimated an average effect of 3.0 kg more lost in the intervention than control groups (95% CI, -4.0 to -2.0; I2=94.9%; k=21; n=7,343); greater weight loss in trials with more treatment sessions (generally 4–7 kg lost in the intervention group in trials with 11–26 treatment sessions in the first year); Intervention groups had an almost 2.5 times greater probability of losing 5 percent of their initial weight compared with control groups (relative risk [RR], 2.39 [95% CI, 1.72 to 3.31]; n=1,387) Orlistat was additive to behavioral counseling, resulting in even greater weight loss (generally 6–9 kg total): In terms of overall weight loss, most trials reported a weight loss of 6 to 9 kg among those taking orlistat compared with 3 to 6 kg in those taking placebo; Overweight and obese participants who were randomized to orlistat lost an average of 3 kg more than those randomized to placebo after 12 months (WMD, -3.0 [95% CI, -3.9 to -2.0]; I2=84.9%; k=12); Overweight and obese participants who were randomized to orlistat had a 1.6-fold greater chance of losing 5 percent of their initial weight than those who were randomized to placebo (RR, 1.57 [95% CI, 1.40 to 1.75]; I2= 76.2%; k=13; n=8,579) Authors conclusion: Behavioral-based treatments are safe and effective for weight loss, although they have not been studied in persons with class III obesity. Medication may increase weight loss beyond behavioral approaches alone, although side effects are common.	1993;61:1038-45. Jones DW, et al. Am J Hypertens. 1999;12:1175-80. Kastarinen MJ, et al. J Hypertens. 2002;20:2505-12. Kulzer B, et al. Diabetes Care. 2009;32:1143-6. Langford HG, et alJAMA. 1985;253:657-64. Martin PD, et al. Obesity (Silver Spring). 2008;16:2462-7. Mayer-Davis EJ, et al. Am J Public Health. 2004;94:1736-42. Mensink M, et al. Obes Res. 2003;11:1588-96. Mitsui T, et al. Tohoku J Exp Med. 2008;215:355-61. Moore H, et al. BMJ. 2003;327:1085. Narayan KM, et al. Diabet Med. 1998;15:66-72. Perri MG, et al. J Consult Clin Psychol.		

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		receiving frequent weigh-ins, advice more frequently than annually, or at-home study materials; these studies were considered to be comparative effectiveness studies. Interventions were restricted to those focusing on weight loss and those not reporting weight outcomes were excluded.			1988;56:529-34. Pritchard DA, et al.J Epidemiol Community Health. 1999. Silva MN, et al. J Behav Med. 2010; Simkin-Silverman LR, et al.Ann Behav Med. 2003;26:212-20. Stevens VJ, et al. Arch Intern Med. 1993;153:849-58. Stevens VJ, et al. Ann Intern Med. 2001;134:1-11. Svetkey LP, et al. JAMA. 2008;299:1139-48. ter Bogt NC, et al. Am J Prev Med. 2009;37:270-7. Tuomilehto J, et al. N Engl J Med. 2001;344:1343-50. Villareal DT, et alJ Clin Endocrinol Metab. 2008; Werkman A, et al. BMC Public Health. 2010;10:110. Whelton PK, et al. JAMA. 1998;279:839-46.		

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					Wood PD, et al. N Engl J Med. 1988; Wood PD, et al N Engl J Med. 1991;325:461-6. Woollard J, et al. J Cardiovasc Risk. 2003;10:31-40. Apfelbaum M, et alAm J Med. 1999;106:179-84. Berne C; Diabet Med. 2005;22:612-8. Broom I, et al. Int J Clin Pract. 2002;56:494-9. Davidson MH, et al. JAMA. 1999;281:235-42. Derosa G, et al Clin Ther. 2003;25:1107-22. Finer N, et al. Int J Obes Relat Metab Disord. 2000;24:306-13. Fontbonne A, et al. Diabetes Care. 1996;19:920-6. Gambineri A, et al. J Clin Endocrinol Metab. 2006;. Hanefeld M, Diabetes Obes Metab. 2002;4:415-23.		

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					Hauner H, Exp Clin Endocrinol Diabetes. 2004;112:201-7. Hauptman J, et al. Arch Fam Med. 2000;9:160-7. Hill JO, et al. Am J Clin Nutr. 1999;69:1108-16. Hollander PA, et al. Diabetes Care. 1998;21:1288-94. Kaukua JK, et al. Int J Obes Relat Metab Disord. 2004 Krempf M, et al. Int J Obes Relat Metab Disord. 2003 Lindgärde F. J Intern Med. 2000;248:245-54. Mathus-Vliegen EM; Eur J Clin Nutr. 2005;59(Suppl 1):S31-8. McNulty SJ, et al. Diabetes Care. 2003;26:125-31. Miles JM, et al. Diabetes Care. 2002;25:1123-8. Richelsen B, et al. Diabetes Care. 2007;30:27-32.		

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					Rössner S et al. Obes Res. 2000;8:49-61. Sjöström L, et al. Lancet. 1998;352:167-72. Swinburn BA, et al. Diabetes Obes Metab. 2005;7:254-62. Torgerson JS, et al.Diabetes Care. 2004;27:155-61. Wirth A, Krause J. JAMA. 2001;286:1331-9.		
Systematic Review/ HTA-Bericht	Loveman E, et al. (2011) [77]	Search in 10 electronic bibliographic databases MEDLINE; EMBASE; MEDLINE In-Process & Other Non-Indexed Citations; The Cochrane Library including the	multicomponent weight management programmes (including diet, physical activity and behaviour change strategies) that assessed weight measures (outcome)	**Included studies:** 12 RCTs in the clinical effectiveness review Study quality: - quality of included studies was assessed using standard criteria : quality of included studies was assessed using criteria based on those recommended by the Centre for Reviews and Dissemination (CRD) - 7 trials were judged to have a low risk of selection bias - 2 reviewer Descriptive statistics:	Dubbert PM, et al Behav Res Ther 1984;22:227–42. Wadden TA, et al. J Consult Clin Psychol 1988;56:925–8. Stevens V, et al. Ann Intern Med 2001;134:1–11. Burke LE, et al. Int J Obes 2008;32:166–76. Logue E, et al. Obes Res	1+	4 included trials provided information on their randomisation sequence, 3 trials described their allocation concealment, None of the trials clearly reported blinding of their participants or

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		Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials, Database of Abstracts of Reviews of Effects, NHS Economic Evaluation Database and HTA databases; Web of Science; PsycINFO; BIOSIS; and databases listing ongoing clinical trials from inception to December 2009 Inclusion: Clinical effectiveness		- 5 RCTs compared multicomponent interventions with non-active comparator groups - 2 RCTs compared multicomponent interventions that focused on the diet component - 4 RCTs compared multicomponent interventions that focused on the physical activity component - 1 RCT the intervention focused on the goal-setting interval - All RCTs that met the inclusion criteria were conducted in the USA. - Most (83%) of included RCT were published between 1993 and 2008, with two older RCTs, published in 1984 and 1988 - The total number of participants randomised ranged from 59 to 1191 while the number of participants, per intervention group ranged from 18 to 596 ; Only four of the 12 RCTs had sample sizes > 100 participants per intervention group. - In all but one of the 12 RCTs the target population was stated as being overweight ; overweight (pre-obese) in two RCTs, class I obese in five RCTs, and class II obese in one RCT - The upper age limit specified for inclusion of participants was 45 years to 69 years ; None of the trials specifically included elderly populations - The duration of follow-up (post randomisation) ranged from 18 to 54 months - Weight change from baseline was reported as a primary outcome in 11 RCTs	2005;13:917–27. Simkin-Silverman LR, et al. J Womens Health 1998;4:255–71. Stevens VJ, et al. Arch Intern Med 1993;153:849–58. Jeffery RW, et al. J Consult Clin Psychol 1995;63:793–6. Jeffery RW et al. J Consult Clin Psychol 1998;66:777–83. Tate DF, et al. Am J Clinl Nutr 2007;85:954–9. Weinstock RS, et al. Arch Intern Med 1998;158:2477–83. Skender ML, et al. J Am Diet Assoc 1996;96:342–6		care providers, so it is unknown whether blinding occurred, Blinding of outcome assessors, however, is more feasible but was only reported in two trials; Six RCTs were judged to have low risk of bias from dropout (no dropout imbalance); publications bias analysis n.a.

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		studies were included if participants were adults with a BMI > 25 kg/m2; if the interventions were well-described multicomponent (diet, exercise and behaviour therapy) weight management approaches with a weight loss outcome; and if the studies were RCTs with at least 18 months' follow-up		- In one study the setting of the intervention was reported to be in primary care Heterogeneity: - N.a. **Results (outcome: weight loss)** - multicomponent interventions versus non-active comparator groups (5 RCT): weight loss appeared to be greater in the intervention groups ; One of these RCTs (perimenopausal women) provided evidence that longer term (up to 42 months) weight change in these intervention group was significantly different from that of the control group, although much of the weight lost had been regained ; One trial with a 24 month duration found no statistically significant differences ; two trials showed statistically significant difference in weight loss (using similar weight loss interventions) at 18 months or 36 months - multicomponent interventions that focused on the diet component (2 RCT ; One of these studies also had a third arm to investigate the dietary component VLCD alone): no statistically significant differences in weight loss between interventions ; After completing the intervention participants from both studies regained weight over time - multicomponent interventions that focused on the physical activity component (4 RCT): little consistency in the pattern of results - intervention focused on the goal-setting interval (1 RCT) : weight loss was greatest in those given			

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				daily goals compared with weekly goals Overall, where measured, it appeared that most groups began to regain weight at further follow-up. Authors conclusion: Long-term multicomponent weight management interventions were generally shown to promote weight loss in overweight or obese adults. Weight changes were small however and weight regain was common. There were few similarities between the included studies; consequently an overall interpretation of the results was difficult to make.			
Cochrane Review	Colquitt JL, et al. (2009) [78]	Search in The Cochrane Library (Issue 3/2008); MEDLINE (until 29/7/2008); EMBASE (until 29/7/2008); PsychINFO (until 29/7/2008); CINAHL (until 16/7/2008); Science and Social Sciences Citation Index (until	different surgical procedures Primary outcomes - measures of weight change, fat content (for example body mass index) or fat distribution (for example waist-hip ratio); - quality of life, ideally measured using a validated instrument; - obesity related co-morbidities	**Included studies:** 23 of the 26 included studies were RCTs. One study (SOS 1997-2007)was a prospective multicentre cohort study with matched concurrent controls. Two studies had prospective cohort designs (Buddeberg 2006; Stoeckli 2004).Two of the eligible studies were reported as abstracts only (Agren 1989; VanWoert 1992) Study quality: - see methodological quality summary - Allocation: Nine of 23 RCTs described adequate allocation sequence generation - Blinding: Only oneRCTreported that outcome assessorswere blinded to the intervention assignment - Incomplete outcome data for weight loss were adequately addressed by 14 RCTs - Selective reporting : The most of studies were	Agren 1989; Nilsell 2001; Olbers 2005; SOS 1997-2007; Sundbom 2004; Westling 2001 Bessler 2007; Howard 1995; Nguyen 2006; Sugerman 1987; VanWoert 1992 Angrisani 2007; Mingrone 2002; Morino 2003. Buddeberg 2006;	1+-2+	Studies with different desing were included; different quality of included studies

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		29/7/2008); British Nursing Index (until 6/8/2008). Databases of grey literature: Web of Science Proceedings (until 29/7/2008); BIOSIS (until 5/8/2008); AMED (until 5/8/2008). Ongoing trials National Research Register (until 30/7/2008); UKCRN (until 30/7/2008); Clinical Trials.gov (until 30/7/2008); Controlled Clinical Trials (until 30/7/2008); Australia NZ	(for example diabetes, hypertension). Secondary outcomes - mortality (perioperative and total); - adverse effects (for example perioperative morbidity such as staple line breakdown and wound infection, gastrointestinal disturbances, reoperations); - revision rates (reversal or conversions to normal or other procedures).	judged to be of uncertain risk of bias. Descriptive statistics: - Participants: Most studies included participants with morbid obesity (BMI greater than 40 was commonly used, often with the additional criteria of BMI greater than 35 or 37 with comorbid disease), Excluding the three studies with notably different inclusion criteria, mean baseline BMI ranged from to 52 - The individual study sample size ranged from 20 to 4047 - The majority of participants in the studies were female and mean age ranged from 32 years to 49 years - Intervention : The included studies compared a variety of interventions (Three RCTs and three cohort studies (one cohort study had three arms) compared surgery with non-surgical interventions. The remaining 20 RCTs compared different surgical procedures, including various types of gastric bypass, vertical banded gastroplasty, adjustable gastric banding and isolated sleeve gastrectomy, performed with open or laparoscopic surgery - The minimum duration of follow-up for inclusion in this review was 12 months, and most studies followed participants for 12, 24 or 36 months. - Country: Six studies were conducted in Sweden, and five studieswere conducted in the USA, Three studies were conducted in Italy, Two studies were	Stoeckli 2004, deWit 1999; van Dielen 2005 Dixon 2008; O'Brien 2006 Himpens 2006 MacLean 1995 DavilaCervantes 2002 Lujan 2004 Lee 2004 Karamanakos 2008		

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		Clinical Trial Register (until 30/7/2008). Included: Randomised controlled trials (RCTs) comparing different surgical procedures, and RCTs, controlled clinical trials and prospective; cohort studies comparing surgery with non-surgical management for obesity; exclusion criteria were reported		conducted in each of Switzerland, The Netherlands, and Australia, One study was conducted in Belgium, Mexico, Spain, Taiwan, Greece Heterogeneity: - N.a. **Results** - greater weight loss than conventional treatment in moderate (body mass index greater than 30) as well as severe obesity. - Reductions in comorbidities, such as diabetes and hypertension, also occur. Improvements in health-related quality of life occurred after two years, but effects at ten years are less clear. - Surgery is associated with complications, such as pulmonary embolism, and some postoperative deaths occurred. - Five different bariatric procedures were assessed, but some comparisons were assessed by just one trial. - The limited evidence suggests that weight loss following gastric bypass is greater than vertical banded gastroplasty or adjustable gastric banding, but similar to isolated Surgery for obesity			
Systematic Review/ HTA-Bericht	Picot J, et al. (2009) [79]	17 electronic databases were searched [MED-LINE; EMBASE;	Intervention: Open and laparoscopic bariatric surgical procedures in widespread	**Included studies:** 26 studies reported in 52 publications were included : 23 RCTs, 1 study (SOS) was a prospective multicentre cohort study with matched concurrent control ; 2 studies had prospective cohort designs	For clinical effectiveness: Dixon et al., 2008, RCT; O'Brien et al., 2006, RCT; Stoeckli et al., 2004,	1+-2+	Publication bias analysis n.a.; it was not considered appropriate to

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		PreMedline In-Process & Other Non-Indexed Citations; The Cochrane Library including the Cochrane Sys-tematic Reviews Database, Cochrane Con-trolled Trials Register, DARE, NHS EED and HTA data-bases; Web of Knowledge Sci-ence Citation Index (SCI); Web of Knowledge ISI Proceedings; PsycInfo; CRD databases; BIO-SIS; and data-bases listing ongoing	current use. Comparators: Sur-gical procedures in current use in comparison with one another; open surgery compared with laparoscopic surgery for the same procedure; surgical procedures in current use compared with non-surgical inter-ventions (medical manage-ment, usual care or no treatment); Main outcomes At least one of the following reported following a minimum of 12 months follow-up: measures of weight change; quality of life (QoL); peri-operative and	and 2 studies were reported as abstracts only Study quality: - clinical effectiveness: the quality of included cohort studies was assessed using criteria recommended by NHS Centre for Reviews and Dissemination (CRD) ; RCTs were assessed using the Cochrane criteria for judging risk of bias - Quality criteria were applied independently by 2 reviewers Descriptive statistics: - 3 RCTs and 3 cohort studies compared surgery with non-surgical interventions; 20 RCTs compared different surgical procedures ; 2 studies focused on patients with a lower BMI (< 35 or < 40) - The risk of bias of most of the trials was uncertain, only 9 of the RCTs reported adequate sequence generation and only 5 reported adequate allocation concealment Heterogeneity: - N.a. Publication bias: - N.a. **Results** - Surgery versus non-surgical interventions : bariatric surgery is a more effective intervention for weight loss than non-surgical options ; surgery led to a greater reduction in weight in all 6 studies, the	Cohort study Mingrone et al., 2002, RCT SOS 1997 to 2007, Cohort study; Buddeberg-Fischer et al., 2006, Cohort study Howard et al., 1995; VanWoert et al., 1992; MacLean et al., 1995; Sugerman et al., 1987; Lee et al., 2004; Olbers et al., 2005; Agren and Naslund, 1989 Bessler et al., 2007 Angrisani et al., 2007 Karamanakos et al., 2008 Nilsell et al., 2001; Morino et al., 2003; van Dielen et al., 2005 Himpens et al., 2006 Puzziferri et al., 2006; Lujan et al., 2004; Westling and Gustavsson, 2001; Sundbom and		combine the included RCTs in a meta-analysis because of the heterogeneity in the patient groups, com-parator treatments and outcomes

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		clinical trials]; Search date: from incep-tion to August 2008 Inclusion criteria were reported (see intervention, comparator, outcomes, Popu-lation: Adult patients with (BMI) of 30 or over and young people who fulfil the definition of obesity for their age, sex and height; study types: Systematic review of clinical effectiveness: Surgery versus surgery – RCTs; surgery versus non-surgical	post-operative mortality and mor-bidity; change in obesityrelated comorbidities; cost-effectiveness [reporting outcomes as either life-years or quality-adjusted life-years (QALYs)].	difference was statistically significant in 5 studies reporting a statistical comparison ; in 2 RCTs that reported outcomes at two years, mean initial weight loss in the surgical groups was 20% and 21.6%, whereas the non-surgical groups had lost 1.4% and 5.5% of their initial weight ; In the 2 cohort studies reporting outcomes at 2 years, per cent weight change ranged from a weight loss of 16% to 28.6% in the surgical groups, but the non-surgical groups had gained weight with per cent weight change ranging from 0.1 to 0.5% ; 1 RCT and 1 of 2 cohort studies assessing QoL found greater, and statistically significant, improvements after surgery on some measures, but not others ; 2 RCTs found that significantly fewer people had metabolic syndrome in the surgical group, and 1 found significantly higher remission of Type 2 diabetes following surgery.. - Comparison of surgical procedures : gastric bypass (GBP) is more effective for weight loss than vertical banded gastroplasty (VBG) and adjustable gastric banding (AGB) ; 5 of the 7 included RCTs reported greater weight loss following GBP than VBG excess weight loss at one year ranging between 62.9% and 78.3% for GBP, and ranging between 43% and 62.9% for VBG ; in 2 studies there was no statistically significant difference in ‘success rate’ or ‘per cent ideal body weight’ Adverse events: varied between studies; few were compared statistically and none were powered to do	Gustavsson, 2004 Davila-Cervantes et al., 2002 de Wit et al., 1999		

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		procedure – RCTs, controlled clinical trials and prospective cohort studies (with a control cohort))		so ; 14 RCTs reported no deaths ; the large SOS study reported mortality of 0.25% in the surgical cohort ; adverse events from conventional therapy included intolerance to medication, acute cholecystitis and gastrointestinal problems ; Major adverse events following surgery, some necessitating reoperation, included anastomosis leakage, pneumonia, pulmonary embolism, band slippage and band erosion			
Systematic Review/ Meta-analysis (Milestone paper)	Kodama S, et al. (2012) [80]	Search in Electronic literature searches (MEDLINE (between 1980 and 2011 April 2) and EMBASE (between 1980 and 2011 April 2)) Search terms were reported Inclusion criteria: (1) RCTs; (2) all participants - adults and overweight or obese (3) they	Web based controlling dietary intake and increasing physical activity Outcome: weight loss	**Included studies:** 23 RCTs were included Study quality: - 17 studies used an intention-to-treat analysis - 12 studies : Mean dropout rate was 17,8 % - Methods of randomization were described in only 7 studies Descriptive statistics: - Intervention periods ranged from 3-30 months; 11 studies had intervention periods of 12 months or more. - 16 studies were conducted in the USA - In 11 studies participants were at least 80 % women - mean age was 46 (± 6) years - mean BMI was 32 (± 3) kg/m2 - Intervention : 1 study used as a substitute face-to-face counseling Heterogeneity:	Wing RR, et al. N Engl J Med 2006 Patrick K, et al. J Med Internet Res 2009 van Wier MF, et al. BMC Public Health 2009 Wylie-Rosett et al. J Am Diet Assoc 2001 Harvey-Berino J, et al. Int J Obes Relat Metab Disord 2002 Harvey-Berino J, et al. Obes Res 2004 Womble LG, et al. Obes Res 2004 Rothert K, et al. Obesity 2006 Mobley AR. Department of Nutrition & Food Science, University of Maryland:	1+	High heterogeneity; Reviewer n.a

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		consisted of a Web-user experimental group and non-Web user control group; (4) intervention included Controlling dietary intake and increasing physical activity; (5) the aim of using the Internet was initial weight loss or weight maintenance; and (6) effect on absolute body-weight change.		- large and highly significant between-study heterogeneity was observed in the effect size (I2 84.4%; P<0.001) - Sensiticity analysis available. Publication bias: - Publication bias was not statistically detected (P=0.62 for Begg's test and P=0.79 for Egger's test) **Results** Using the Internet had a modest but significant additional weight-loss effect when compared with results in non-Web-user control groups (-0.68 kg, P = 0.03)	Maryland, 2006 Actachi Y, et al. Behav Res Ther 2007 Polzien KM, et al. Obesity 2007 McConnon A, et al. BMC Health Serv Res 2007 Svetkey LP', et al. JAMA 2008 Cussler EC, et al. Obesity 2008 Hunter CM et al. Am J Prev Med 2008 Digenio AG, et al. Ann Intern Med 2009 Morgan PJ, et al. 2009 Ueki K, et al. Clin Exp Hypertens 2009 Yoo HJ, et al. Diabet Med 2009 Bennett GG, et al. Obesity 2010 Harvey-Berino J, et al. Prev Med 2010 Tanaka M, et al. Intl Behav Med 2010 Christian JG et al J Am		

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					Diet Assoc 2011		
Systematic Review/ Meta-analysis (Milestone paper)	Neve M, et al. (2010) [81]	Search in MEDLINE and CINAHL for keywords; second search in Cochrane Library, MEDLINE, EMBASE, CINAHL, Web of Sciense, Scopus, Australian Digital Theses Program and Dissertations/ Abstracts English Language from 1995 onwards Inclusion criteria: RCTs, with at least one web-based intervention study arm whose primary	web-based interventions; outcome body weight	**Included studies:** 18 RCTs were included Study quality: - 2 reviewer - Study quality was assessed using a standardized critical apparisal instrument from the JBI Meta-Analysis of Statictics Assessment and Review Instument - No high quality studies ; 3 studies meet 8 of 10 criteria - 14 studies did not speciity method of randomization - 14 studies – ITT analysis Descriptive statistics: - Total number of particioants was 5700 - 77 % were female - 13 studies had a primary aim of achieving weight loss an 5 focused an maintenance of weight loss - Duration : 6 week to 2 years (8 interventions were 12 months in duration) - Intervention : 3 studies : web-based programme compared with a control or minimal intervention group ; 5 studies : generic web-based programme compared with enhanced web-based programme ; 5 studies : web-based programme compared with defferent types of face-to-face interventions ; 2 studies motivational interviewing within a web-	Carr L.J, et al. 2008 Cussler EC, et al. 2008; Gold IK, et al. 2007; MrConnoti A, et al. 2007 Mirco N, et al. 2007; Rotherr K, et al. 2006; Tate DF et al. 2003 Tare DF 2001 Wehber KH et al. 2007, Womble LG et al. 2004: Harvey-Berino J. et al. 2002 Harvey-Berino J. et al. 2004 Harvey-Berino J. et al. 2002 (Behav Modif) Prolzien KM, et al. 2007; Svetkey LP, et al. 2008; Tate DF, et al. 2006; Mobley AR et al. 2006	1+	Mittle-low quality of included studies

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		aim was achieving weight loss or weight loss maintenance or achieving positive dietary and physical activity; adults and overweight or obese		based programme Heterogeneity: - See results **Results** Interventions aiming to achieve weight loss: - 12 studies reported total weight loss change, 6 studies reported percentage weight change (3 were successful in achieving 5% or greater weight change) - 3 studies were combined in meta-analysis : n.s. heterogeneity (I2=20,9 %, p=0,28) ; greater decrease in weight in the web-based programmes with enhanted features (WMD 2.24, CI [1.27, 3.21] , p<0,0001) - Author conclusion : Meta-analysis suggest that web-based imervenrions achieve similar weight loss to control or minimal intervention groups, and web-based inrerventions with enhanced features achieve greater weight loss than those with educarion alone Interventions aiming to achieve weight loss: - On 1 study reponted percentage weight loss-greater than 5 % weight change - Web-based interventions compared with no intervention or minimal intervention (2 studies) : n.s. heterogeneity (I2=0%), significant difference in the change in weight (WMD -0,30 CI[-0,34 ; -0,26], p<0,00001) - Compared with face-to-face interventions (2			

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				studies) : significant heterogeneity (I2=77,5%, p=0,007), difference in the change of weight non-significant (WMD 1,8, CI [-1,18 ; 4,79] ; p=0,24) - Author conclusion: similar levels of weight loss maintenance to face-to-face interventions and less weight is regained in comparison to no intervention			
Systematic Review (Milestone paper)	Shimizu H, et al. (2012) [82]	Pubmed was searched from January 1, 1980, to November 1, 2011, for citations using the following keywords: "metabolic surgery", "bariatric surgery", "diabetes surgery", "T2DM", "type 2 diabetes", "obesity", "BMI < 35 kg/m2", "mild to moderate obesity", and "low-BMI". additionally	any form of bariatric/metabolic surgery Outcomes: Diabetes-related clinical outcomes: fasting plasma glucose (FPG), glycated hemoglobin (HbA1c), and postoperative clinical status	**Included studies:** 2 retrospektive and 16 prospektive studies Descriptive statistics: - 17 (94%) were performed outside of the United States, in Brazil (7, 39%), Italy (4, 22%), Taiwan (4, 22%), Chile (1, 6%), and India (1, 6%) - 13 studies (72%) have been published in the last 3 years from 2009 to 2011 - Surgical procedures included Roux-en-Y gastric bypass (RYGB) in 6 (33%) studies, duodenal-jejunal bypass (DJB) in 4 (22%), biliopancreatic diversion (BPD) in 3 (17%), minigastric bypass (MGB) in 2 (11%), ileal interposition with sleeve or diverted sleeve gastrectomy (II-SG or II-DSG) in 2 (11%), sleeve gastrectomy (SG) in 1 (6%), and stomach and pylorus-preserving BPD (BPD-SPP) in 1 (6%) - Patients : in total total 477 patients ; 16 studies reported the patient gender, and 53% of the total study population was female ; mean age ranged from 34 to 56 (mean 47) ; - Follow-up period ranged from 6 months to 18 years, (weighted mean was 22 months) ; 2 studies	W. J. Lee, et al., "Obesity 2011. C. Boza, et al., " Obesity Surgery, 2011. V. C. de Sa, et al. Obesity Surgery, 2011. C. K. Huang, et al. Obesity Surgery, 2011. N. Scopinaro, et al., "Annals of Surgery, 2011. S. S. Shah, et al. Surgery for Obesity and Related Diseases, 2010. W. J. Lee, et al., Surgery, 2010. A. L. Depaula, et al. Surgical Endoscopy and Other Interventional Techniques, 2009. A. L. DePaula, et al. Surgical Endoscopy and	2+	Publication bias analysis n.a., observational studies were included

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		manual reference checks were performed in the identified studies. Inclusion: studies published containing data on weight loss and T2DM-related outcomes of patients treated with any form of bariatric/metab olic surgery where the mean study BMI <35 kg/m2.; language English Excluded: BMI ≥35 kg/m2, not T2DM patients, diabetic participants		reported the results of a longer than 5-year followup ; - duration of diabetes prior to surgery ranged from 6 months to 28 years (weighted mean 8.2 years) ; 30.1%patients using insulin Heterogeneity: - n.a. Publication bias: - N.a. **Results** - BMI decreased from 30.4 (95% CI 28.4–32.3) to 24.8 (95% CI 24.1–25.5) kg/m2 ; only two studies reporting that one of the total 15 patients was in the mildly undernourished range (BMI 17–18.5 kg/m2) after RYGB without any evidence of malnutrition and 12 patients (17.4%) after II-DSG were underweight (BMI < 20 kg/m2) without lowering serumalbumin value ; overall, the risk of excessive weight loss after metabolic surgery was 2.7% (13 patients) - T2DM Outcomes : FPG - (12 studies) decreased from 203.5 (95% CI 187.4–219.6) to 112.5 (95% CI 103.9–121.1) mg/dL ; HbA1c (10 studies) decreased from 9.0 (95% CI 8.6–9.5) to 6.3 (95% CI 6.1–6.6) %. ; diabetes : 86.8% of the patients stopped taking antidiabetic medication after surgery ; remission of T2DM : When it is defined as FPG < 126 mg/dL and/or HbA1c < 6.5% without the use of antidiabetic medication at the time of	Other Interventional Techniques, 2009. A. C. Ramos, et al., Obesity Surgery, 2009. G. S. Ferzli, et al. World Journal of Surgery, 2009. B. Geloneze, et al. Obesity Surgery, 2009. C. Chiellini, et al. Diabetologia, 2009. W. J. Lee, et al. Journal of Gastrointestinal Surgery, 2008. N. Scopinaro, et al. Obesity Surgery, 2007. R. V. Cohen, et al. Surgery for Obesity and Related Diseases, 2007. R. Cohen, et al. Surgery for Obesity and Related Diseases, 2006. G. Noya, et al., Obesity Surgery, 1998		

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		had gastric surgery with anatomical similarities to RYGB because of gastric cancer and ulcer, or they did not report diabetes-related outcomes such as fasting plasma glucose (FPG), glycated hemoglobin (HbA1c), and postoperative clinical status		evaluation, 64.7% of the patients met the criteria ; Remission of T2DM was achieved in 66.0% of the patients with a short history (≤8 years) of T2DM and 52.9% of those with a long history (>8 years) of T2DM (P = 0.03) - Complications and Mortality : complication rate was 10.3% (range 4.5–33.3%) in 16 studies ; types of complication varied and were dependent on follow-up period and surgical procedures ; mortality rate was 0%in 17 studies			

c) Einzelstudien

Artikel (Autor, Jahr)/ Studien-typ	Anzahl der Patienten/ Patienten-merkmale	Intervention/ ggf. Nachverfolgung	Vergleichs-intervention	Outcomes	Ergebnisse	Evidenz-niveau (z.B. SIGN)	Bemerkungen
Davis LM, et al. (2010) [83] RCT	90 obese adults (BMI 30-50 kg/m2), aged 18-65, no allergies against soy, wheat, gluten and nuts, before <= 14 alcoholic beverages per week and no alcohol intake during the study, not currently using appetite-affecting meds, not pregnant, not lactating, normal EKG and lab work	MD=Medifast replacement diet (providing 800-1000 kcal/day) 16 week=weight loss + 24 week weight maintenance	FB=isocaloric food-based plan (providing ~1000 kcal/day)	Weight loss Others : Biomarker of inflammation and oxidative stress (CRP, ULP, Cholesterol, Triglycerides)	Greater initial weight loss (16 week): MD 12,3% vs. FB 6,7% BMI decrease of 12,3% for MD and 6,7% for FB (week 16) BMI remained reduced by 7,8% in MD vs. 5,9% in FB (week 40) Statistically similar weight loss after 40 week Mean net loss of 8,9 +/- 8,9 kg in MD and 5,7 +/- 8,6 kg in FB (week 40) Significant improvements in body composition in MD vs. FB (week 16 & week 40) Improvements in biochemical outcomes and other clinical indicators (week 40) CRP: significant interaction between baseline CRP levels, intervention group and time; MD group with high baseline CRP levels significant decreases over 40 weeks ULP: significant difference between groups (MD 17,5% vs. FB 5,4%) (week 40); significant interaction between intervention group & time; significant mean decrease over time in MD over 40 weeks. Cholesterol: VLDL significantly decreased in both groups (MD -8,8%	1-	Duration < 1 year Small group Overall drop-out rate of 43,2% for MD Impossible to blind subjects to intervention

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					vs. FB -15,3%) (week 16); week 40, FB retained significant reductions in total cholesterol (-3,6%), HDL remained significantly increased in FB, both groups marginally significant reductions in LDL from baseline (MD 4,4% vs. FB 5,4%)		
Klemsdal TO, et al. (2010) [84] RCT	202 Men and women, age 30-65, BMI male 28-40 kg/m2 / female 28-35 kg/m2, with and without metabolic syndrome, no cardiovascular disease or diabetes requiring medication	LGL=low glycamic load diet Energy: 35-40% from fat, 25-30% from protein, 30-35% from carbohydrates and <3% from alcohol 1 year follow-up	Low fat diet Energy: <30% from fat, 15% from protein, 55-60% from carbohydrates, <3% from alcohol	Weight loss Others (waist circumference, waist/ hip ratio, lipids, adolipoprotein B, high-sensitivity C-reactive protein (hs-CRP), insulin, glucose, C-peptide, systolic and diastolic blood pressures, heart rate and number of metabolic syndrome factors)	Similar weight loss after one year Mean weight reduction ~4kg after 1 year LGL diet less effective in subject without metabolic syndrome, i.e. with less than 3 criteria Significant change in waist circumference at 1 year in LFD (-5,8 cm) vs. LGL (-4,1cm) Diastolic blood pressure reduced significantly more in LGL group (-4,0+/- 8,7 mmHg vs. -1,1 +/- 8,5 mmHg) Proportion of patients with metabolic syndrome reduced significantly in both groups: LGL 65% to 45% vs. LFD 60% to 42%	1+	81% completion rate > most earlier trials
Tapsell L, et al. (2010) [85] RCT	150 overweight men and women, aged >18y, BMI >25, not smoking, exclusion criteria: major illnesses (e.g. cancer or	low fat (30 % energie) diet: isocaloric (LF), -isocaloric with 10 % polyunsatureted fat acids (LF-	low fat (30 % energie) diet: low calorie (LF-LC) low calorie with 10 % PUFA (LF-	Weight loss, body fat Others: leptin, insulin, glucose, lipids and erythrocyte fatty acids	All groups lost weight and body fat (P < 0,0001 time effect for both, but LC group lost more (P = 0,025 for diet effect energie restriction has the most effect on weight loss than fat restriction	1+	Duration 3 months, only overweight participants were included

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	diabetes), regular medication (except contraceptives), food allergies, habits inhibiting the study, illiteracy and/or inadequate conversational English	PUFA) 12 weeks	PUFA)		All groups reduced total cholesterol levels (P < 0,0001 time effect, P=0,017 intervention effect) Triacyglycerol levels were better reduced by LC and PUFA groups (P=0,056 diet effect) HDL increased with LF-LC and LF-PUFA (P = 0,042 diet effect)		
Bradley U, et al. (2009) [86] RCT	24 overweight/obese men (9) and women (15), BMI >=27 kg/m², exclusion: diabetes, use of weight loss diet in prev. 6 months, pregnancy or significant cardiac disease	Low fat diet (500 kcal defizit): 20 % fat/60 % carbohydrate 8 weeks	Low carbohydrate diet (500 kcal defizit): 60 % fat/20 % carbohydrate	Weight loss, others (insulin, adipokine) level, vaskular compliance	Significant weight loss in both groups (>7%), no difference between groups Peripheral insulin sensitivity significantly improved (P=0,03). No difference between groups in effect on insulin sensitivity Significant difference between groups in change of triglycerides (P=0,01). A significant reduction in triglycerides after low-carb diet (P<0,01). Within low-fat diet group, total, LDL, and HDL cholesterol decrease significantly (P<0,05). Plasma leptin levels decreased significantly within each group (P<0,01), but changes between groups were not significant. Improvements in systolic and diastolic blood pressure were similar.	1-	Small participants group, duration: only 8 week
Christian-sen T, et	79 obese men and women, aged 18-	EXO=exercise only, 12 week (n=	DIO=hypocaloric diet, 8 week very	Weight loss, Visceral adipose tissue-	Greater weight loss (3.5 kg versus 12.3 kg) and visceral adipose tissue-	1-	Duration: 12 week High drop out rate in

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al. (2009) [87] RCT	45y, 30 kg/m² < BMI < 40 kg/m², Physically inactive (< 30 min/day), weight stabile for at least 3 months (+/- 2kg of current body weight) Exclusion: cardiovasc. disease, T2Dm, pregnancy or orthopaedic difficulties causing inability to undertake exercise program	25) 12 weeks	low diet (VLED 600 kcal/day) and 4 week weight maintenance diet (n=29) DEX=hypocaloric diet und exercise, hypocaloric diet, 8 week very low diet (VLED 800 kcal/ day) and 4 week weight maintenance diet + 12 week exercise (n=25)	reduction (VAT)	reduction in DEX und DIO groups compared with EXO group Significant increase of VO2 max in DEX group of 14%. GFAT, ASAT and VAT significantly reduced in EXO group but to a similar degree in the three depots (reduction by 14-18%; P<0,01) ASAT and VAT reduction was significantly lower in EXO compared with DIO and DEX. HDL significantly increased in DEX group. Males had significantly lower ASAT volume, lower GFAT volume and higher VAT volume vs. women.		the DIO group (selection bias) No FU
Frisch S, et al. (2009) [88] RCT	200 overweight subjects, aged 18-70 y, BMI > 27 kg/m² Exclusion: cardiovascular symptomatology, ischemia, cholelithiasis, urolithiasis, insulin dependent diabetes mellitus, pacemaker	Low fat diet (DGE), weekly nutrition education program, counselling by telephone >55% from carbohydrates, <30% from fat, 15% from protein 52 weeks Results: 6 and 12 months after begin	Low carbohydrate diet (LOGI), weekly nutrition education program, counselling by telephone, <40% energy from carbohydrates, >35% from fat, 25% from protein	Weight loss and loss of fat mass Others (waist circumference, blood pressure, lipids, parameters of glucose metabolism)	Intention to treat analysis Energy intake decreased by only 400 kcal/day within the first 6 month and increased within the second 6 month, but below baseline value Mean macronutrient composition differed significantly between both groups between month 1 and month 12 Both diet resulted in similar weight loss (p=0.065) In both groups ~76% of weight	1-	Energy intake decreased by only 400 kcal/day within the first 6 month and increased within the second 6 month

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	implantation, pregnancy, lactation, vegetarianism, participation in another weight loss program or medical treatment for weight reduction.				reduction was due to loss of fat mass Changes from baseline in triglyceride and HDL-cholesterol levels differed significantly between groups at month 6 Systolic BD was significantly higher in the low fat diet at month 12		
Layman DK, et al. (2009) [89] RCT	130 men (n=58) and women (n=72), age 40-56, obese Exclusion: BMI < 26kg/m², body weight >140kg, smoking, medical condition requiring medication that affected primary or secondary outcomes, use of oral steroids or use of antidepressive medication	PRO-Diet=increased protein and decreased carbohydrate diet (Energy deficit: -500 kcal), energy ~40% from carbohydrates, 30% from protein, 30% from fat 4 month active weight loss, 8 months weight maintenance Results: 4 and 12 months after begin	CHO=high carbohydrate diet (Energy deficit: -500 kcal), energy ~55% from carbohydrates, 15% from protein, 30% from fat	Weight loss, Others: body fat, lipids (total cholesterol, LDL-C, HDL-C, triaglycerol and apolipoprotein B)	At 4 mo PRO significantly greater loss of fat. Weight loss was similar between groups after 4 and 12 months After 4 mo: CHO significantly lower TC and LDL-C, whereas PRO had significantly greater HDL-C and lower TAG and TAG:HDL-C PRO had more positive effects on lipids (TC:HDL-C, p=0.044 and TAG:HDL-C, p=0.016, at 12 mo)	1+	Focused question, randomised, Intention to treat analysis
Rolland C, et al. (2009) [90]	120 obese patients, male and female,	Low carbohydrate/high protein diet (LCHP) Energie intake:	Very low calorie diet, commercial (Lighter Life, LL) Energy intake:	Weight loss (primary end point) Others (Itotal cholesterol, LDL-C,	Greater weight loss in the LL group compared to LFRE group after 3 and 9 months after screening (p<0.0001) Significantly greater losses in BMI,	1+	3 mo screening, 3mo maintenance if weight loss >5%, 1year maintenance if weight

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RCT	BMI ≥ 35 kg/m2 Exclusion: history of hepatic or renal disease, cancer, currently pregnancy or lactation, antidepressant or anti-obesity medication or eating disorders	800-1800 kcal/day, <= 40g carbohydrate/day, 800kcal diet: 20% carbohydrate, 40% protein, 40% fat.	~550 kcal/day, 36% carbohydrate, 36% protein, 28% fat, at least 100% RDA of vitamins and minerals	HDL-C, diastolic blood pressure, systolic blood pressure, HbA1c, triacylglycerol)	percentage body fat, and fat mass in LL at 3mo and 9 mo after screening, in waist circumferences at 9 mo only. Greater improvement of lipids and diastolic BP after 3 months, but no difference after 9 months ITT-Analysis: At 3 mo: LL showed significantly greater improvement in TC, LDL-C, fasting glucose and diastolic BP; significantly lower HDL-C in LL At 9 mo: Levels of HbA1c and triacyglycerol significantly decreased Compared to screening: significant decrease in LL in TC, LDL-C, fasting glucose, HbA1c, systolic BP, and diastolic BP at 3mo and 9mo; significant improvement in TC/HDL at 9mo; HDL-C decreased significantly at 3mo and improved significantly at 9mo; triacyglycerol levels improved significantly at 9mo Significant improvement in LCHP in LDL-C and fasting glucose from 3 to 9 mo. Significantly lower urea concentration in LL at 3 and 9 mo. Significantly lower creatinine levels in LL at 3mo. Alanine amino transferase and γ-		loss >10% -> patients failing reduction were included: intervention 9 mo

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					glutamyl transferase significantly decreased in LL at 9mo. Estimated GFR was significantly greater in LL at 3mo and 9 mo. Significantly improvement in hepatic and renal functions observed in LL group at 3 and 9mo		
Brink-worth GD, et al. (2009) [91] RCT	118 men and women Age 18-65 With abdominal obesity With at least one additional metabolic syndrome risk factor Exclusion: Diabetes, pregnancy, malignancy, history of liver, cardiovascular, peripheral vascular, respiratory, or gastrointestinal disease	Very low carbohydrate/high saturated fat diet (LC) (n = 61) (~ 6000 kJ/d for women, ~7000 kJ/d for men) Energy: 4% carbohydrate, 35% protein, 61% fat Restricted carbohydrate intake to <20g/d for first 8 weeks, <40g/d for remaining study Duration: 52 weeks	Isocaloric High carbohydrate/low fat diet (LF) (n = 57) (~ 6000 kJ/d for women, ~7000 kJ/d for men) Energy: 46% carbohydrate, 24% protein, 30% fat Restricted fat intake to <10g/d and <8% of total energy with inclusion of approved food exchange between weeks 9 and 52	Weight loss/ BMI, fat mass, fat-free mass, abdominal fat mass at baseline, 8 and 52 wk. Others: BP, CRP, Glucose, Insulin homeostasis parameter, lipids, FRS (Framingham 10-y coronary heart disease risk score) at baseline, 8, 24 and 52 wk.	Similar weight loss and body fat loss More positive effects of Intervention on other cardiovascular risk parameter ITT: Significant reduction in weight in both groups (P < 0,001), but no significant difference between diets (P = 0,22) Completers: absolute weight loss was greater in LC group, difference in weight loss between groups was not statistically significant (P = 0,14) Total FM, FFM, and abdominal fat decreased in both diet groups (P < 0,001 for time) with no differential effect of diet composition or sex (P >= 0,25). FFM decreased to a greater extent in LC (P = 0,03 for time x diet interaction), but difference was no longer significant after differences in FM loss were controlled (P = 0,06) -> suggests that greater reduction in FFM in LC group was direct effect of greater absolute weight loss	1+	Duration: 52 weeks

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					FFM:FM ratio increased in both groups by week 52 (P<0,001 for time effect) LC group consumed significantly less carbohydrate and more protein, total fat, unsaturated fat, monounsaturated fat, saturated fat, and cholesterol (P < 0,001) During initial stages of study plasma β-hydroxybutyrate concentrations increased significantly more in LC group; although concentration decreased over time, they remained higher than in LF group throughout intervention Significant time x diet interaction for 24h urinary urea excretion (P = 0,004); excretion was significantly greater in LC group at week 8 and week 52 -> higher protein intake in LC group during study Blood pressure, fasting glucose, HOMA2-IR, and HOMA2%B all decreased and HOMA2%S increased over time in both groups (P<0,001 for time effect) with no effect of diet or sex; completers similar results. CRP concentration decreased during study (P < 0,001 for time), with no effect of diet ir sex; completers showed similar response between diets Overall, total cholesterol, LDL-C, and HDL-C increased more with LC (P<=		

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					0,02 for time x diet interaction); triglyceride concentrations and triglyceride:HDL-C ratio decreased to a greater extent in LC group (P = 0,001 for time x diet interaction) LDL-C increased by >10% in 18 individuals in LC group and 8 individuals in LF group (P= 0,009) Completers: FRS decreased in both groups at week 52 (P=0,01 for time effect)		
Aldrich ND, et al. (2011) [92] RCT	18 healthy, midlife adults, aged 40-60y, BMI 27-32 kg/m², no recent weight change, fasting blood glucose measure <126 mg/dL, willingness to comply with dietary treatments Exclusion: current medical problem, pregnancy, use of prescription medication	Whey protein diet (WP) Energy: 40% carbohydrate, 15% mixed protein, 15% whey protein, 30% fat Duration: 5 months (8 weeks controlled food intake. 12 weeks ad libitum intake)	Standard weight loss diets: Mixed protein (MP) Energy: 40% carbohydrate, 30% protein, 30 fat Control diet (CD) Energy; 55% carbohydrate, 15% protein, 30% fat	Weight change, body composition, rennin angiotensin aldosterone system activity	Significant weight loss within each treatment group (p< 0,05 for CD, MP and WP) Measured outcomes were not statistically different, but trend in WP group towards greater weight loss and greater fat loss. Significantly greater decrease in systolic blood pressure (p< 0,05) and in regional fat loss (leg and gynoid, p< 0,05) in WP group compared to CD Week 8: all groups had similar ACE measures with significant derease within CD group (p<0,05) Protein intake between diets was significantly different throughout 20 weeks Protein and carbohydrate intake were significantly different (p<0,05) between	1-	Small study group (power analysis n.a.) ITT n.a. CoA n.a. Blinding n.a. AE, CI n.a.

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					CD treatment and both high protein treatments		
Kreider RB, et al. (2011) [93] RCT	90 sedentary, apparently healthy obese women, aged 18-55y, BMI 27-40 kg/m² Exclusion: recent story of weight change (+/- 3,2kg) within 3 months, metabolic or cardiovascular disorder, including known electrolyte abnormalities, heart disease, arrhythmias, diabetes, thyroid disease, hypogonadism, or history of hypertension, hepatorenal, musculoskeletal, autoimmune or neurologic disease,	Meal-replacement-based diet (MRP) Duration: 10 weeks (+24 weeks weight maintenance phase, n= 77)	Meal-plan-based diet + supervised exercise program (SED)	Weight loss (weight, fat mass, centimetres from hips and waist) Body composition, REE, and fitness Fasting blood lipid, glucose, and insulin Nutrition intake and physical activity	Significantly higher moderate and vigorous physical activity levels in SDE group with no differences between groups in daily energy intake SDE group lost more weight (P = 0,03), fat mass (P = 0,02),centimetres from hips (P = 0,002) and waist (P = 0,005) and had greater increase in peak aerobic capacity (P = 0,001) vs. MRP group REE levels significantly decreased in both groups (P = 0,001) Energy and fat intake decreased significantly over time with no significant differences observed between groups; protein intake was significantly higher in SDE group HDL-C levels were significantly higher in SDE group Significant time effects were seen in physical function (P = 0,02), vitality (P = 0,01) and mental health (P = 0,001) with no differences between groups Maintenance phase: (n=77)	1-	Small study group <3 months horizon, for subgroup (n=77) >3 months

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	prescription thyroid, hyperlipidemic, hypoglycaemic, anti-hypertensive and/or androgenic medication, history of pregnancy or lactation within past 12mo or intention to become pregnant during next 12mo, participation in regular exercise program within past 3mo, unwillingness to consume study products on a regular basis after testing, taking any weight loss medication and/or dietary supplements that may affect muscle mass or body weight during 3mo before beginning the study, and any condition				Dieting significantly decreased total energy intake (P = 0,001) and fat intake (P = 0,001) in both groups over time Analysis of diet satisfaction inventories: SED group reported significantly more energy (P = 0,05) SED group reported significantly less light physical activity(P = 0,002), more of moderate physical activity (P = 0,04) and more of vigorous physical activity (P = 0,004) vs. MRP SED group lost significantly more weight (P = 0,001), fat mass (P = 0,01) and centimetres from hips (P = 0,001). Mean RRE significantly decreased in both groups over time SDE group observed significantly greater improvements in peak aerobic capacity (P = 0,001) as well as upper (P = 0,006) and lower body (P = 0,02) 1RM strength Triglyceride levels were significantly higher in MRP group than in SDE group Physical function (P = 0,06) and vitality (P = 0,09) tended to increase to a greater degree in SDE group		

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	classifying them as high risk for cardiovascular disease						
Te Morenga LA, et al. (2011) [94] RCT	83 overweight or obese women, aged 18-65y, BMI >= 27 kg/m² Exclusion: heart disease, cancer or kidney disease diagnosed; taking medication influencing appetite and weight control; participated in a weight loss programm or had lost more than 1kg bodyweight in previous 2mo; pregnancy, planning a pregnancy or breastfeeding	Moderately high protein diet (HP) Energy: 30% protein, 40% carbohydrate, 30% fat Duration: 8weeks	High fiber, relatively high carbohydrate diet (HiFib) Energy: 50% carbohydrate, >35g total dietary fibre, 20% protein, 10% fat	Weight loss Total body fat mass, lean mass, body fat percentage, truncal fat mass, waist circumference, resting blood pressure, fasting insulin, glucose, triglycerides, cholesterol, metabolic syndrome	Participants on HP lost more body weight (p = 0,039) and total body fat (p = 0,029) Diastolic blood pressure decreased more on HP (p = 0,005) Change in weight was statistically significant predictor for the reduction in SBP (p= 0,026) Significantly greater energy reduction on HFiB than on HP	1-	Drop out rate 11 % Analysis of 74 individuals = small study group Short duration CI Flow chart AE n.a. Partially-blinded Sample size (n=35) determined by power analysis (power = 90%) Computer-generated randomization (schemea n.a.) Per-protocol analysis Comparability of diets concerning energy intake not clear (p=0,047)
Kerksick CM, et al.	141 sedentary, obese women	Diet + exercise groups:	No diet + no exercise group	Weight loss Body composition	diet+exercise groups reported significant greater anthropometric (waist	1-	Wide question Small groups (in total

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(2010) [95] RCT	Exclusion: 1.) presence or diagnosis of any metabolic or cardiovascular disorder including known electrolyte abnormalities, heart disease, arrhythmias, diabetes, thyroid disease, or hypogonadism, history of hypertension, hepatorenal, musculoskeletal, autoimmune or neurologic disease; 2.) currently taking or prescribed medication for hyperlipidemia, hypoglycaemia, hypertension, or androgenic medications; 3.) ergogenic levels of nutritional supplements affecting muscle	High-energy diet (HED) Energy: 2600 kcals, 55% carbohydrate, 15% protein, 30% fat Phase II: 2600 kcals, 40% carbohydrate, 30% protein, 30% fat Phase III: 2600 kcals, 55% carbohydrate, 15% protein, 30% fat Very low carbohydrate, high protein diet (VLCHP) Energy: 1200kcals, 7% carbohydrates, 63% protein, 30% fat Phase II: 1600 kcal, 15% carbohydrate, 55% protein, 30% fat Phase III: 2600 kcals, 55% carbohydrate, 15% protein, 30% fat	(CON) No diet + exercise control (ND)	Cardiovascular disease risk	circumference and body mass) and body composition via DXA (fat mass and %fat) Significant fitness improvements (aerobic capacity and max strength) occurred in all exercising groups. Significant reductions in serum leptin occurred in all caloric restriction + exercise groups after 14 weeks, but unchanged in other non-diet/non-exercise groups		141)

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	mass, anabolic/catabolic hormone levels, or weight loss within six mo prior to start of study; 4.) classified as high risk for cardiovascular disease; 5.) agreed to not participate in any other form of a diet or exercise programm during their participation in the study	Low carbohydrate, moderate protein diet (LCHP) Energy: 1200 kcals, 20% carbohydrate, 50% protein, 30% fat Phase II: 1600 kcals Phase III: 2600 kcals, 55% carbohydrate, 15% protein, 30% fat High carbohydrate, low protein (HCLP) Energy: 1200 kcal, 55% carbohydrate, 15% protein, 30% fat; Phase II: 1600 kcal, 15% carbohydrate, 55% protein, 30% fat Phase III: 2600 kcals, 55% carbohydrate, 15% protein, 30% fat Duration: 14 weeks (Phase I 1week,					

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		Phase II 9 weeks, Phase III 4 weeks) Phase III: upon 3 pounds weight gain -> phase I diet until additional weight was lost -> then backt o 2600 kcals					
Claes-sens M, et al. (2009) [96] RCT	60 overweight, obese subjects, BMI >= 27 kg/m², m and f, aged 30-60y, weight stable over past 2 mo before enrollment Exclusion: increased fasting glucose (>6mmoll-1), TGs (>2,3 mmoll-1) or total cholesterol levels (> 6,5 mmoll-1), diastolic blood pressure >100 mmHg, unable to lose at least 5% of their initial body weight during weight loss phase	High carbohydrate diet (HC) + maltodexin supplements VLCD: 500kcal/d Energy intake: 30% fat, 55% carbohydrate, 15% protein Duration: 5-6 weeks energy restriction period (VLCD), 12 weeks weight maintenance period	High protein casein diet (HPC) + casein supplements VLCD: 500kcal/d Energy intake: 30% fat, 25% protein, 45 % carbohydrate High protein whey diet (HPW) + whey supplements VLCD: 500kcal/d Energy intake: 30% fat, 25% protein, 45 % carbohydrate	Weight loss Others: body composition, blood pressure, glucose and lipid metabolism	HC and HP groups differed significantly from each other in carbohydrate intake and protein intake (P< 0,005) Weight loss period: BW, fat-free mass, waist and hip circumference (all P<= 0,001) and blood pressure (P<=0,001) were lowered. Significant decrease was found in all blood lipids (P<=0,001). Plasma glucose, insulin, glucagon and leptin concentrations, and LDL/HDL ratio were significantly reduced (P< 0,001). HbA1c was significantly increased (P=0,03) Weight maintenance period. Change in body fat percentage (week 18-week6) was significantly different between HC and HP groups (P=0,02). Fasting glucose concentration increased significantly more from week6 to week18 in HP group (P=0,02). Fasting glucagon concentrations	1-	Small study population, power analysis n.a. Short time horizon CI n.a. Flow chart n.a. AE n.a. ITT n.a. Not blinded, but HP group blinded for for the kind of protein they were supplemented with

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					increased significantly on HC diet compared with HP diet (P=0,02)		
Delbridge EA, et al. (2009) [97] RCT	141 healthy overweight and obese men and women, aged 18-75y, BMI >= 30 or >=27, with comorbidities Exclusion: significant disease, endocrine disorder, psychiatric illness, alcohol or drug abuse, lactation, pregnancy or planned to become pregnant during study	High protein diet (HP) Energy intake: 30% protein, <30% fat Duration: phase 1 3mo intensive weight loss; phase 2 12mo weight maintenance phase	High carbohydrate diet (HC) Energy intake: 15% protein, <30% fat	Weight loss Anthropometric measurements, lipids, blood pressure,	Significant weight loss after 3mo, maintained for 1year for both groups. Phase 1: all anthropometric measurements decreased significantly during for all subjects. Significant decrease in fat mass and fat-free mass. Significant reductions in waist and hip circumferences. Total cholesterol and triglycerides decreased significantly. Significant mean SBP and DBP decrease (P<0,001). Phase2: Significant increase in fat mass. Significant increase in mean HDL (P<0,001). Significant increase in SBP (P<0,014). Small but significant increase in DBP during phase 2 (P<0,012). By the end of the study: all subjects experienced significant decrease in weight, fat mass, and fat-free mass. Reductions in systolic blood pressure for the HP group and for the HC group (P<0.045). Total and LDL-Cholesterol and triglyceride concentrations remained	1+	Sufficient study population size; power analysis n.a. Long time horizon ITT Flow chart CI reported AEs described Randomization described

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					significantly reduced. Overall decrease in SBP (P<0,001), statistically difference between groups (P<0,045).		
Dale KS, et al. (2009) [98] RCT	200 women, intentionally lost >5% initial body weight in prev. 6mo, BMI >=27kg/m² Exclusion: chronic physical or psychiatric illness (incl. diabetes, gestational diabetes, cardiovascular disease, renal disease, malabsorption disorders, active treatment for cancer, conditions that would prevent them from being physically active), taking medications affecting weight, not intend to live in the region for 2 years, pregnancy or intend to conceive within 2	High-carbohydrate diet + Intensive/ nurse Energy intake: 15-20% protein, 25-30% fat, 55% carbohydrates Duration: 2 years	High-monounsaturated-fat diet + Intensive/ nurse Energy intake: 25% protein, 21% monounsaturated fat, 40% carbohydrates	Weight loss Secondary: BMI, waist circumference, fat mass, blood pressure, lipids, glucose and insulin levels	Average weight loss did not differ between support programs or diets. Total and LDL-C were significantly higher in high-monounsaturated-fat diet. High-monounsaturated-fat diet had significantly higher intages of total fat and saturated fat (both P<0,001).. All other clinical and laboratory measures were similar among support programs and diets.	1+	Sufficient population size; power analysis done Long time horizon CI reported AEs reported ITT Flow chart Not blinded

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	years of recruitment						
Jeffery RW, et al. (2009) [99] RCT	213 adults, aged >=18y, BMI 30-39 kg/m², free from serious medical conditions	Maintenance-tailored therapy (MTT) Duration: 18mo	Standard behaviour therapy (SBT)	Change in body weight	SBT group lost more weight than MTT group in first 6mo of treatment (p<0,02). Mo 12-18, SBT group gained weight significantly different from zero (p<0, 01). Difference between groups was highly significant (p<0,01). MTT group's overall homework completion rate (52%) was significantly greater than the other's group rate (p< 0,001). MTT group reported significantly higher perceived reinforcement from weight loss at 18mo. Strong associations in both session attendance and homework completion (both p<0,001) predicted greater weight loss.	1+	Large study population Power analysis n.a. Long time horizon Non-blinded Flow chart CI n.a. AEs n.a. Randomization by computer
Rodri-guez-Hern-andez H, et al. (2009) [100] RCT	105 obese (BMI >=30kg/m²) women, average age 45,4 years, average BMI 36 kg/m² Exclusion: Pregnancy, hypothyroidism, heart failure, renal and hepatic	Cognitive behavioural treatment (CBT): + low-carbohydrate diet (CBT-LC) + low-fat diet (CBT-LF) Duration: 6 mo	Controls: Control group with low-carbohydrate diet (C-LC) Control group with low-fat diet (C-LF)	% Weight loss Blood pressure, total body fat, waist circumference, BMI, fasting glucose, TAG	Adding CBT to either LF or LC diet produced significantly greater short-term weight loss in obese women compared with diet alone. LC groups: At post-test, women in CBT-LC group significantly decreased TAG concentration	1+	ITT Sufficient duration Moderate study population, no power analysis AEs n.a. CI n.a. Not blinded

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	disease				LF groups: At post-test, women in CBF-LF group had significantly decreased body fat, weight, BMI and TAG concentrations. Greater weight loss in CBT-LF group (P=0,049), but difference between C-LC and C-LF was not significant (P=0,75).		
Cooper Z, et al. (2010) [101] RCT	150 Female, aged 20-60y, BMI 30-39,9 kg/m², available for treatment for 44 weeks, willing to participate in study Exclusion: weight loss >=10% within prev. 6mo, major medical or psychiatric illness (incl. T1dm, T2dm), current psychiatric or psychological treatment, disorders or treatments known to affect eating, weight or metabolic rate, and	Cognitive behaviour therapy (CBT): 24 sessions a 50min; first 24-30 weeks weight loss phase (~1500 kcal/d) Duration: 44 weeks, FU 3 years	Behaviour therapy (BT): 24 sessions a 50min; ~1200 kcal/d; week 24-30 & week 36 weight maintenance optional Duration: 44 weeks, FU 3 years Guided self-help (GSH): ~1200 kcal/d, healthy food choices, and gradually increase level of activity; 24 weeks; 2 face-to-face sessions	Weight changes BMI, binge eating frequency, acceptance of shape and weight	24 weeks: BT lost significantly more weight than GSH (p=0,003). At 44 weeks: BT lost significantly more weight than GSH (p=0,001). Period between 24 and 44 weeks: significant increase in weight among both the GSH and CBT conditions (p= 0,003); small significant decrease in weight among BT participants (p= 0,024), with overall difference between groups being statistically significant (p<0,001). CBT vs. BT: Initial weight and FU time (both p<0,001) were strongest predictors of FU weight. Significant (p=0,04) adjusted mean difference in FU weight between participants in CBT and BT conditions. At the end of treatment the greater the weight loss, and in particular the greater the percentage weight loss, the higher the acceptance of shape (both	1+	Randomization described Flow chart Sufficient population size; power analysis with sufficient power (80%) ITT CI AE n.a. Long FU independent assessors blind to the participants' treatment conditions

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	disorders in which calorie or fat restriction are contraindicated.		& 15 20-min telephone sessions Duration: 24 weeks, FU 3 years		p<0,001). After adjustment, CBT group was significantly more accepting their shape (p=0,001). During FU there being a progressive increase in acceptance of shape in CBT but not BT (p=0,040). And significant relationship across and within both groups between acceptance of shape at end of treatment and weight during FU, with greater the acceptance the lower the weight (p<0,001). Statistically significant improvement from baseline to end of treatment in BSI scores across all treatment groups (p<0,001). Across all three groups there were statistically significant improvements in the eight SF-36 domains and the two summary scores (PCS and MCS) from baseline to the end of treatment (PCS: p<0,001; MCS: p<0,001), although generally there were statistically significant deteriorations in scores during FU (p=0,002).		
Gripeteg L, et al. (2010) [102] RCT	169 patients, m and f, aged 18-60 y, BMI >30 kg/m², Swedish speaking Exclusion: contraindications	Group 1 : 1week re-feeding + 40 weeks active treatment Duration: 1 year treatment program	Group 6 : 6 week re-feeding + 40 weeks active treatment	Difference in weight change (%) week 12-52 and week 18-52 Eating behaviour scores, cardiovascular risk factors (waist circumference, systolic	Between week 12 and 52, completers in Group 6 regained significantly less weight as compared to Group 1 (P = 0.006), (ITT, P = 0.05). Overall weight loss at week 52 compared to baseline was significantly greater in Group 6 than in Group1 (P =	1+	ITT Long study horizon Sufficient study population, power analysis (power 80%) Non-blinded

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	for VLED as pregnancy, lactation, unstable T1dM, cardiac disease, recent cerebrovascular disease, history of eating disorder, severe psychiatric disorder or other severe disease, weight loss medication.	+ 12 weeks initial very-low-energy diet (VLED)		and diastolic blood pressure, P-Glucose, S-HDL, and S-Triacylglycerol)	0.03). Eight (10%) and 20 (24%) patients in Group 1 and Group 6 respectively, continued to lose weight after ordinary foods were re-introduced and had a lower weight at week 52 than at week 12 (P =0.01). Statistically significant changes were observed in both groups after the VLED period, i.e., cognitive restraint increased, while uncontrolled and emotional eating decreased, except for emotional eating at week 52. At week 21 (P = 0.01) and 26 (P = 0.02), dietary restraint was significantly higher in Group 6 than in Group 1. After one year, cognitive restraint and uncontrolled eating had significantly improved in both groups as compared to baseline. Week 52, waist circumference, systolic and diastolic blood pressure, P-Glucose, S-HDL, and S-Triacylglycerol were significantly improved in both treatment groups as compared to baseline, with the exception of diastolic blood pressure in Group 1.		Flow chart AEs reported CI n.a. Randomisation described
Nancha-hal K, et	123 adults (80.3% women, mean age	structured lifestyle support (n = 30),	usual care (n = 31), or usual care	Weight loss, waist circumference	Weight loss: adjusted mean difference in weight in	1+	Flow chart ITT

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al. (2009) [103] RCT	47.2 years), weight ranged from 66 to 165 kg, BMI - from 27.6 to 50.9 kg/m2, and waist circumferences from 78 to 157 cm, and 95.8% (114/119) described themselves as white; not pregnant, and not on weightloss medication recruited from eight practices; Characteristics did not vary significantly by randomisation group	structured lifestyle support plus pedometer (n = 31) duration: 12 week	plus pedometer (n = 31)		structured support compared to usual care groups was –2.63 kg (95% CI = –4.06 to –1.20 kg), and for pedometer compared to no pedometer groups –0.11 kg (95% CI = –1.52 to 1.30 kg). One in three (17/50, 34.0%) participants in the structured support groups lost 5% or more of their initial weight, compared to fewer than one in five (10/53, 18.9%) in usual-care groups; provision of a pedometer made little difference (14/48, 29.2% pedometer; 13/55, 23.6% no pedometer) Structured support resulted in a greater percentage weight loss than did usual care (adjusted difference mean –2.78%; 95% CI = –4.25 to –1.30%); provision of a pedometer did not affect the degree of weight loss (adjusted difference mean –0.36%; 95% CI = –1.82 to 1.10%) waist circumference Difference in waist circumference change between structured-support and usual-care groups was –1.80 cm (95% CI = –3.39 to –0.20 cm), and between the pedometer and no pedometer groups it was –0.84 cm (95% CI = –2.42 to 0.73 cm).		Inclusion criteria were reported randomization using a 2 × 2 factorial design Moderate study population Short duration! CI were reported AE n.a.
Wing RR, et al. (2010)	Study 1: 179 individuals, male and female,	Study 1: Shape Up RI + lessons	Study 1: Standard Shape	Weight losses Greater proportion of individuals achieving	Study 1: Did not significantly improve weight	1+	Flow chart ITT

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[104] RCT	averaged 46,5y, BMI 33,8, initial weight averaged 92,0kg Study 2: 128 individuals, male and female, averaged age 46,9y, BMI 33,9, initial weight averaged 92,0kg	(SURI+lessons) Weekly lessons teaching behavioural strategies Study 2: Standard Shape Up RI enhanced Multimedia lessons + increased self-monitoring and automated computer feedback on behaviour changes and weight loss Duration: 12 weeks	Up RI Study 2: Standard Shape Up RI	weight loss of >5% at the end of competition	losses Study 2: Weight losses for Shype Up RI enhanced were significantly greater than for standard Shape Up RI (P<0,01). Greater proportion of Shape Up RI enhanced lost at least 5% of starting weight (P<0,01). Similar results for ITT. Weight loss in Shape Up RI enhanced group was related to the number of days of calorie and weight reporting and number of lessons viewed (all P<0,01) and to post-treatment levels of physical activity (p<0,05), number of weight control strategies used (P<0,01) and frequency of selfweighing (P<0,01). Study 1 vs. study 2: Addition of video lessons and self-monitoring with automated feedback resulted in a large significant increase in weight losscompared with the standard Shape Up RI program.		No exclusion criteria Inclusion criteria not detailed Study 2: randomization ratio Moderate study population Short duration! CI n.a. AE n.a.
Nackers LM, et al. (2010) [105] RCT	262 relatively healthy, weight stable, obese women, aged 50-75y, mean baseline weight of	SLOW: (<0,23 kg/week) 1200 kcal/d Duration: 6mo	MODERAT: (>=0,23 and <0,68 kg/week) 1200 kcal/d	Change In body weight Caloric intake, physical activity, attendance, adherence	Ethnicity varied significantly by group categorization (p=0,001): largest proportion of Caucasians in FAST group, largest proportion of minority participants in SLOW. Significant interaction effect for time x	1-	Large study population: power analysis n.a. Long time horizon CI n.a.

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	96,5+/- 14,9kg, BMI 36,8 +/- 5,0kg/m²	lifestyle intervention + 1 year extended care program (FU)	FAST: (>= 0,68 kg/week) 1200 kcal/d		weight loss group (p<0,001). Between baseline and 6mo FAST group lost significantly more weight than MODERATE group, and SLOW group; MODERATE group lost significantly more weight than SLOW group (all p<0,001) Baseline to 18mo: FAST group lost significantly more weight than SLOW group (p<0,001) At 18mo: weight loss group was significantly associated with maintenance of 10% weight loss at 18mo (p<0,001); FAST group was significantly more likely to maintenain a 10% weight loss than MODERATE group (p=0,048) and SLOW group (p<0,001). MODERATE group was significantly more likely to maintain 10% weight loss than participants in SLOW group (p=0,003). 2. outcomes: Error variance was significantly different between groups for attendance (p<0,001) and adherence (p<0,001). Significant main effect was found for weight loss groups (p<0,001) such that attendance, adherence, caloric intake, and physical activity during first month of treatment varied by weight loss group.		AE n.a. Flow cahrt n.a. ITT n.a. Randomisation n.a.

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					FAST group attendet significantly more sessions than SLOW group (p=0,025), completed significantly more food records (p<0,001) and consumed significantly fewer calories (p=0,034). MODERATE group completed significantly more food records (p<0,001) and walked significantly more steps per day (p=0,014).		
Vazquez C, et al. (2009) [106] RCT	62 Caucasian adults, 18-75y, male and female, >=5% weight loss during induction phase Exclusion: pharmacological therapy for weight loss, renal, hepatic, pulmonary or cardiovascular disease, major depression, pregnancy or lactation	Intervention group Phase 1:diet Phase 2: low-calorie diet formular instead of dinner Phase 1+2: 400-500kcal/d Energy: 55% carbohydrates, 30% fat , 15% proteins Duration: phase 1 6mo; phase 2 (weight maintenance) 6mo	Control group Phase 1+2: diet 400-500kcal/d Energy: 55% carbohydrates, 30% fat , 15% proteins	Maintenance of weight loss or further weight loss Changes in body composition, blood pressure and biochemical variables related to glucose and lipid metabolism	Weight maintenance or further weight loss occurred in 83,9% of patients in the intervention group, only 58,1% in control group (P=0,025). Intervention group lost significantly more of initial weight compared to control group (P=0,030). Waist circumference diminished (P<0,001) and HDL concentration increased (P=0,001) with time (significant within-subject effects) in the studied patients.	1+	Not blinded Small study population; but power analysis: 31 patients per group for β=0,2 and α=0,05. Flow chart Patients' characteristics not very detailed ITT CI n.a. AE reported Sufficient duration

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Anderson JW, et al. (2011) [107] RCT	45 volunteers, aged 20-65y, BMI 30-39,9 km/m², good health Exclusion: allergies to ingredients, participation or were recently participating in any other clinical study, lost or gained >5lb, participation in a structured weight-loss program during previous 3mo, currently using weight-loss medicatios or supplements, medications affecting body weight, surgical intervention for treatment of obesity, diagnosis of diabetes mellitus or fasting blood glucose value >=126 mg/dL, use of anticoagulants or	Meal replacement + fruits, vegetables (MR-FV-group) standardized behavioural education program: combination of behaviour-change strategies + diet and exercise goals. low energy diet: >=5.0mJ or 1200 kcal/d Duration: 24 weeks (weight loss phase at 8 and 16 weeks, maintenance period 16-24 weeks)	Control group (C-group): Energy-restricted diet; Energy: 30%, 50% carbohydrates, 20%protein Aim: achieve weight loss of ~10% during 6mo	Weight loss	Mean weight losses during weight-loss phase (week 8 and 16) for MR-FV group was significantlygreater (P<0,0001). Weight losses were significantly greater at 24wks for the MR-FV group (ITT: P<0,0001; Completers: P<0,0001) Reduction in waist circumference for MR_FV were significantly graeter than for C-group (8 and 16 weeks, P<0,0001). Glucose values were significantly lower in MR-FV group at 16 and 24 weeks but not in C-group (24 week difference, P=0,02). MR_FV group had significantly lower serum cholesterol values at 16 weeks (P vs. C group <0,05). Serum LDL-C were significantly lower for the MR-FV group at 16 weeks (P=0,0168 vs. C-group) At 24weeks, systolic blood pressure values were significantly below baseline values in both groups (P<0,05) Reductions in diastolic blood pressure were greater in MR-FV group than in C-group and differences between groups were significant at 16 weeks (P=0,0045)	1+	ITT Flow chart AEs reported CI n.a. Randomisation described 2 lead physicians blinded Small study population; but power analysis (80% power for 4,5% difference) Moderate time horizon

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	oxcarbazepine						
Van Wier MF, et al. (2011) [108] RCT	1386 empoyees, m and f, BMI ≥ 25 kg/m2, paid employment for >= 8 hours a week, able to read and write Dutch, having access to internet (either at work or at home) and skilled in using it, aged >=18 years Exclusion: Pregnancy or treatment for disorders making physical activity difficult	Phone counselling (phone group): intervention materials + phone counselling Duration: 6mo + 2years FU	e-mail counselling (internet group): web-based intervention with e-mail counselling usual care (control group): i.e. lifestyle brochures	Body weight Fat, fruit and vegetable intake, physical activity and waist circumference	In the main analysis the phone group had a significant weight loss of 1.5 kg (95% CI -2.2; -0.8) in comparison with the control group. In the secondary analysis the phone group had a significant loss of 1.6 kg (95% CI -2.2; -1.0) and in the internet group 1.1 kg (95% CI -1.7; -0.5), compared with the control group. Compared with the control group, the phone group significantly lost 1.9 cm (95% CI -2.7; -1.0) and the internet group 1.2 cm (95% CI -2.1; -0.4), The comparison of the phone group with the control group showed statistically significant changes for fat intake and for physical activity.	1+	CI reported Blinding n.a. Power calculation (90% power) to detect 1,4kg weight losswith sample seize at 1500 AE n.a. Large study population Sufficient time horizon Randomization described ITT n.a.
Van Wier MF, et al. (2009) [109] RCT	See Van Wier MF, et al. (2011)						
Befort CA, et al. (2010) [110]	34 rural women, age 22–65 y, residence in a rural	Group phone counselling Diet: 1200-	Individual phone counselling Diet: 1200-	Weight loss Dietary, physical activity, and	Completers analysis showed that weight loss was greater in the group condition compared to the individual	1-	Randomisation described Small study

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RCT	area defined Census Bureau as outside urban areas with 10,000 or more, BMI 25 - 44.9 kg/m2, English-speaking, weight stable (no more than 10 lb weight fluctuation within previous 6 mo), able to walk briskly unassisted for at least 10 min, working cell or home phone number, no special dietary restrictions (e.g. vegetarian), able to obtain clearance to participate from a primary care provider who verified medical risk exclusion criteria. Exclusion: not	1500kcal/d, <25% fat Ca.60min group calls weekly Duration: 6mo	1500kcal/d, <25% fat Ca.25-45 min individual calls weekly	psychosocial contributors costs	condition (p=.03). Participants in the group condition showed greater weight loss from Baseline to week 16 (p=.01), from Baseline to Week24 (p=.01), and marginally greater weight loss from week 16 to week 24 (p=.10). Pairwise comparisons across time showed that both conditions had significant weight loss from baseline to week 16 (both ps<.001), but only the group condition showed significant weight loss from week 16 to week 24 (p=.009). From Baseline to Week 24, participants in the group and individual conditions decreased their daily caloric intake by, decreased their fat consumption, increased their fruit and vegetable consumption, and increased their physical activity, respectively (all ps for time <.001). Participants in group and individual conditions both showed improvements in self-efficacy for controlling diet and problem-solving skills (ps for time <.001 and .05, respectively). Participants in the group condition reported greater agreement on goals, greater agreement on how to achieve		population; power analysis n.a. CI n.a. AEs n.a. Sufficient time horizon Blinding n.a.

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	pregnant during previous six months, lactating, currently pregnant, or planning to become pregnant, serious medical risk such as unstable cardiac condition, congestive heart failure, recent cancer treatment, or severe pulmonary disease, substance abuse depression or binge eating disorder				those goals, and a stronger personal bond with their counselor (all ps<.05).		
Patrick K, et al. (2011) [111] RCT	441 overweight/obese men, aged 25-55y, BMI >=25kg/m²	Internet-based weight loss intervention Duration: 1 year	Wait-list Control: Alternate web site	BMI, weight, waist circumference Behavioural outcomes	Baseline adjusted differences at 12mo were not found between groups in ITT analysis for BMI, weight, or waist circumference. At 12mo, intervention decreased percent of energy from saturated fat and increased grams of fiber and fuit/vegetable servings per 1000kcal (p values < 0,001) and walked 16min/d more (p<0,05). Among completers, men in highest	1+	Flow chart Large study population Long time horizon CI n.a. ITT AE n.a. Blinding n.a. No detailed characteristics, no

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					tertile of intervention participation had lower weight, BMI and waist circumference.		exclusion criteria
McDoniel SO, et al. (2010) [112] RCT	111 obese adults, m and f, aged 18-70y, BMI 30>=kg/m², home personal computer, access to email >=2 days/week, not using tobacco products since study was centered on weight reduction versus smoking cessation along with risk for weight fain during and/or following smoking cessation Exclusion: pregnancy, lactation, weight reducing medications, participation in other weight loss programs	Experimental group : i.e. self-monitoring and resting metabolic rate technology (SMART) nutrition program,+computerized self-monitoring software program Duration: 12 weeks	Usual care group: Standard nutrition plan 3day food menu (i.e. women 1200 kcal/d, men 1600 kcal/d) + standard 30d paper journal for selfmonitoring	Body weight, arterial blood pressure, psychobehavioral constructs	Completer analysis indicated a significant improvement in bodyweight, systolic arterial pressure, and all motivational constructs following the 12-week study (p<= .05). ITT: both groups showed significant reduction in systolic arterial blood pressure (p=0,02). 1-way-ANOVA: significant relationship among all 3 motivational constructs and week12 bodyweight Δ (p=0,001). Combined motivational Δ accounted for 25,7% of 12-week bodyweight Δ (p=0,001).	1-	Participants blided zo opposing treatment group ITT AEs n.a. CI n.a. Sufficient study population Power analysis: motivational constructs power of 80% for total sample size of 90 Short time horizon Flow chart Randomisation: computerbalanced

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Schroder KE, et al. (2010) [113] RCT	91 individuals, male and female, aged 18-65y, BMI >=27, interested in pursuing weight loss, daily access to PC, willing to accept random group assign, not enrolled in alternative weight loss program, sufficient English-language proficiency, possession or access to PC with Windows, internet and email Exclusion: diagnosed diabetes, hypercholesterol or mental disorder, friend or relative already enrolled in study	CAD-only: Single session CAD intervention: 1. general information about healthy nutrition, 2. software training, 3. individualised goal setting Duration: 3mo intervention + re-assessment at mo 3 and mo 6	CAD+G: CAD + 4 weeks group intervention targeting self - management skills Duration: 3mo intervention + re-assessment at mo 3 and mo6 Waiting-list group: no-treatment control group, after first FU randomised to intervention groups Duration: 3mo waiting-list, 3mo intervention + re-assessment at mo6 and mo9	BMI Lipid panel result (total blood cholesterol, HDL, LDL, cholesterol ratio, triglycerides)	The two intervention groups combined showed significant but moderate weight loss relative to control group.	1-	Small study population Flow chart Randomisation described Only 14 men in study population! Team members blinded to intervention type of participants ITT Sufficient duration power-analysis :power 80% for N=126 (42 per group): treatment groups combined
Burke LE, et al. (2011) [114]	210 participants, aged 18-59y, BMI 27-43kg/m²	PR group: paper diaries + daily self-monitoring	PDA group: PDAs with software + daily self-monitoring	Weight change Adherence to self-monitoring, waist circumference and diet	All participants had a significant weight loss ($P < 0.01$) but weight loss did not differ among groups. A higher proportion of PDA+FB participants	1+	Flow chart CI n.a. AEs n.a.

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RCT	Exclusion: conditions that required medical supervision of diet or exercise, participated in a weight-loss program in the 6 months prior to recruitment or planned an extended acation or relocation during the 24-month study period	of eating and exercise behaviors, group sessions, daily dietary goals and weekly exercise goals Duration:24 mo but 6mo assessment!	of eating and exercise behaviors, group sessions, daily dietary goals and weekly exercise goals PDA+FB group: PDAs with custom software + daily self-monitoring of eating and exercise behaviors, group sessions, daily dietary goals and weekly exercise goals		(63%) achieved ≥5% weight loss in comparison to the PR group (46%) (P < 0.05) and PDA group (49%) (P = 0.09). Median percent self-monitoring adherence over the 6 months was higher in the PDA groups than in the PR group (P< 0.01). Waist circumference decreased more in the PDA groups than the PR group (Ps = 0.02). Similarly, the PDA groups reduced energy and saturated fat intake ore than the PR group (Ps <0.05).		ITT Sufficient study population No power analsis Sufficient time horizon
Acharya SD, et al. (2011) [115] RCT	192 overweight/obese adults, aged 18-59y, mean BMI = 34,1, on average 15 y of education Exclusion: conditions requiring medical	PDA + feedback group: PDA + feedback + Cognitive-behavioural intervention: 20 group sessions during the first 6mo.	PDA group: PDA + Cognitive-behavioural intervention: 20 group sessions during the first 6mo. Paper record group:	Weight, Energy intake, consumption of fruit, vegetable and refined grains	At 6 months, both groups had significant reductions in weight, energy intake, and percent calories from total fat and saturated fatty acids (P_0.001); no between-group differences were found. Compared to the paper record group, the PDA group significantly increased consumption of fruit (P_0.02) and vegetables (P_0.04) and decreased	1+	Sufficient study population No power analysis ITT n.a. CI n.a. AE n.a. Sufficient time horizon Blinding n.a.

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	supervision of diet or exercise, participation in weight-loss program in 6mo before recruitment	Duration: 6mo (of 24mo trial)	Paper record + Cognitive-behavioral intervention: 20 group sessions during the first 6mo.		consumption of refined grains (P_0.02). Interactions among self-monitoring and the two groups were found in relation to changes in percent calories from total fat (P_0.02), monounsaturated fatty acids (P_0.002), and trans-fatty acids (P_0.04). Frequent self-monitoring was significantly associated with total sugar (P_0.02) and added sugar (P_0.01) intake in both groups.		
Shuger SL, et al. (2011) [116] RCT	197 participants, male and female, aged 18-64y, BMI 25-45kg/m², underactive (not accumulating 150min of moderate-to-vigorous physical activity/week in bouts >=10min), access to internet Exclusion: significant weight loss (>20 lbs) in the last 6 months, elevated blood pressure (160/95 mm Hg), ailments	SWA: Armband alone + web account + manual GWL: group-based behavioural weight loss program + manual GWL + SWA: GWL plus the armband + web account + manual Duration: 9mo	Standard Care: self-directed weight loss program via an evidence-based weight loss manual	Body weight BMI and %body fat	Significant weight loss in all 3 intervention groups (GWL P = 0.0002; GWL+SWA P < 0.0001) but not in the Standard Care group (P = 0.39) at month 9. Only the GWL+SWA group achieved significant weight loss at month 9 compared to the Standard Care group (P = 0.04). Significant waist circumference reductions were achieved in all 4 groups at month 9 (Standard Care P = 0.0004; GWL P = 0.008; SWA-alone P < 0.0001; GWL+SWA P < 0.0001), but no intervention group had significantly reduced waist circumference compared to the Standard Care group.	1+	Flow chart Sufficient study population Power analysis: 80% to detect effect size of 0,81 for weight loss and waist circumference reduction, 80% to detect 0,434kg difference in weight-loss and 0,567cm difference in waist size reduction Moderate time horizon AEs n.a. CI n.a. ITT n.a. Researchers blinded

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	that limited physical activity, or serious medical conditions or other issues (e.g., pregnancy or depression) that contraindicated or confounded the weight loss intervention.						
Idoate F, et al. (2011) [117] RCT	34 sedentary, non-smoking, obese women, BMI 30-40 kg/m², aged 40-60y Exclusion: cardiovascular, neuromuscular, arthritic, pulmonary or other debilitating diseases	Hypocaloric diet group (WL), 500 kcal/d Energy: 55% carbohydrates, 15% proteins, 30% fat Duration: 16 weeks	Diet + resistance training group (WL+RT), 500 kcal/d Energy: 55% carbohydrates, 15% proteins, 30% fat Control group (C) -> maintaining body weight	Visceral adipose tissue (VAT), subcutaneous adipose tissue (SAT), and total abdominal fat (TAT)	WL-RT lead to significant changes in location of highest mean VAT area. the location of highest mean VAT area within abdomen differ (P < 0,01) to reported before intervention in WL-RT Total TAT, VAT and SAT were significantly reduced for WL and WL+RT After intervention, VAT and SAT areas significantly decreased in most discal levels analyszed (P < 0,005) except for VFAT at L2-L3 in WL group, and for VAT at L5-S1 in WL+RT group. magnitude of decrease in VAT at L5-S1 level was significantly greater in WL compared tp WL+RT VAT volume decreased significantly (P > 0,05) in most images levels referred to L4-L5 in WL group and in WL+RT groups	1-	Statistical power calculations: power ranged from 0,75-0,8 -> β=0,25-0,2 Small study group: CI n.a. AE n.a. Zielkriterium relevant? -> nicht direkt weight loss

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Morgan PJ, et al. (2009) [118] RCT	65 overweight / obese male participants, BMI 25-37kg/m², aged 18-60y Exclusion: history of major medical problems such as heart disease in the past 5 years, diabetes, orthopaedic, or joint problems that would be a barrier to physical activity, recent weight loss of ≥4.5 kg, or taking medications that might affect body weight.	SHED-IT (Self-Help, Exercise and Diet using Information Technology) Internet group: one face-to-face information session (75 min) plus 3 months of online support Duration: 6mo	Control group: one information session	Change in body weight (kg & %change) BMI, waist circumference, blood pressure, dietary intake	Significant weight loss of 5.3 kg (95% CI: −7.3, −3.3) at 6 months for the Internet group and 3.5 kg (95% CI: −5.5, −1.4) for the control group. A significant time effect was found for all outcomes but no between-group differences. Per-protocol analysis revealed a significant group-by-time interaction (P < 0.001), with compliers losing more weight at 6 months (−9.1 kg; 95% CI −11.8, −6.5) than non-compliers (−2.7 kg; 95% CI −5.3, −0.01) and the control group (−4.2 kg; 95% CI −6.2, −2.2). No significant difference in percent weight loss between groups (P > 0.05). At 3 mo, significantly more participants (55.6%) in the Internet group had lost >5% of their baseline weight compared to the control group (28.0%) ($\chi 2 = 4.03$, df = 1, P = 0.04). There were no significant between-group differences for any of the secondary outcomes from baseline to 3 or baseline to 6 months. At 6 months, participants reduced their: waist circumference (P < 0.001); BMI (P < 0.001) systolic (P < 0.001) and diastolic (P < 0.001) blood pressure; resting heart rate (P < 0.001); daily kJ intake (P	1+	Assessor blinded ITT CI Power analysis: 80% power for sample size of 18 participants for each group was needed to detect a 3 kg difference among groups AEs n.a. Flow chart

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					< 0.001), and increased physical activity (P < 0.05). Significant correlations were found between weight loss at 3 months and number of days of diet entries (P < 0.001), number of daily exercise entries (P = 0.002), and number of weekly check-ins (P = 0.01). Similar results were found for weight loss at 6 months: number of daily diet entries (P < 0.001), number of daily exercise entries (P = 0.002) and number of weekly check-ins (P = 0.01).		
Morgan PJ, et al. (2011) [119] RCT	65 overweight / obese male participants, BMI 25-37kg/m², aged 18-60y Exclusion: history of major medical problems such as heart disease in the past 5 years, diabetes, orthopaedic, or joint problems that would be a barrier	SHED-IT (Self-Help, Exercise and Diet using Information Technology) Internet group: one face-to-face information session (75 min) plus 3 months of online support Duration: 12 mo	Control group: one information session	Change in body weight (kg & %change) BMI, waist circumference, blood pressure	ITT-analysis using linear mixed models revealed significant and sustained weight loss of −5.3 kg (95%CI: −7.5, −3.0) at 12 months for the Internet group and −3.1 kg (95% CI: −5.4, −0.7) for the control group with no group difference. A significant time effect was found for all outcomes (P < 0.001). Per-protocol analysis revealed a significant group-by-time interaction for weight, waist circumference, BMI, and systolic blood pressure. Internet group compliers (who self-monitored as instructed) maintained	1+	Assessor blinded ITT CI Power analysis: 80% power for sample size of 18 participants for each group was needed to detect a 3 kg difference among groups AEs n.a. Flow chart

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	to physical activity, recent weight loss of ≥4.5 kg, or taking medications that might affect body weight.				greater weight loss at 12 months (−8.8 kg; 95% CI −11.8, −5.9) than non-compliers (−1.9 kg; 95% CI −4.8, 1.0) and controls (−3.0 kg; 95% CI −5.2, −0.9).		
Rock CL, et al. (2010) [120] RCT	442 overweight or obese women BMI 25-40 kg/m2 age 18-69 years (mean age, 44 years), from USA; No differences in baseline characteristics across the study groups were observed. Eligibility criteria included age 18 years or older; BMI of 25 to 40 and a minimum of 15 kg over ideal weight; not pregnant or breastfeeding or planning to become pregnant in the next 2 years; willing to participate in any	The program, which involves in-person center-based or telephone based on weekly one-to-one weight loss counselling with follow up e-mail contacts and web site or message board availability. Freeof- charge counseling sessions were offered to participants for the entire 2-year period. Duration: over a 2-year period. Behavioral goals were an energy-reduced, nutritionally adequate diet,	Usual care control group Participants assigned to usual care received 2 individualized weight loss counseling sessions (at baseline and again at a 6 months) with a dietetics professional and monthly contacts via e-mail or telephone. Energy intake level to achieve a weight loss of 10% over a 6-month period was prescribed, aiming for a deficit of 500	Weight loss and weight loss maintenance Others (Cardiopulmonary Fitness and Psychosocial and Laboratory Measures)	For Weight loss and weight loss maintenance: At 24 months: analysis for 407 women (92.1% of the study sample) In the intent-to-treat analysis using baseline value substitution: At 24 months: mean weight loss: For center-based group: 7.4 kg (95% CI, 6.1-8.7 kg) or 7.9% (95% CI, 6.5%-9.3%) of initial weight For telephone-based group: 6.2 kg (95% CI, 4.9-7.6 kg) or 6.8% (95% CI, 5.2%-8.4%) For usual care control: 2.0 kg (95% CI, 0.6-3.3 kg) or 2.1% (95% CI, 0.7%-3.5%) (P<0,001 for intervention effect) At 12 months: mean weight loss: For center-based group: 10.1 kg (95% CI, 9.0-11.2 kg) or 10.9% (95% CI, 9.7%-12.1%) of initial weight For telephone-based group: 8.5 kg (95% CI, 7.2-9.7 kg) or 9.2% (95% CI,	1+	Randomized, not blinded Allocation concealment was reported ITT CI Flow chart Power analysis (83% power to detect an intervention effect)

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	of the 3 study groups over a 2-year period; no eating disorders, food allergies, or intolerances; and willing and able to perform a simple step test for assessing cardiopulmonary fitness. Women at BMI levels of greater than 40 were excluded.	facilitated by the inclusion of prepackaged food items in a planned menu during the initial weight loss phase (low-fat (20%-30% of energy), reduced energy diet (typically 1200-2000 kcal/d)), and increased physical activity (the goal was 30 minutes of physical activity on 5 or more days per week).	to 1000 kcal/d. All participants were provided a small monetary compensation		7.8%-10.6%) of initial weight For usual care control: 2.4 kg (95% CI, 1.2-3.6 kg) or 2.6% (95% CI, 1.4%-3.8%) of initial weight		
Silva MN, et al. (2011) [121] RCT	258 females, aged 25-50y, premenopausal, BMI 25-40, willing to attend weekly meetings, free from major illnesses, not taking medications known to interdere with body weight regulation.	Intervention: Diet with moderate energy deficit + exercise & eating patterns Duration: 1y intervention, 2y FU	Control: General health education curriculum	weight change others (Autonomous regulation, physical activity)	Moderate & vigorous exercise at 2 yr had significant effect (P<0,001) on weight loss success at 3 yr and partly mediated the effect of treatment on weight change.	1-	Lon study horizon, very long FU Large study population, but only obese, premenopausal women CI n.a. Flow chart n.a. AEs n.a. ITT

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	Exclusion: medication affecting weight, serious chronic disease diagnosis or severe illness/injury, pregnancy, entering menopause						
Jebb SA, et al. (2011) [122] RCT	772 overweight and obese adults with at least one additional risk factor for obesity-related Were recruited by primary care practices in Australia, Germany and the UK Weight Watchers: 377 were recruited, 230 completed the 12 months assestment Standard care: 395 were recruited, 212 completed the	Standard care as defined by national treatment guidelines: weight loss advice from a primary care professional at their local general practitioner (GP) practice. Follow up: 12 months	Free membership to commercial programme (promoted hypoenergetic, balanced diet based on healthy-eating principles, increased =Weight Watchers (free access to weekly community-based Weight Watchers meetings for a weigh-in and group discussion, behavioural counselling, and motivation for 12 months) self-selected	Primary outcome: weight change over 12 months Secondary outcomes: changes in fat mass, waist circumference, blood pressure, and biomarkers of cardiovascular risk	Mean weight loss: LOCF=last observation carried forward analysis: Standard care: - 2.25 kg Weight Watchers: -5.06 kg; Adjusted difference (95% CI) : −2·77 (−3·50 to −2·03), p<0.0001 BOCF=baseline observation carried forward analysis : Standard care: - 1.77 kg Weight Watchers: -4.06 kg; Adjusted difference (95% CI): −2·29 (−2·99 to −1·58) ; p<0.0001 Greater waist circumference and fat mass loss in commercial care SA Analysis: Participants assigned to the commercial programme : 5% or more weight loss (OR 3·0, 95% CI 2·0–4·4)/10% or more weight loss (3·2, 2·0–	1+	ITT Computer generated randomisation Non-blinded Power analysis

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	study		Weight loss goals with input from the group leader		5·3) ; participants who completed the 12-month assessment: 5% or more weught loss (2·9, 2·1–3·9)/10% or more weight loss (3·5, 2·3–5·4) Sec. Outcomes : sy/diast. blood presure : n.s. difference ; greater improvements in insulin and ratio of total to HDL cholesterol in commercial programm group ; n.s. difference glucose, and HDL and LDL cholesterol inprovement		
Appel LJ, et al. (2011) [123] RCT	415 obese patients with at least one cardiovascular risk factor (hypertension, hypercholesterolemia, or diabetes), with regular access to a computer, and have basic computer skills, recruited from six primary care practices; sex: 63.6% women, 41.0% black participants mean age: 54.0 years	1) “Remote support only” group: providing with weight-loss support remotely — through the telephone, a study-specific Web site, and e-mail 2)” in-pearson support” group: in addition providing in-person support during group (90 minutes) and individual sessions in person or by telephone (20 minutes), along with the three	Control group: self-directed weight loss	primary outcome: change in weight from baseline to 24 months Other weight-related outcomes: percentage of weight change from baseline, percentage of participants without weight gain, percentage of participants who lost at least 5% of their initial weight, and change from baseline in BMI	mean change in weight from baseline: control group: -0.8 (±0.6) kg (=weight change of −1.1%) group receiving remote support only : -4.6 (±0.7) kg (=weight change of −5.0%) (MD −3.8 kg, 95% CI −5.7 to −1.9; p<0.001 in comparison to control group); n.s. difference in comparison other intervention group (MD −0.5 kg, 95% CI, −2.5 to 1.5; P = 0.63) group receiving in-person support: -5.1 (±0.8) kg (=weight change of −5.2%) (MD – 4.3 kg, 95% CI, −6.3 to −2.3; p<0.001 in comparison to control group) percentage of participants who lost 5% or more of their initial weight: control group: 18.8 % group receiving remote support only : 38.2 % (p<0.001 in comparison to	1+	Randomisation with a web-based program; the research staff who notified participants of their assignment were not involved in the collection of follow-up data ITT no significant differences in baseline characteristics among the three study groups single-center trial long duration blinding n.a.

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	mean BMI: 36.6 kg/m2 mean weight: 103.8 kg	remote means of support Participants in both intervention groups were encouraged to log on to the study-specific Web site (learning modules; opportunities for self-monitoring of weight, calorie intake, and exercise; and feedback on progress in these key behaviors) weekly. Duration: 24 months			control group) group receiving in-person support: 41.4 % (p<0.001 in comparison to control group) percentage of participants who lost 10% or more of their initial weight: control group: 8.6 % group receiving remote support only : 18.3 % (p<0.02 in comparison to control group) group receiving in-person support: 19.5 % (p<0.01 in comparison to control group)		
Ryan DH, et al. (2010) [124] RCT	Setting: 8 cities in Louisiana (family or internal medicine; 4 dietitians) Participants: 465	intensive medical intervention (IMI) (recommendations: appr. 900-kcal liquid diet for 12 weeks or less	usual care condition (UCC) (instruction in an Internet weight management	Primary outcome: year-2 percentage change from baseline weight	After 2 years: 5% or more weight loss : 31% in the IMI group vs. 9% in the UCC group. 20% or more weight loss:	1+	Randomization and data acquisition using an Internet-based data capture system ITT Blinding n.a.

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(Louisiana Obese Subjects Study (LOSS))	participants were randomised (post screening): 200 to IMI and 190 to UCC mean age: 47 years; 83% were women (nonpregnant) 75% were white Most comorbidities were excluded 21%with known type 2DM, 5.4% who were taking insulin, and 42% with fasting blood glucose levels of 100 mg/dL or higher at study start	(=Phase 1), group behavioral counselling (individually tailored treatment strategies, included physical activity recommendation-walking, water exercise, and weight training), structured diet (appr. 1200 to 1600 kcal/d), and choice of pharmacotherapy (sibutramine hydrochloride, orlistat, or diethylpropion hydrochloride) during months 3 to 7 (=Phase 2) and continued use of medications and maintenance strategies for months 8 to 24 (=Phase 3) Duration: 24	program: Mayo Clinic Weight Management Web site)		7 % in the IMI group vs. 1 % in the UCC group In the mean±SEM baseline observation carried forward analysis (BOCF): weight loss of −4.9%±0.8% in IMI and −0.2±0.3% in UCC group In the last observation carried forward analysis (LOCF): weight loss of −8.3%±0.79% for IMI and −0.0%±0.4% for UCC. A total of 101 IMI completers lost −9.7%±1.3% (−12.7±1.7kg); 89 UCC completers lost −0.4%±0.7% (−0.5±0.9 kg) The group differences were significant for BOCF, LOCF, completers, and mixed models analyses (P<0.001 for all group differences).		

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		months					
Jolly K, et al. (2011) [125] RCT (Lighten Up, 8 arm)	Setting: Primary care trust in Birmingham, England Participants: 740 obese or overweight men and women with a comorbid disorder identified from general practice records	6 Weight loss programmes of 12 weeks' duration: Three weight loss programmes were provided by commercial operators:Weight Watchers; Slimming World; Rosemary Conley; Three were provided by the NHS: a group weight loss programme (Size Down) and two primary care programmes—nurse led one to one support in general practice and one to one support by a pharmacist 7. study arm allowed for participants to choose one of the six interventions	12 vouchers enabling free entrance to a local leisure (fitness) centre (=exersice only).	The primary outcome was weight loss at programme end (12 weeks). Secondary outcomes were weight loss at one year, self reported physical activity, and percentage weight loss at programme end and one year.	Weight loss at programme end: all programmes achieved significant weight loss from baseline to programme end (range 1.4 kg (general practice) to 4.4 kg (Weight Watchers)) In the between group analyses, only the commercial providers (Weight Watchers (adjusted MD −2.34 (−3.56 to −1.13) and Rosemary Conley (adjusted MD −2.39 (−3.61 to −1.16) had a statistically significantly (p<0.001) greater weight loss and percentage weight loss than the exercise only comparator the proportion of participants in each arm who achieved at least 5% weight loss at programme end ranged from 16% to 46% (between general practice and Weight Watchers) Weight loss at one year: all programmes except general practice and pharmacy provision resulted in significant weight loss at one year only the Weight Watchers group had significantly greater weight loss than did the comparator group (adjusted MD 2.5 (95% CI 0.83 to 4.15) kg greater loss, p=0.024). the commercial programmes achieved	1+	Age differences between interventions and control groups Blinding n.a. ITT

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					significantly greater weight loss than did the primary care programmes at programme end (mean difference 2.3 (1.3 to 3.4) kg).		
Foster GD, et al. (2010) [126] RCT	Setting: 3 academic medical centers in USA Participants: 307 participants mean age 45.5 years (SD, 9.7 years) mean BMI 36.1 kg/m2 (SD, 3.5 kg/m2) 74.9% white participants Exclusion: patients with dyslipidemia, diabetes, hapertension and pregnant women were excluded no statistically sign.differences between the 2 diet groups in any baseline variables	low-carbohydrate diet (n = 153), (limited carbohydrate intake (20 g/d for 3 months), low–glycemic index vegetables with unrestricted consumption of fat and protein. after 3 months: increased carbohydrate intake (5 g/d per wk) by consuming more vegetables, a limited amount of fruits, and eventually small quantities of whole grains and dairy products (followed Dr. Atkins' New Diet Revolution) in addition: comprehensive, in-	low-fat diet (n = 154), (limited energy intake: 1200 to 1800 kcal/d; with approximately 55% of calories from carbohydrate, 30% from fat, and 15% from protein) in addition: comprehensive, in-person group behavioral therapie (weekly for 20 weeks, 75 to 90 minutes: selfmonitoring, stimulus control, and relapse management)	primary outcome: weight at 2 years Secondary outcomes: weight at 3, 6, and 12 months, serum lipid concentrations, blood pressure, urinary ketones, symptoms, bone mineral density, and body composition throughout the study	Weight loss: In both groups (n. s. differneces between the groups, p>0,05): at 1 year: appr. 11 kg (11%): low fat diet : MD −10.81 (−12.4 to −9.28)/ low carbohydrate diet: −10.87 (−12.1 to −9.67), p-value between the groups 0.95 at 2 years: appr. 7 kg (7%); %): low fat diet : MD−7.37 (−9.10 to −5.63) / low carbohydrate diet: −6.34 (−8.06 to −4.63), p-value between the groups 0.41 p-value between the groups 0.019 at 3 months, but no differences between the groups at any other time point other outcomes: no differences between the groups at any time point: in bone mineral density During the first 6 months: low-carbohydrate diet group had greater reductions in diastolic blood pressure, triglyceride levels, and very-low-density lipoprotein cholesterol levels, But: lesser reductions in low-density lipoprotein cholesterol levels, and more	1+	Randomisation: random-number generator was used ITT not reported Blinding n.a. Long duration

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		person group behavioral therapie (weekly for 20 weeks, 75 to 90 minutes: selfmonitoring, stimulus control, and relapse management) Duration: 2 years			adverse symptoms than did the low-fat diet group. The low-carbohydrate diet group had greater increases in high-density lipoprotein cholesterol levels at all time points, approximating a 23% increase at 2 years.		
Molenaar EA, et al. (2010) [127] RCT	130 overweight adults 58% of the participants in the intervention groups were men with a mean age of 43 ± 9 years and a mean BMI of 31.0 ± 1.9 kg/m2 In the control group, 63% were men with a mean age of 41 ± 11 years and a mean BMI of 30.2 ± 1.9 kg/m2 The intervention and control group were well matched with regard to the	individual counselling sessions by a dietician (D) counselling sessions by a dietician plus physiotherapist (D + E) seven individual face-to-face counselling sessions Duration: 6 months with one follow-up session at 12 months.	Participants in the control group received usual care and were not invited to receive structured nutritional or exercise counselling by a dietician or physiotherapist.	Primary outcome: weight related outcomes (BMI, waist circumference) seven individual face-to-face counselling sessions	Weight reduction at 6 months: in D group [mean –2.2; 95% CI (–3.1 to –1.4) kg] in D + E group [mean –3.0; 95% CI (–4.0 to –2.0) kg] Weight reduction at 12 months: In D group [mean –2.0; 95% CI (–3.1 to –1.4) kg in D + E group: mean –3.1; 95% CI (–4.5 to –1.6) kg, weight reduction did not significantly differ between D and D +E (P = 0.48). Waist circumference at 6 months: in D group: [mean –2.1; 95% CI (–3.3 to –0.8) cm; in D + E group: mean –3.7; 95% CI (–5.1 to –2.3)	1+	Clearly focussed question, Allocation concealment? modified intention-to-treat approach, which included all participants that had at least one follow-up measurement blinding n.a. Participant recruitment took place between February 2006 and October 2006 UHP research nurses randomly assigned the 134 participants to the nutritional counseling or nutritional plus

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	baseline characteristics, except that participants in the intervention groups had a higher BMI.				Waist circumference at 12 months in D group: mean–2.1; 95% CI(–3.5 to –0.7) cm in D + E group: mean –4.2; 95% CI (–6.0 to –2.5) cm non significant difference between the groups (P = 0.14) 28 percent (95% CI; 16 to 40) of the participants in the D + E group lost >5% of their baseline weight at 6 months, while the proportion of participants in the D group was 16% (6 to 25%) (RR of losing >5% weight in D+ E versus D was 1.8 (95% CI; 0.9 to 3.8) At 12 months, the proportion of participants who achieved >5% of weight loss in the D + E and D groups were 32% (19 to 45%) and 20% (9 to 31%), (RR of 1.6 (0.8 to 3.2) D and D + E group vs. control group: significant more weight reduction at 6 months [–2.7 (–4.2 to –1.1) kg for D and –3.5 (–5.1 to –1.8) kg for D+E, Differences in weight loss from baseline to 12 months were smaller [–1.3 (–4.0 to 1.4) kg for D; –2.4 (–5.2 to 0.5) kg for D + E].		exercise counselling group, using computerized randomization
Wadden TA, et al. (2011) [128]	390 obese adults Setting: six primary care practices	usual care (quarterly PCP visits that included education about	brief lifestyle counseling, which provided the same care as	primary outcome: change in body weight at month 24 in each of the lifestyle counseling	86% of participants completed trial Mean (±SE) weight loss was: with usual care 1.7±0.7	1+	Focused question Randomised (use of a computer-generated

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RCT	(=PCP) 311 women (79.7%) and 79 men with a mean (±SD) age of 51.5±11.5 years, a mean body weight of 107.7±18.3 kg, and a mean BMI of 38.5±4.7 Nearly 95% had completed high school or above; 59.0% identified themselves as white, 38.5% as black, and 4.6% as Hispanic. Participants who received enhanced lifestyle counseling weighed significantly less than those who received usual care (P = 0.02)	weight management) brief lifestyle counseling (quarterly PCP visits combined with brief monthly sessions with lifestyle coaches who instructed participants about behavioral weight control) 2-year trial	described for the previous intervention but included meal replacements or weight-loss medication (orlistat or sibutramine), chosen by the participants in consultation with the PCPs, to potentially increase weight loss.	groups as compared with the usual-care group.	brief lifestyle counseling 2.9±0.7 enhanced brief lifestyle counseling 4.6±0.7 kg Initial weight decreased at least 5%: with usual care in 21.5%, brief lifestyle counseling 26.0% enhanced brief lifestyle counseling 34.9% Enhanced lifestyle counseling was superior to usual care on both these measures of success (P = 0.003 and P = 0.02, respectively), with no other significant differences among the groups. Adverse events: A total of 73 hospitalizations for serious adverse events were reported trial (21 events in 16 participants in the usual-care group, 26 events in 20 participants in the brief-lifestyle-counseling group, and 26 events in 22 participants in the enhanced-lifestyle-counseling group, with no significant differences between groups (P= 0.556). There were no deaths.		algorithm; Assignments were stratified by clinic, with randomly varied block sizes (3, 6, or 9). Randomization began on January 9, 2008, and final outcome assessments were completed on February 11, 2011. ITT Non blinded
Werrij MQ, et al. (2009) [129]	participants (N=204) were recruited at the dietetics department of the	dietetic treatment+cognitive therapy (Participants were provided with	Dietetic treatment+physical exercise (1-h low intensity exercise program	BMI and others	significant decreases in BMI and other outcomes: in the short-term: CDT group lost 1.36 BMI points (4.1%)	1-	Wide question, randomisation precedere n.a. ITT

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RCT	local health center (Green Cross Care) in Maastricht Inclusion criteria were BMI above 27 and age between 18 and 65 years. Exclusion criteria were participating in another treatment for weight loss, being treated by a mental health professional, not being able to exercise, and pregnancy In analysis: 200 participants (4 were excluded) 81% were female. Mean age was 45 (S.D.=12) years, ranging from 19 to 65 years, and mean BMI was 33.4 (S.D.=4.6). BMI ranged from 27.0 to 52.3. There were no	workbooks entitled Dik Tevreden (Pleasantly Plump) containing background information about the cognitive intervention and homework assignments, including thought diaries) (10 weekly sessions of 2 h each) Follow-up measurements took place at the university, 1 year after the end of treatment	(gym) supervised by a qualified Physiotherapist) (10 weekly sessions of 2 h each)		EDT group lost 1.44 BMI points (4.3%) weight loss in both treatments was significant, no short-term differences between both treatments In the long term, the cognitive dietetic treatment was significantly better than the exercise dietetic treatment; participants in the cognitive dietetic treatment maintained all their weight loss, whereas participants in the physical exercise dietetic treatment regained part (25%) of their lost weight within 1 year: CDT group lost 1.35 BMI points (4.0%) The EDT group lost 1.08 BMI points (3.2%)		Blinding n.a. p-value, CI n.a.

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	differences in gender and age between both conditions There were differences, for weight concerns shape concerns, eating psychopathology, and self-esteem						
Harvie MN, et al. (2011) [130] RCT	107 overweight or obese premenopausal women mean BMI 30.6 kg/m2 [±SD ±5.1] mainly Caucasian comorbidities: Six IER (11%) and 10 CER (18%) met the Diabetes Federation Criteria for the metabolic syndrome; majority of subjects reported previous attempts to diet (IER 92%, CER 78%), with comparable	25% energy restriction as IER=intermittent energy restriction (~2266 kJ/day for 2 days/week): VLCD (75% restriction; 2060 to 2266 kJ of energy and 50 g protein/day and comprised 1.136 litres (2 pints) of semi skimmed milk, 4 portions of vegetables (~80 g/portion), 1 portion of fruit, a salty low calorie drink and a	25% energy restriction as CER (~6276 kJ/day for 7 days/week): daily 25% restriction based on a Mediterranean type diet (30% fat, 15% monounsaturated, 7% saturated fat, 7% polyunsaturated fatty acids, 45% low glycaemic load carbohydrate, and 25% protein)	Weight and other outcomes	IER and CER for weight loss at 6 month (LOCF=last observation carried forward analysis) mean weight change (95% confidence interval [CI]): for IER: −6.4 kg (95% CI −7.9 to −4.8): weight reduced from mean (95% CI) 81.5 (77.5 to 85.4) kg to 75 (71.2 to 78.8) kg; percentage of women losing 5–10% body weight were 30 % and losing 10% or more body weight were 34 % for CER:−5.6 (95% CI −6.9 to −4.4) kg: reduction from 84.4 (79.7 to 89.1) kg to 78.7 (74.2 to 83.2) kg; percentage of women losing 5–10% body weight were 33 % and and losing 10% or more body weight were 22 % P-value for weight loss difference	1-	Clearly focused question, Randomisation precedere n.a. ITT Allocation concealment n.a. Drop out: 18 women Groups were similar an baseline Primary outcome non defined

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	previous attempts between the groups; IER 2.8 (2.1) and CER 2.4 (1.9) (P=0.29)	multivitamin and mineral supplement) on 2 consecutive days and to consume estimated requirements for weight maintenance for the remaining 5 days Duration 6 months			between groups = 0.4; p-value for percentage of losing weight P=0.39 adverse events: no major adverse effects; 4, 8% of the IER group reported minor adverse physical symptoms, 15% - hunger Eight (15%) of the IER and 4 (7%) of the CER group - lack of concentration, bad temper and preoccupation with food, whilst 17 (32%) of the IER and 25 (46%) of the CER group -increased self confidence and positive mood. More of the IER group reported problems fitting the diet into daily routine; 51% IER vs. 30% CER.		

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Erstellungsdatum: 11/1998

Überarbeitung von: 04/2014

Nächste Überprüfung geplant: 04/2019

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