(Kinesio)Tape

Inhalt: 1 Literaturstellen

OXFORD (2011) Appraisal Sheet: Systematic Reviews

Steuri, R. et al. Effectiveness of conservative interventions including exercise, manual therapy and medical management in adults with shoulder impingement: a systematic review and meta-analysis of RCTs. Br J Sports Med. 51. 1340-1347. 2017			
Evidence level/Study Types	**P - I - C**	**Outcomes/Results**	**Literature References**
Evidence level: 2 Study type: Systematisches Review und Meta-Analyse Databases: Medline, CENTRAL, CINAHL, Embase und PEDro Search period: bis Januar 2017 Inclusion Criteria: Beschwerden über Schulterschmerzen (Basierend auf Michener et al.): - Painful arc zwischen 40° und 120° in Abduktion, Beugung - Schmerz bei aktiver Armhebung - Test von Neer, Hawkins-Kennedy, Speed oder Jobe - Empty can test - Resistenter schmerzhafte oder schwache Schulterabduktion - Resistente oder schwache Schulter-Außenrotation - Diagnose basierend auf Kriterien nach Cyriax (d.h. schmerzhafter Bogen oder	Population: - Erwachsene(18 Jahre und älter) mit diagnostiziertem Schulter Impingement Intervention: - konservative Interventionen (Kinesiotape, Laser u. a.) Comparison: - jede Art von Interventionen (einschließlich Plazebo, andere Behandlungen oder Operationen)	Primary: Die in dieser systematischen Übersicht betrachteten primären Endpunkte waren Schmerzen - Schmerz bei Aktivität - Schmerzen in der Nacht - Globaler Schmerz - Schmerz in Ruhe - Schmerz-Unterskalen von zusammengesetzten Skalen - Schmerz nicht spezifiziert und Schulterfunktion - Mittelwert mehrerer Funktionswerte, wenn Mittelwert und SD in der Studie berechnet wurden - Disability subscale von SPADI (falls verfügbar; sonst Gesamtpunktzahl) - Constant-Murley-Gesamtpunktzahl - Disabilities of the arm, shoulder and hand (DASH) - Oxford Shoulder Scale - University of California Los	1. Abrisham SM, Kermani-Alghoraishi M, Ghahramani R, Jabbari L, Jomeh H, Zare M. Additive effects of low-level laser therapy with exercise on subacromial syndrome: a randomised, double-blind, controlled trial. Clinical rheumatology 2011;30(10):1341-6 doi: 10.1007/s10067-011-1757-7. 2. Adebajo AO, Nash P, Hazleman BL. A prospective double blind dummy placebo controlled study comparing triamcinolone hexacetonide injection with oral diclofenac 50 mg TDS in patients with rotator cuff tendinitis. The Journal of rheumatology 1990;17(9):1207-10. 3. Akgun K, Birtane M, Akarirmak U. Is local subacromial corticosteroid injection beneficial in subacromial impingement syndrome? Clinical rheumatology 2004;23(6):496-500 doi: 10.1007/s10067-004-0930-7. 4. Akkaya N, Akkaya S, Gungor HR, Yasar G, Atalay NS, Sahin F. Effects of weighted and un-weighted pendulum exercises on ultrasonographic Acromiohumeral distance in patients with subacromial impingement syndrome. Journal of back and musculoskeletal rehabilitation 2016 doi:10.3233/bmr-160737. 5. Aksakal M, Ermutlu C, Ozkaya G, Ozkan Y. Lornoxicam injection is inferior to betamethasone in the treatment of subacromial impingement syndrome : A prospective randomized study of functional outcomes. Der Orthopade 2016 doi: 10.1007/s00132-016-3302-5. 6. Aktas I, Akgun K, Cakmak B. Therapeutic effect of pulsed

schmerzhafter Abduktionstest) - Impingement-Test mit Lidocain - Empfindlichkeit bei Palpation der Sehnen der Rotatorenmanschette Outcomes: - Schmerz, Funktion, aktives Range of Motion Studiendesign - Randomisierte kontrollierte Studien Kontrollierter Follow-up-Zeitraum - Basierend auf vordefinierten Kriterien Exclusion Criteria: - Fallberichte, Behandlungen nach der Operation, erfüllten nicht die spezifizierten Ergebnisparameter, traumatische Vorfälle, geschrieben in Chinesisch und Farsi(es wurde auch ein Artikel auf türkisch ausgeschlossen?)		Angeles Shoulder Rating Scale (UCLA) - Shoulder Disability Questionnaire (SDQ) - American Shoulder and Elbow Surgeons standardised shoulder assessment form (ASES) - Shoulder Function Assessment (SFA) - Funktionsweise der Kurzform und andere Algofunktionale Skala - Globale Beurteilungen von Patienten - Globale Beurteilungen von Ärzten Secondary: Das sekundäre Ergebnis war die aktive Bewegungsreichweite - Aktive Abduktion - Aktive Flexion - Aktive Außenrotation Results: Die Ergebnisse wurden aus dem am längsten verfügbaren Follow-up (für die Hauptanalyse) und dem ersten danach verfügbaren Zeitpunkt extrahiert. Die zusätzliche Tape- und Lasertherapie-Behandlung zur Physiotherapie könnte einen kleinen Nutzen bringen. Kinesiotape: Schmerz: Tape ist dem Plazebo überlegen (5 Studien). Funktion: Das Tape ist dem Plazebo-Tape überlegen, aber nur im kürzesten Follow-up (3 Studien).	electromagnetic field in conservative treatment of subacromial impingement syndrome. Clinical rheumatology 2007;26(8):1234-9 doi: 10.1007/s10067-006-0464-2. 7. Akyol Y, Ulus Y, Durmus D, et al. Effectiveness of microwave diathermy on pain, functional capacity, muscle strength, quality of life, and depression in patients with subacromial impingement syndrome: a randomized placebo-controlled clinical study. Rheumatology international 2012;32(10):3007-16 doi: 10.1007/s00296-011-2097-2. 8. Al Dajah SB. Soft Tissue Mobilization and PNF Improve Range of Motion and Minimize Pain Level in Shoulder Impingement. Journal of physical therapy science 2014;26(11):1803-5 doi: 10.1589/jpts.26.1803. 9. Alvarez CM, Litchfield R, Jackowski D, Griffin S, Kirkley A. A prospective, double-blind, randomized clinical trial comparing subacromial injection of betamethasone and xylocaine to xylocaine alone in chronic rotator cuff tendinosis. The American journal of sports medicine 2005;33(2):255-62. 10. Álvarez-Nemegyei J, Bassol-Perea A, Pasos JR. Efficacy of the local injection of methylprednisolone acetate in the subacromial impingement syndrome. A randomized, double-blind trial. Reumatología Clínica (English Edition) 2008;4(2):49-54. 11. Ammer K, Mayr H. Magnetfeldtherapie bei tendopathischer periarthropathia humeroscapularis (Magnetic field therapy in case of tendopathic periarthropathia humeroscapularis -- report of a double-blind study) [German]. Orthopadische Praxis 1991;27:696-699 1991. 12. Pinar Doruk Analan, Berrin Leblebici, Mehmet Adam. Effects of therapeutic ultrasound and exercise on pain, function, and isokinetic shoulder rotator strength of patients with rotator cuff disease. Journal of physical therapy science 2015;27(10):3113-17 5p. 13. Arias-Buria JL ST-D, Raquel Valero-Alcaide, Jaime Salom-Moreno, Maria A. Atim-Arratibel, Cesar Fernandez-de-las-Penas. Ultrasound-Guided Percutaneous Electrolysis and Eccentric Exercises for Subacromial Pain Syndrome: A Randomized Clinical Trial. Evidence-based Complementary & Alternative Medicine (eCAM) 2015:1-9 9p doi: 10.1155/2015/315219. 14. Arias-Buría JL, Fernández-de-las-Peñas C, Palacios-Ceña

		Laser: Laser ist dem Plazebo-Laser überlegen (3 Studien). Laser plus Übung ist dem Plazebo-Laser plus Übung überlegen (3 Studien). (6 Studien). Author's Conclusion: Obwohl die Evidenz nur von sehr geringer Qualität ist, kann bei Patienten mit Schulter-Impingementsymptomen Bewegung Tape und Lasertherapie hinzugefügt werden.	M, Koppenhaver SL, Salom-Moreno J. Exercises and Dry Needling for Subacromial Pain Syndrome: A Randomized Parallel-Group Trial. Journal of Pain 2017;18(1):11-18 doi: 10.1016/j.jpain.2016.08.013. 15. Atkinson M, Mathews R, Brantingham JW, et al. A randomized controlled trial to assess the efficacy of shoulder manipulation versus placebo in the treatment of shoulder pain due to rotator cuff tendinopathy. Journal of the American Chiropractic Association 2008 Dec;45(9):11-26 2008. 16. Atya AM. Efficacy of microcurrent electrical stimulation on pain, proprioception accuracy and functional disability in subacromial impingement: RCT. Indian Journal of Physiotherapy and Occupational Therapy 2012 Jan-Mar;6(1):15-18 2012.17. Aytar A, Baltaci G, Uhl TL, Tuzun H, Oztop P, Karatas M. The effects of scapular mobilization in patients with subacromial impingement syndrome: a randomized, double-blind, placebo-controlled clinical trial. J Sport Rehabil 2015;24(2):116-29 doi: 10.1123/jsr.2013-0120. 18. Bae YH, Lee GC, Shin WS, Kim TH, Lee SM. Effect of motor control and strengthening exercises on pain, function, strength and the range of motion of patients with shoulder impingement syndrome. Journal of Physical Therapy Science 2011 Aug;23(4):687-692 2011. 19. Bal A, Eksioglu E, Gurcay E, Gulec B, Karaahmet O, Cakci A. Low-level laser therapy in subacromial impingement syndrome. Photomedicine and laser surgery 2009;27(1):31-6 doi: 10.1089/pho.2007.2222. 20. Bang MD, Deyle GD. Comparison of supervised exercise with and without manual physical therapy for patients with shoulder impingement syndrome. The Journal of orthopaedic and sports physical therapy 2000;30(3):126-37 doi: 10.2519/jospt.2000.30.3.126. 21. Bansal K, Padamkumar S. A comparative study between the efficacy of therapeutic ultrasound and soft tissue massage (deep friction massage) in supraspinatus tendinitis. Indian Journal of Physiotherapy and Occupational Therapy 2011 Apr-Jun;5(2):80-84 2011. 22. Barbosa RI, Goes R, Mazzer N, Fonseca MCR. A influencia da mobilizacao articular nas tendinopatias dos mÃosculos biceps braquial e supra-espinal (The influence of joint mobilization on tendinopathy of the biceps brachii and supraspinatus muscles) [Portuguese]. Revista Brasileira de Fisioterapia

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Methodical Notes			
Funding Sources: Nicht genannt **COI: Keine erklärt**			

Study Quality: Die Studienqualität der inkludierten Studien wurde mit Hilfe des Cochrane Collaboration's Tool bewertet. Für alle Vergleiche und Ergebnisse wurde die Qualität der Evidenz als sehr gering eingestuft. Der wahre Effekt wird wahrscheinlich im Wesentlichen von der Schätzung des Effekts abweichen.

Verblindung (wie sie bei therapeutischen Studien selten möglich ist), die methodische Qualität, eine große klinische Diversität (wie zum Beispiel Dauer der Symptome, diagnostische Kriterien, Geschlechterverhältnis), variable Länge der Follow-up, die große klinische und statistische Heterogenität sowie die geringe Teilnehmerzahl für die meisten Vergleiche waren hierbei die Hauptprobleme.

Heterogeneity: Es liegt eine große Heterogenität und somit schlechte Verallgemeinerbarkeit zwischen den Ergebnissen der einzelnen Studien vor.

Tape:
Schmerz: Tape war Plazebo-Tape überlegen (5 Studien). $Chi^2 = 14,79$, $I^2 = 73$ %
Funktion: Tape war Plazebo-Tape überlegen, aber nur im 3-monatigen Follow-up (3 Studien). $Chi^2 = 3,54$, $I^2 = 43$ %

Laser: Laser war Plazebo-Laser überlegen (3 Studien). $Chi^2 = 4,72$, $I^2 = 58$ %
Laser plus Übungen war Plazebo-Laser plus Übungen überlegen(6 Studien). $Chi^2 = 10,59$, $I^2 = 53$ %

Publication Bias: Die Vergleiche beinhalteten weniger als 10 Studien, so dass Funnel Plots nicht untersucht wurden. Der Zugriffsfehler wird aufgrund mehrerer verwendeter, einschlägiger Datenbanken als gering eingeschätzt. Jedoch wurde nicht berichtet, ob kostenbedingt Studien nicht abrufbar waren. Es wurden ausschließlich englisch-sprachige Studien inkludiert.

Notes:
Abwertung aufgrund 1.5 (eingeschlossene Studien sind heterogen)

Elektrotherapie

Inhalt: 5 Literaturstellen

OXFORD (2011) Appraisal Sheet: Systematic Reviews

Dong, W. et al. Treatments for shoulder impingement syndrome: a PRISMA systematic review and network meta-analysis. Medicine (Baltimore). 94. e510. 2015

Evidence level/Study Types	P - I - C	Outcomes/Results	Literature References
Evidence level: 2 Study type: Systematic Review mit Metaanalyse	Population: Patienten mit Schulterimpingement Syndrom	Primary: Pain Score Constant-Murley Score (CMS) Secondary:	1. Van der Heijden GJM. Shoulder disorders: a state-of-the-art review.

Databases: Medline, EMBASE, the Cochran Central Register of Controlled Trials (CENTRAL) Search period: bis 15. April 2014 Inclusion Criteria: - RCTs - Teilnehmer älter als 18 Jahre - diagnsotiziertes Schulterimpingement Syndrom (nicht verursacht durch Trauma oder systematische Erkrankung) - Bewertung von mindestens zwei Interventionen zur Behandlung des Schulterimpingement Syndroms, einschließlich Placebo- oder Scheinbehandlung - dokumentierte Ergebnisse zu Wirkung auf Schmerzlinderung und funktioneller Wiederherstellung - Follow-up nach mindestens 2 Wochen Exclusion Criteria: keine Exklusions-Kriterien formuliert	Intervention: Intervention zur Behandlung von Schulterimpingement Syndrom Comparison: Vergleichsbehandlung (inkl. Placebo und Scheinbehandlung)	Results: - die Literaturrecherche brachte 915 Studien hervor, nach Durchsicht und Bewertung wurden hiervon 52 Artikel in die qualitative Auswertung und 33 Artikel in die quantitative Auswertung einbezogen - 28 Studien bezogen sich auf nicht-operative Therapiemaßnahmen (26 enthielten Angaben zum Pain Score/12 zum CMS) - 5 Studien bezogen sich auf operative Behandlungen (5 enthielten Angaben zum Pain score/3 zum CMS) - Insgesamt wurden die Ergebnisse von 2300 Patienten in die Übersichtsarbeit einbezogen, davon wurden 2065 nicht-operativ behandelt und 235 unterzogen sich einem operativen Eingriff. Nicht-operative Therapie - die Ergebnisse deuten auf die Wirksamkeit der Bewegungstherapie - Kombinationen aus Bewegungstherapie mit anderen Interventionen (spezifische Übungen, Kinesio-Taping, Low-Level-Lasertherapie, radiale extrakorporale Stosswellentherapie und manuelle Therapie, sowie einige weniger häufig angewandte Therapien wie Akupunktur, diakutane Fibrolyse, Therapie mit gepulsten elektromagnetischen Feldern und Mikrowellen-Diathermie-Ultraschalltherapie) zeigen einen Trend zur höheren Effektivität als Bewegungstherapie allein - Medikamenteninjektionen zeigen nur in Kombination mit Bewegungstherapie positivere Effekte - In Bezug auf die Auswirkung auf den CMS wurden ähnliche Effekte beobachtet wie beim Pain Score, auch wenn hier nur wenige Studien einbezogen werden konnten - Bei Kinesio-Taping, spezifischen Übungen und Akupunkturtherapien wurde die Überlegenheit der kombinierten Behandlungsoptionen durch signifikante Unterschiede unterstützt. - bei gepulsten elektromagnetischen Feldern, diakutaner Fibrolyse und Ultraschall-Therapien lediglich eine Tendenz zu einem Nutzen erkennbar - die Low-Level-Lasertherapie zeigt in Kombination mit Bewegungstherapie eine relativ schlechtere Wirkung als isolierte Bewegungstherapie - Bei den Behandlungsoptionen, die die lokalisierte Injektion von NSAR und Bewegungstherapie kombinierten, unterschieden sich die Ergebnisse der CMS deutlich von den Ergebnissen des Schmerz-Scores; insbesondere wiesen diese Behandlungsoptionen im Vergleich zur alleinigen Bewegungstherapie eine signifikante Unterlegenheit auf Operative Therapien - gebräuchstliche Methoden: arthroskopische und offene Techniken - kein signifikanter Unterschied im Behandlungseffekt für modifizierte Methoden (z.B. mit Radiofrequenz etc.), weder im Hinblick auf den Schmerz-Score noch auf das CMS - arthroskopische Technik tendiert zu einer besseren Wirksamkeit als die offene Operationstechnik	Baillieres Best Pract Res Clin Rheumatol. 1999;13:287–309. 2. Michener LA, McClure PW, Karduna AR. Anatomical and biomechanical mechanisms of subacromial impingement syndrome. Clin Biomech (Bristol, Avon). 2003;18:369–379. 3. Koester MC, George MS, Kuhn JE. Shoulder impingement syndrome. Am J Med. 2005;118:452–455. 4. Neer CSII. Impingement lesions. Clin Orthop Relat Res. 1983: 70–77. 5. Aktas I, Akgun K, Cakmak B. Therapeutic effect of pulsed electromagnetic field in conservative treatment of subacromial impingement syndrome. Clin Rheumatol. 2007;26:1234–1239. 6. Galace De Freitas D, Marcondes FB, Monteiro RL, et al. Pulsed electromagnetic field and exercises in patients with shoulder impingement syndrome: a

		- Bursektomie ohne Akromioplastie scheint nicht so gut zu sein wie die Standard-ASD und die ASD in Kombination mit Radiofrequenz **- Bewegungstherapie hat auch in dieser Untergruppe eine ausgezeichnete Wirkung** **Author's Conclusion: Übungsbehandlungen und übungsbasierte Behandlungen sind die wichtigsten Interventionen in der Behandlung von Patienten mit Schulterimpingement Syndrom (SIS). Für Patienten, die eine nichtoperative Behandlungsoption in einem frühen Stadium der SIS suchen, sollte Bewegung in Kombination mit anderen Therapien empfohlen werden. Unter diesen Therapien sollten Kinesiotaping, spezifische Übungen und Akupunkturtherapie als erste Behandlungsoptionen in Betracht gezogen werden während die Therapie mit gepulsten elektromagnetischen Feldern, lokalisierte Kortikoidinjektion, diakutane Fibrolyse und Ultraschalltherapie als zweite Behandlungsoptionen in Betracht gezogen werden können; eine Low-Level-Lasertherapie und die lokalisierte Injektion von NSAR wird jedoch nicht empfohlen. Bei Patienten mit chronischem SIS können operative Behandlungsoptionen in Betracht gezogen werden. In diesem Fall ist die standardmäßige arthroskopische subakromiale Dekompressionsoperation eine relativ überlegene Option gegenüber der offenen subakromialen Dekompression und der arthroskopischen Bursektomie. Insbesondere sollte die Entscheidung für die operative Behandlung jedoch mit Vorsicht getroffen werden, da ähnliche Ergebnisse auch durch die Durchführung einer Bewegungstherapie erzielt werden können.**	**randomized, double-blind, placebo-controlled clinical trial. Arch Phys Med Rehabil. 2014;95:345–352.** **7. Senbursa G, Baltaci G, Atay A. Comparison of conservative treatment with and without manual physical therapy for patients with shoulder impingement syndrome: a prospective, randomized clinical trial. Knee Surg Sports Traumatol Arthrosc. 2007;15:915–921.** **8. Bang MD, Deyle GD. Comparison of supervised exercise with and without manual physical therapy for patients with shoulder impingement syndrome. J Orthop Sports Phys Ther. 2000;30:126–137.** **9. Conroy DE, Hayes KW. The effect of joint mobilization as a component of comprehensive treatment for primary shoulder impingement syndrome. J Orthop Sports Phys Ther. 1998;28:3–14.** **10. Cook C, Learman K, Houghton S, et al. The addition of cervical**

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Methodical Notes

Funding Sources: Keine finanziellen Interessen.

COI: kein Interessenskonflikt

Study Quality: - Randomisierung und Zuteilung der untersuchten Gruppen nur bei 16 bzw. 18 Studien ersichtlich
- die meisten RCTs hatten kurze Follow-up Zeiten
- die meisten Vergleiche wurden nur innerhalb eines RCT's gezogen
- eine unzureichende Verblindung könnte die Ergebnisse der Studien beeinflusst haben

Heterogeneity: heterogene Studien

Publication Bias: - nur 7 RCTs wiesen ein geringes Risiko für Publikationsbias auf
- 24 RCTs hatten ein hohes Risiko
- die Verblindung wurde in 14 der 33 Studien eindeutig beschrieben
- Die Ergebnisse der paarweisen Meta-Analyse und der Netzwerk-Meta-Analyse stimmten gut miteinander überein. Im Hinblick auf nicht-operative Behandlungen zeigten übungsbasierte Therapien bessere Behandlungseffekte. Bei den operativen Behandlungen zeigte die arthroskopische Technik tendenziell eine bessere Wirksamkeit als die offene Operationstechnik. Diese Ergebnisse wurden durch Inkonsistenztest, Sensitivitätstest und Meta-Regression unterstützt.

Notes:

OXFORD (2011) Appraisal Sheet: RCT

Albornoz-Cabello, M. et al. Effects of adding interferential therapy electro-massage to usual care after surgery in subacromial pain syndrome: a randomized clinical trial. Journal of clinical medicine. 8. . 2019

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 2 **Study type: RCT** **Number of Patient: 56**	**Intervention: 15 Minuten IFT-Elektromassage** **+ 15 Minuten transkutane**	**Primary: - Schmerzintensität (Schulterschmerz) innerhalb der letzten 24h** **> VAS (100mm)** **Secondary: Funktionalität der oberen Extremität**

Recruitung Phase: Dezember 2017 bis April 2018 **Inclusion Criteria: - erwachsene Teilnehmer** **- diagnostiziertes subakromiales Schmerzsyndrom (SAPS)** **- Diagnose SAPS durch: positive klinische Untersuchung (Hawkings-Kennedy-Test, Drop-Arm-Test, Verzögerungszeichen Exorotation, Empty-Can-Test) und radiologischem Ausschluss anderer Erkrankungen** **- durchgeführte Akromioplastik innerhalb von 12 Wochen vor der Datenerhebung** **- Eigeneinschätzung der Schmerzintensität ≥30mm auf visueller Analogskala (VAS)** **- >45 Punkte auf Personal Psychological Apprehension Scale (PPAS)** **Exclusion Criteria: - jegliche Kontraindikation für Interferenzanwendungen (akute Entzündung, Schwangerschaft, elektronische Geräte inkl. Herzschrittmacher, aktive tiefe Venenthrombose oder Thrombophlebitis, Tumorerkrankungen, Metallimplantate mit Missempfindungen, unbehandelte hämorrhagische Zustände oder blutendes Gewebe, kürzlich bestrahltes Gewebe, aktive Tuberkulose, infiziertes Gewebe oder Wunden mit zugrunde liegender Osteomyelitis, im Nacken- oder Kopfbereich bei Menschen mit früheren Anfällen, am vorderen Hals, an der Halsschlagader, über den Augen oder an den Fortpflanzungsorganen)** **- frühere Operationen im Bereich der HWS oder Schulter** **- neurologische oder psychische Erkrankungen in der Vorgeschichte** **- diagnostizierte Erkrankungen des zentralen oder peripheren Nervensystems** **- begleitende Fraktur im Nacken/Schulter-Bereich oder der oberen Extremität** **- begleitende radiologische Diagnose von Arthrose der Glenohumeral- oder Acromioclavicular-Gelenke** **- Fibromyalgie oder rheumatoide Arthritis** **- postoperative Kortikoid- oder Hyaluronsäureinjektionen** **- Symptome einer Schultersteife** **- Beeinträchtigung der Kognition oder Kommunikation** **- Verwicklung in ein laufendes medizinrechtliches Verfahren**	**Infrarot-Wärmetherapie** **+ 35 Minuten aktive, selbst assistierte und isometrische Übungstherapie** **+ 20 Minuten Manuelle Therapie** **+ 5 Minuten pulsierender Ultraschall** **Comparison: 15 Minuten transkutane Infrarot-Wärmetherapie** **+ 35 Minuten aktive, selbst assistierte und isometrische Übungstherapie** **+ 20 Minuten Manuelle Therapie** **+ 5 Minuten pulsierender Ultraschall**	**> Constant-Murley Score** **Passives, schmerzfreies Bewegungsausmaß (Flexion, Extension, Abduktion, Adduktion, Endorotation, Exorotation)** **> Gradmessung mit der Simple Goniometer iPhone-App und entsprechendem Armband** **Results: - beide Interventionen führten zu einer signifikanten Verbesserung der Schmerzintensität, der Funktionalität der oberen Extremität und des schmerzfreien passiven Bewegungsausmaßes in alle Bewegungsrichtungen** **- Im Vergleich der Ergebnisse beider Untersuchungsgruppen zeigte sich ein signifikanter Unterschied zugunsten der Interventionsgruppe in Bezug auf Schmerzreduzierung, Verbesserung im Constant-Murley Score und der Erweiterung des passiven schmerzfreien Bewegungsausmaßes (Flexion, Abduktion, Endorotation und Exorotation)** **- Unterschiede zwischen beiden Gruppen in Bezug auf das Bewegungsausmaß in Adduktion und Extension der Schulter konnten nicht festgestellt werden** **Author's Conclusion: Durch das Hinzufügen der IFT-Elektromassage zu einem zweiwöchigen, überwachten üblichen Behandlungsprotokoll wurden bei Erwachsenen mit SAPS nach Akromioplastik nach Ablauf der Behandlungszeit bessere Ergebnisse bei der Verringerung von Schulterschmerzen und der Verbesserung der Funktionalität der oberen Gliedmaßen und des passiven schmerzfreien Bewegungsausmaßes der Schulter erzielt als mit der üblichen Behandlung allein.** **Mittel- und langfristige Folgewirkungen der IFT auf postoperative Schmerzen sollten in weiteren Studien untersucht werden.**
Methodical Notes		
Funding Sources: Die Autoren dieses Manuskripts bestätigen, dass sie weder ein finanzielles oder nicht-finanzielles Interesse (einschließlich Forschungsfinanzierung) noch eine Beteiligung an einer kommerziellen Organisation haben, die ein direktes finanzielles Interesse an einer in diesem Manuskript enthaltenen Angelegenheit hat.		

COI: Die Autoren erklären, dass sie keine Interessenkonflikte haben.

Randomization: Es erfolgte eine zentralisierte, computergestützte Randomiesierung über "http://www.randomization.com"

Blinding: Einfach-verblindete Studie
Erhebung der Outcome-Messungen wurde durch einen verblindeten Gutachter durchgeführt. Die Teilnehmer der Studie waren über ihre Gruppenzuteilung informiert ebenso wie der behandelnde Therapeut, der die verschiedenen Maßnahmen durchführte.

Dropout Rate/ITT-Analysis: keine Dropouts oder Abweichungen vom zugeteilten Behandlungsprotokoll

Notes:

Gomes, Cafp et al. Effect of Adding Interferential Current in an Exercise and Manual Therapy Program for Patients With Unilateral Shoulder Impingement Syndrome: A Randomized Clinical Trial. J Manipulative Physiol Ther. 41. 218-226. 2018

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 2 **Study type: Randomized Controlled Trial** **Number of Patient: 45** **Recruitung Phase: ?** **Inclusion Criteria: - Alter der Teilnehmer zwischen 18 und 60** **- Vorgeschichte von anterolateralen und unilateralen Schmerzen in der Schulter seit mehr als 3 Monaten** **- Arztbericht eines Orthopäden, der die Diagnose bestätigt** **- Mindestpunktzahl von 4 auf der Numeric PainRating Scale (NRS) in Ruhe oder bei aktivem Bewegen der Schulter** **- mindestens 2 von 3 Ergebnissen der Tests nach Neer, Hawkins und Jobe müssen positiv sein** **Exclusion Criteria: - funktionelle Einschränkungen, die eine Umsetzung der**	**Intervention: Festes Übungsprogramm + Manuelle Therapie + Interferenzstrombehandlung (Gruppe 2)** **Comparison: Festes Übungsprogramm + Manuelle Therapie (Gruppe 1)** **oder** **Festes Übungsprogramm + Manuelle Therapie + Placebo Ultraschall (Gruppe 3)**	**Primary: Totalscore Shoulder Pain and Disability Index (SPADI)** **Secondary: - Schmerzwahrnehmung/Unfähigkeit (Shoulder Pain and Disability Index - SPADI)** **- Schmerzintensität (Numeric Rating Scale - NRS)** **- Katrastrophisierung (Pain Related Self Rating Scale - PRSS)** **Results: - signifikante Reduzierung von Schmerz, Katastrophisierung und Unfähigkeit in allen Gruppen** **- unmittelbar nach der ersten Behandlung zeigte sich in Gruppe 2 eine effektivere Reduzierung des NRS Scores als in Gruppe 1 und Gruppe 3; die Effektivität der Behandlung in Gruppe 3 war zu diesem Zeitpunkt im Bezug auf die Schmerzreduzierung der in Gruppe 1 überlegen** **- nach 16 Behandlungseinheiten zeigte sich die Behandlung in Gruppe 1 in der Schmerzreduzierung wirksamer als in Gruppe 2 und 3, diese Unterschiede sind jedoch nicht klinisch signifikant. Gleiches gilt für den Messzeitpunkt 4 Wochen nach Beendigung der Behandlung.** **- SPADI-Scores für Schmerz und Unfähigkeit sowie auch die Totalscores zeigten eine deutliche Verringerung nach 16 Behandlungen in Gruppe 1 in Vergleich zu Gruppe 2 und Gruppe 3. Diese Unterschiede sind zwar statistisch signifikant, jedoch nicht klinisch relevant.** **- PRSS Scores zeigten nach 16 Behandlungseinheiten eine Effektivere Reduzierung von Katastrophisierung in Gruppe 3 verglichen mit Gruppe 2, allerdings ohne klinische Relevanz.**

geplanten Behandlungsinhalte ausschließen - Anzeichen und Symptome von Taubheit oder Kribbeln in der oberen Extremität - ein Schultertrauma in der Vorgeschichte - Muskelverletzungen der oberen Extremität - andere Erkrankungen der Schulter - gerissene Muskelsehen - Bandlaxheit - Operationen an Schulter oder HWS in der Vergangenheit - Kortikosteroidinjektionen in die Schulter oder die Verwendung von Schmerzmitteln, Entzündungshemmern oder Muskelrelaxantien innerhalb der letzten drei Monate - eine physiotherapeutische Behandlung innerhalb der letzten drei Monate		**Author's Conclusion: Der Einsatz von Interferenzstrom in der Behandlung von Patienten mit unilateralem Schulterimpingement Syndrom zusätzlich zur Übungsbehandlung und Manuellen Therapie liefert keine klinisch relevanten Effekte im Vergleich zur isolierten Behandlung mit Übungsbehandlung und Manueller Therapie.**

Methodical Notes

Funding Sources: Es wurden keine Finanzierungsquellen für diese Studie gemeldet.

COI: Es wurden keine Interessenkonflikte für diese Studie gemeldet.

Randomization: zentralisierte computerunterstützte Randomisierung

Blinding: - verblindete Teilnehmer
- verblindete Untersucher

Dropout Rate/ITT-Analysis: keine Dropouts

Notes:

Gomes, Cafp et al. Combined Use of Diadynamic Currents and Manual Therapy on Myofascial Trigger Points in Patients With Shoulder Impingement Syndrome: A Randomized Controlled Trial. J Manipulative Physiol Ther. 41. 475-482. 2018

Population	Intervention - Comparison	Outcomes/Results

Evidence level: 2 **Study type: Randomized Controlled Trial** **Number of Patient: 60** **Recruitung Phase: ?** **Inclusion Criteria: - Alter zwischen 18 und 59 Jahren** **- mindestens 3 Monate anterolaterale, unilaterale Schulterschmerzen (mind. 4 auf NRPS)** **- mindestens 2 von 3 Ergebnissen der Tests nach Neer, Hawkins und Jobe müssen positiv sein** **- aktive unilaterale myofasziale Triggerpunkte im oberen Teil des Trapezmuskels auf der betroffenen Seite** **Exclusion Criteria: - beidseitiges Schulterimpingement Syndrom** **- Fybromyalgie** **- Muskelverletzungen** **- Schultertrauma in der Vorgeschichte** **- andere Erkrankungen der Schulter** **- Muskelsehenenrupturen** **- Laxheit der Bänder** **- Anzeichen und Symptome von Taubheit oder Kribbeln in der oberen Extremität** **- Kortikosteroidinjektionen in der Schulter oder die Verwendung von Schmerzmitteln, Entzündungshemmern oder Muskelrelaxantien innerhalb der letzten sechs Monate** **- eine physiotherapeutische Behandlung innerhalb der letzten sechs Monate**	**Intervention: Manuelle Therapie (nach festgelegtem Behandlungsschema) + diadynamische Ströme an myofaszialen Triggerpunkten des oberen Trapezmuskels** **Comparison: nur Manuelle Therapie (nach festgelegtem Behandlungsschema)** **oder** **nur diadynamische Ströme an myofaszialen Triggerpunkten des oberen Trapezmuskels**	**Primary: Schulterschmerz/-einschränkung (Shoulder Pain and Disability Index - SPADI)** **Secondary: Schmerzintensität (Numeric Pain Rating Scale - NRPS)** **Results: - signifikante Verbesserungen aller Ergebnisse im Laufe der Zeit für alle drei Gruppen** **- die Kombination von Manueller Therapie und diadynamischen Reizströmen war signifikant effektiver (NRPS, SPADI-pain, SPADI-disability) als die isolierte Anwendung beider Maßnahmen, jedoch waren nur die Unterschiede in Bezug auf den NRPS Score auch klinisch relevant** **Author's Conclusion: Die Kombination von Manueller Therapie und diadynamischen Reizströmen auf myofasziale Triggerpunkte war wirksamer in der Reduzierung der Schmerzintensität (aber nicht in der Reduzierung der Einschränkungen) bei Patienten mit unilateralem Schulterimpingement Syndrom als die isolierte Behandlung mit nur einer der beiden Behandlungsmaßnahmen.**
Methodical Notes		
Funding Sources: Es wurden keine Finanzierungsquellen für diese Studie gemeldet. **COI: Es wurden keine Interessenkonflikte für diese Studie gemeldet.**		

Randomization: zentralisierte computerunterstützte Randomisierung

Blinding: Untersucher verblindet

Dropout Rate/ITT-Analysis: 3 Dropouts in der Gruppe, in der isoliert mit diadynamischen Strömen behandelt wurde (5%)

Notes:

Gunay Ucurum, S. et al. Comparison of different electrotherapy methods and exercise therapy in shoulder impingement syndrome: A prospective randomized controlled trial. Acta Orthop Traumatol Turc. 52. 249-255. 2018

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 3 **Study type: RCT** **Number of Patient: 83 (79 nach Dropouts)** **Recruitung Phase:** **Inclusion Criteria: - durch klinische Untersuchung und MRT diagnostiziertes Schulterimpingement-Syndrom** **- mindestens 4 Wochen Schmerzen in der betroffenen Schulter** **- Alter zwischen 18 und 55 Jahren** **- konstante einseitige Schultersymptome** **- passive Bewegungseinschränkung von weniger als 30% im Vergleich zur nicht betroffenen Schulter** **- mindestens sein einem Jahr keine Behandlung erhalten** **Exclusion Criteria: - adhäsive Kapsulitis oder größerer Riss der Rotatorenmanschette** **- dauerhafter Funktionsverlust der Schulter** **- fortgeschrittene Muskelatrophie und -schwäche** **- sensorische und muskuläre Defizite aufgrund neurologischer, entzündlicher Grunderkrankungen oder einer früheren**	**Intervention: Gruppe 2:** **vierwöchiges Behandlungsprogramm mit drei Behandlungseinheiten pro Woche** **15 Minuten Wärmepackung (m. Trapezius)** **+ standardisiertes Übungsprogramm (Stab-Übungen, Pendelübungen, isometrische Übungen, Widerstandsübungen)** **+ 20 Minuten Interferenzstrom (50e120Hz)** **Gruppe 3:** **vierwöchiges Behandlungsprogramm mit drei Behandlungseinheiten pro Woche** **15 Minuten Wärmepackung (m. Trapezius)** **+ standardisiertes Übungsprogramm (Stab-Übungen, Pendelübungen, isometrische Übungen, Widerstandsübungen)** **+ 20 Minuten TENS (konventioneller Modus)** **Gruppe 4:** **vierwöchiges Behandlungsprogramm mit drei Behandlungseinheiten pro Woche** **15 Minuten Wärmepackung (m. Trapezius)** **+ standardisiertes Übungsprogramm (Stab-Übungen, Pendelübungen, isometrische Übungen,**	**Primary: Schmerzintensität** **> VAS** **Schulterfunktion** **> Disabilities of the Arm, Shoulder and Hand questionnaire (DASH)** **Secondary: Lebensqualität** **> Short Form-36 (SF-36)** **Results: Schmerzwahrnehmung (VAS)** **- signifikante Unterschiede in der gruppeninternen Analyse der Schmerzen in Ruhe vor Beginn der Behandlung, am Ende der vierten Woche und drei Monate nach der Behandlung in allen Gruppen** **- signifikante Unterschiede in der Schmerzwahrnehmung in Ruhe vor der Behandlung zwischen Gruppe 1 und 3 sowie zwischen Gruppe 3 und 4** **- signifikante Unterschiede in der Schmerzwahrnehmung in Ruhe nach der Behandlung zwischen Gruppe 3 und 4** **- keine signifikanten Unterschiede in der Schmerzwahrnehmung in Ruhe zwischen den Gruppen nach drei Monaten** **- signifikante Unterschiede innerhalb der einzelnen Gruppen hinsichtlich der Schmerzwahrnehmung bei Aktivität vor Beginn der Behandlung, am Ende der vierten Woche und drei Monate nach der Behandlung**

Schulterverletzung **- Schulterluxation oder -operationen in der Vorgeschichte** **- Steroidinjektionen oder Einnahme von Steroiden oder NSAR innerhalb der vergangenen sechs Monate**	**Widerstandsübungen)** **+ 5 Minuten 1MHz-Ultraschall (1,5W/cm^2)** **Comparison: Gruppe 1:** **vierwöchiges Behandlungsprogramm mit drei Behandlungseinheiten pro Woche** **15 Minuten Wärmepackung (m. Trapezius)** **+ standardisiertes Übungsprogramm (Stab-Übungen, Pendelübungen, isometrische Übungen, Widerstandsübungen)**	**- keine signifikanten Unterschiede in der Schmerzwahrnehmung bei Aktivität zwischen den Gruppen** **Schulterfunktion (DASH):** **- keine signifikanten Unterschiede zwischen den Gruppen vor Beginn der Behandlung** **- signifikante Veränderungen der Werte zugunsten der Funktionalität zwischen den Messzeitpunkten innerhalb aller Gruppen** **- keine signifikanten Unterschiede zwischen den Gruppen** **Lebensqualität (SF-35)** **- signifikante Unterschieder innerhalb der einzelnen Gruppen zwischen den einzelnen Messungen** **- keine signifikanten Unterschiede zwischen den Gruppen** **Author's Conclusion: - die untersuchten Interventionen lieferten vergleichbare Behandlungsergebnisse nach vier Wochen und drei Monaten in Bezug auf Schmerzne, Funktion und Lebensqualität** **- weitere Studien mit Langzeit-Follow-ups sind erforderlich**

Methodical Notes

Funding Sources: keine Angaben

COI: keine Angaben

Randomization: computergestützte Randomisierung mit SPSS

Blinding: keine Angaben zur Verblindung der Teilnehmer oder Therapeuten

Dropout Rate/ITT-Analysis: 4 Dropouts bei ursprünglich 83 Teilnehmern (4,8%), Behandlung erfolgte (soweit ersichtlich) nach zugeteiltem Behandlungsprotokoll

Notes:

Evidenztabellen für Empfehlungen Kapitel 6

Inhalt: 5 Literaturstellen

OXFORD (2011) Appraisal Sheet: RCT

Brox, J. I. et al. Arthroscopic surgery versus supervised exercises in patients with rotator cuff disease (stage II impingement syndrome): a prospective, randomized, controlled study in 125 patients with a 2 1/2-year follow-up. J Shoulder Elbow Surg. 8. 102-11. 1999

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 2 **Study type: RCT** **Number of Patient: 125** **Recruitung Phase:** **Inclusion Criteria: houlder for at least 3 months resistant to outpatient physiothera y and nonsteroid and steroid anti-inflammatory me 8 ication, dysfunction or painful arc on abduction, normal glenohumeral range of movement, pain on 2 of the 3 isometric or ccc & ntric tests (abduction at 0" and 30" and external rotation), and positive impingement sign and test.** Lignocaine (6 ml; 10 mg/mL) was injected anteriorly' into the subacromial space. The diagnosis was confirmed if pain was appreciably reduced on re-examination after 15 minutes. Exclusion criteria were arthritis of the acromioclavicular** **Exclusion Criteria: , rotator cuff rupture, glenohumeral instability, bilateral muscular pain with tenderness and severely decreased ability to relax the shoulder, neck, and temporomandibular joints on examination, and reluctance to accept 1 or more of the treatment regimens of the study.**	**Intervention: ASD vs** **Comparison: Physio vs Laser placebo**	**Primary: Neer Score** **Secondary:** **Results: ized to surgery (26 of 38) and exercises (27 of 441 compared with the placebo group (7 of 28). The odds ratio for success after surgery compared with exercises was 7.5 (95% confidence interval 0.6 to 3.7; P = .49). Including all patients who underwent operation, the success rate in those not on sick leave (I 9 of 2 1) before surgery was higher compared with those on sick leave I I8 of 36) (adjusted odds ratio 5.6 [I .2 to 29.21). Similar results were observed for patients not receiving versus those receiving regular pain medication before surgery (adjusted odds ratio 4.2 [I .2 to 75.81).** **Author's Conclusion: We conclude that after 2'/2-years of follow-up, both arthroscopic surgery and supervised exercises are better treatments than placebo. The difference between the 2 active treatments was not significant. Patients who do not improve on a supervised exercise regimen should be considered for surgery, but the prognosis is poor in patients receiving regular pain medication or on sick leave**

Methodical Notes

Funding Sources:

COI:

Randomization: random permuting blocks

Blinding:

Dropout Rate/ITT-Analysis:

Notes: 15 in placebi group and 11 in physio group failed and had surgery

Farfaras, S. et al. Subacromial Decompression Yields a Better Clinical Outcome Than Therapy Alone: A Prospective Randomized Study of Patients With a Minimum 10-Year Follow-up. Am J Sports Med. 46. 1397-1407. 2018

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 2 **Study type: RCT** **Number of Patient: 87** **Recruitung Phase: 11/98-01/02** **Inclusion Criteria: subacromial pain persisting after conservative therapy (nonstructured physiotherapy, nonsteroidal anti-inflammatory drugs, and local corticosteroid injection). The patients also tested positive for impingement (Neer sign and Hawkin test). subacromial pain for at least 6 months** **Exclusion Criteria: diabetes mellitu as well as any neurologic or spinal disorder, radiographic OA, the presence of chronic joint disorders (eg, rheumatoid arthritis), full-thickness rotator cuff rupture, and SAIS stage III.**	**Intervention: Open acromioplasty** **Comparison: arthroscopic acromioplasty, physiotherapy**	**Primary: The Constant score, the Watson and Sonnabend score, and the 36-Item Short Form Health Survey (SF-36) questionnaire** **Secondary:** **Results: The Constant score improved significantly at follow-up for the OSG (P = .003) and ASG (P = .011), while no significant improvement was detected for the PTG. The OSG revealed a significant improvement versus the PTG at follow-up (P = .011); otherwise, no significant differences were found. For the Watson and Sonnabend score, the OSG revealed a significant improvement in 13 of 14 questions. The corresponding finding was made for the ASG and PTG in 9 of 14 questions (P = .14). According to ultrasound, 1 of 20 patients in the OSG had a full-thickness rotator cuff rupture on the index side. The corresponding finding was made for 1 of 18 patients in the ASG and 4 of 28 in the PTG (P = .29). Per the radiographs, 3 of 20 patients in the OSG had moderate or severe OA in the index shoulder. The corresponding finding was made for 1 of 18 patients in the ASG and 0 of 28 in the PTG (P = .12).** **Author's Conclusion: After a minimum 10 years of follow-up, the surgical treatment of SAIS appears to render better clinical results than physical therapy alone. No significant differences were found among the groups in terms of the presence of full-thickness rotator cuff ruptures and OA**
Methodical Notes		

Funding Sources:

COI:

Randomization: 4boxes m/f >/< 55years, patients chose envelope

Blinding: none

Dropout Rate/ITT-Analysis:

Notes:

Haahr, J. P. et al. Exercises versus arthroscopic decompression in patients with subacromial impingement: a randomised, controlled study in 90 cases with a one year follow up. Ann Rheum Dis. 64. 760-4. 2005

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 3 **Study type: RCT** **Number of Patient: 84** **Recruitung Phase: 1996-2001** **Inclusion Criteria: the presence of shoulder pain, pain on abduction of the shoulder with painful arch, a positive impingement sign (Hawkins sign) and a positive impingement test (relief of pain within 15 minutes after injection of local anaesthetic (bupivacaine 5 ml) into the subacromial space).** **Exclusion Criteria: not described**	**Intervention: 19 sessions physiotherapy** **Comparison: arthroscopic decompression, instructred self training after surgery**	**Primary: Constant shoulder score 3, 6, 12 months** **Secondary:** **Results: : Of 90 patients enrolled, 84 completed follow up (41 in the surgery group, 43 in the training group). The mean Constant score at baseline was 34.8 in the training group and 33.7 in the surgery group. After 12 months the mean scores improved to 57.0 and 52.7, respectively, the difference being non-significant. No group differences in mean pain and dysfunction score improvement were found.** **Author's Conclusion: Surgical treatment of rotator cuff syndrome with subacromial impingement was not superior to physiotherapy with training. Further studies are needed to qualify treatment choice decisions, and it is recommended that samples are stratified according to disability level.**

Methodical Notes

Funding Sources:

COI:

Randomization: envelope

Blinding: -

Dropout Rate/ITT-Analysis:

Notes: no imaging on inclusion, no description of rotator cuff status and repair, no description of exclusion criteria

Ketola, S. et al. Does arthroscopic acromioplasty provide any additional value in the treatment of shoulder impingement syndrome?: a two-year randomised controlled trial. J Bone Joint Surg Br. 91. 1326-34. 2009

Population	Intervention - Comparison	Outcomes/Results

Evidence level: 2 **Study type: RCT** **Number of Patient: 140** **Recruitung Phase: 06/2001-06/2004** **Inclusion Criteria: positive Neer's test, pain in the shoulder which was resistant to rest, anti-inflammatory drugs, subacromial glucocorticosteroid injections, and physiotherapy, and symptoms that had persisted for at least three months.** **Exclusion Criteria: glenohumeral or acromioclavicular osteoarthritis, signs of glenohumeral instability, previous surgery to the affected shoulder, a full thickness tear of the rotator cuff, cervical radicular syndrome, adhesive capsulitis, or neuropathy of the shoulder region**	**Intervention: Acromioplasty + Exercise program** **Comparison: only exercise program**	**Primary: VAS 3, 6, 12 and 24 months after intervention** **Secondary: muscle strength, passive ROM, Neer Test, DASH Score** **Results: at 24 months arthroscopic decompression with acromioplasty followed by a structured exercise treatment (combined treatment) did not differ significantly from a supervised exercise programme (exercise group) in mean self-reported pain on VAS, or in secondary outcome measures of disability, pain at night, shoulder disability questionnaire score, number of painful days, and proportion of pain-free patients** **Author's Conclusion: Acromioplasty seems not to be an effective additional treatment over supervised exercise for patients with shoulder impingement syndrome when evaluated at two years, and the costs are much higher than for exercise therapy alone.**

Methodical Notes

Funding Sources:

COI:

Randomization: PC envelope

Blinding: FU examinor was blinded

Dropout Rate/ITT-Analysis: 14 Patients in exercise group underwent operation, 12 patients in OP group cancelled operation but attended FU visits

Notes:

Paavola, M. et al. Subacromial decompression versus diagnostic arthroscopy for shoulder impingement: randomised, placebo surgery controlled clinical trial. Bmj. 362. k2860. 2018

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 1 Study type: RCT Number of Patient: 139 Recruitung Phase: 02/2005-07/2015 Inclusion Criteria: 1. Adult men or women ages 35 to 65 years 2. Subacromial pain for greater than 3 months with no relief from non-operative means (physiotherapy, non-steroidal anti-inflammatory medication, corticosteroid injections, and rest) 3. Pain provoked by abduction and positive painful arc –sign 4. Positive impingement test (temporary relief of pain by subacromial injection of lidocaine) 5. Pain in at least 2 out of 3 of isometric tests (abduction 0° and 30° or external rotation) 6. Provision of informed consent from the participant 7. Ability to speak, understand and read in the language of the clinical site Exclusion Criteria: 1. Full thickness tear of the rotator cuff tendons diagnosed on clinical examination (marked weakness in any of the examined muscles) or magnetic resonance imaging with intra-articular contrast (MRA) 2. Osteoarthritis of the glenohumeral and/or acromioclavicular joint diagnosed on clinical examination and on x-rays 3. Substantial calcific deposits in the rotator cuff tendons found in the preoperative imaging 4. Previous surgical procedure on the affected shoulder 5. Evidence of shoulder instability (positive apprehension/positive sulcus sign) 6. Symptomatic cervical spine pathology 7. History of alcoholism, drug abuse, psychological or psychiatric problems that are likely to invalidate informed consent 8. Patient declined to participate	Intervention: arthroscopy subacromial decompression Comparison: Arthroscopy placebo, exercise alone	Primary: shoulder pain at rest and shoulder pain on arm activity at 24 months 0-100 visual analogue scale (VAS) ranging from 0 (no pain) to 100 (extreme pain) Secondary: Constant-Murley score simple shoulder test 15D,16 (generic health related quality of life instrument made up of 15 dimensions and scored on a scale of 0 (death) to 1 (full health)) Results: In the primary intention to treat analysis (ASD versus diagnostic arthroscopy), no clinically relevant between group differences were seen in the two primary outcomes at 24 months (mean change for ASD 36.0 at rest and 55.4 on activity; for diagnostic arthroscopy 31.4 at rest and 47.5 on activity). The observed mean difference between groups (ASD minus diagnostic arthroscopy) in pain VAS were −4.6 (95% confidence interval −11.3 to 2.1) points (P=0.18) at rest and −9.0 (−18.1 to 0.2) points (P=0.054) on arm activity. No between group differences were seen between the ASD and diagnostic arthroscopy groups in the secondary outcomes or adverse events. In the secondary comparison (ASD versus exercise therapy), statistically significant differences were found in favour of ASD in the two primary outcomes at 24 months in both VAS at rest (−7.5, −14.0 to −1.0, points; P=0.023) and VAS on arm activity (−12.0, −20.9 to −3.2, points; P=0.008), but the mean differences between groups did not exceed the

		prespecified minimal clinically important difference. Of note, this ASD versus exercise therapy comparison is not only confounded by lack of blinding but also likely to be biased in favour of ASD owing to the selective removal of patients with likely poor outcome from the ASD group, without comparable exclusions from the exercise therapy group. **Author's Conclusion: In this controlled trial involving patients with a shoulder impingement syndrome, arthroscopic subacromial decompression provided no benefit over diagnostic arthroscopy at 24 months.**

Methodical Notes

Funding Sources: The FIMPACT trial was supported by the Sigrid Juselius Foundation, the state funding for university level health research (Tampere and Helsinki University Hospitals), the Academy of Finland, and the Jane and Aatos Erkko Foundation. The funders of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report. Sponsors had no access to the data and did not perform any of the study analysis. The corresponding authors had full access to all the data in the study and had final responsibility for the decision to submit for publication.

COI:

Randomization: sealed envelopes

Blinding: intraoperative blinding for the patient ASK ASAD vs. Placebo ASK

Dropout Rate/ITT-Analysis:

Notes: Partial thickness tears that did not need repair included

Evidenztabellen für Empfehlungen_Kapitel 4

Inhalt: 8 Literaturstellen

OXFORD (2011) Appraisal Sheet: Systematic Reviews

Alqunaee, M. et al. Diagnostic accuracy of clinical tests for subacromial impingement syndrome: a systematic review and meta-analysis. Arch Phys Med Rehabil. 93. 229-36. 2012

Evidence level/Study Types	P - I - C	Outcomes/Results	Literature References
Evidence level: 2 Study type: Systematic review and meta analysis Databases: Cochrane Library, EMBASE, Science Direct, and PubMed Search period: vor 2011 Inclusion Criteria: 1.Study design: Prospective or retrospective cohort studies 2.Patient population: Adult patients (age over 16y) with a painful shoulder 3.Explanatory variables: Any index test contained intable1reported 4.Setting of care: Inpatient and outpatient settings 5.Reference test: Arthroscopy or open surgery; findingsinclude the presence of an enlarged or fibrotic-appearing bursa (stage 1 of SIS), as well as partial or full rotatorcuff tears (stages 2 and 3 of SIS, respectively) Exclusion Criteria: not mentioned	Population: Adult patients (age over 16y) with a painful shoulder Intervention: Arthroscopy Comparison: -	Primary: Sensitivity / Specifity of the tests Secondary: Results: A positive Hawkins-Kennedy test, Neer's sign,and empty can test are found to increase the probability ofSIS. However, the Neer's sign has the highest pooled sen-sitivity of .78 (95% CI, .68–.87), indicating that a negativeNeer's sign is useful to "rule out" SIS. Author's Conclusion: The conclusion of the tests supportin the diagnosis of impingement is wrong. The methodolocigal part suggests that the different tests are more useful for different pathologies such as rotator cuff tears.	

Methodical Notes

Funding Sources:

COI:

Study Quality:

Heterogeneity:

Publication Bias:

Notes:
Included studies contained intraoprative findings of rotator cuff tear and tests, that are known to be Supraspinatus tests are listed as tests for SIS. Included were patients with "shoulder pain", no specific Impingement diangosis had been made.

McCreesh, K. M. et al. Acromiohumeral distance measurement in rotator cuff tendinopathy: is there a reliable, clinically applicable method? A systematic review. Br J Sports Med. 49. 298-305. 2015

Evidence level/Study Types	P - I - C	Outcomes/Results	Literature References
Evidence level: 2 **Study type: Systematic review** **Databases: ubMed, CINAHL, MEDLINE,AMED, Sport Discus (using a combined search on the EBSCOdatabase); Google Scholar; ProQuest digital dissertations;Cochrane Central Register of Controlled Trials (CENTRAL) andthe Physiotherapy Evidence Database (PEDro)** **Search period: before 06/12** **Inclusion Criteria: studies that reported the collection and analysis of anyreliability data, whether or not this was a primary aim. Studiesinvolving human adult populations, either healthy participantsor participants with diagnosed RC tendinopathy of any degree,as well as studies including those with RC tendinopathy as asubset of other shoulder pathologies were included.** **Exclusion Criteria: studies of patients with non-RC shoulder disorders,for example, instability and neurological condition**	**Intervention: US, CT, MRI, Xray of the shoulder** **Comparison:**	**Primary: AHD** **Secondary: interrater / itrarater reliability** **Results: strong evidence for the reliability ofultrasound for measuring AHD, with moderate evidencefor MRI and CT measures and conflicting evidence forradiographic methods** **Author's Conclusion: Based on the evidence reviewed, ultra-sound is the authors'recommended method of AHD measure-ment; however, further data on inter-rater reliability insymptomatic populations is required. At present, radiographs are notrecommended for AHD measurement as there is no evidence tosupport their reliability.**	

Methodical Notes

Funding Sources:

COI:

Study Quality: good

Heterogeneity:

Publication Bias:

Notes:
gute ausführung aber nur englischsprachige literatur

Papadonikolakis, A. et al. Published evidence relevant to the diagnosis of impingement syndrome of the shoulder. J Bone Joint Surg Am. 93. 1827-32. 2011

Evidence level/Study Types	P - I - C	Outcomes/Results	Literature References
Evidence level: 5 **Study type: syst review** **Databases: pubmed** **Search period: before 09/2010** **Inclusion Criteria: ?** **Exclusion Criteria: reviews, commentaries, instructional courses, transactions, bookchapters, surgical technique papers, articles that did not relate to impingementin the shoulder, articles discussing only internal impingement, articles dealingwith acromioclavicular impingement, articles relating to coracoid impinge-ment, articles describing impingement due to fractures and tumors, articlesdiscussing secondary impingement, articles on impingement as a complicationof shoulder arthroplasty, articles presenting the outcome of acromioplastywithout comparison with other methods of treatment, articles comparing openwith arthroscopic acromioplasty, articles dealing primarily with the evaluationand management of rotator cuff tears, articles not in English, and other articlesthat did not address one of the five hypothe.ses. We also excluded from con-sideration articles demonstrating the well-recognized coexistence of variousacromial shapes with rotator cuff tears, recalling the dilemma regarding causeand effect: "a characteristic ridge of proliferative spurs and excrescences on theundersurface of the anterior process was seen frequently, apparently caused byrepeated impingement of the rotator cuff and humeral head, with traction onthe coracoacromial ligament" as opposed to "most supraspinatus and bicepslesions are due to**	**Intervention: ASAD** **Comparison:**	**Primary: answer the 5 hypotheses:** **: (1) clinical signs and testscan reliably differentiate the so-called impingement syndrome from other conditions, (2) clinically common forms of rotatorcuff abnormality are caused by contact with the coracoacromial arch, (3) contact between the coracoacromial arch and therotator cuff does not occur in normal shoulders, (4) spurs seen on the anterior aspect of the acromion extend beyond thecoracoacromial ligament and encroach on the underlying rotator cuff, and (5) successful treatment of the impingementsyndrome requires surgical alteration of the acromion and/or coracoacromial arch** **Secondary:** **Results: These hypotheses were not supported by high levels of evidence** **Author's Conclusion: The concept of impingement syndrome was originally introduced to cover the full range of rotator cuffdisorders, as it was recognized that rotator cuff tendinosis, partial tears, and complete tears could not be reliablydifferentiated by clinical signs alone. The current availability of sonography, magnetic resonance imaging, and arthroscopynow enable these conditions to be accurately differentiated. Nonoperative and**	

impingement wear, usually caused in part by variations in the shape and slope of the acromion."		**operative treatments are currently beingused forthe different rotator cuff abnormalities. Future clinical investigations can now focus on the indications for and theoutcome of treatments for the specific rotator cuff diagnoses. It may be time to replace the nonspecific diagnosis of so-called impingement syndrome by using modern methods to differentiate tendinosis, partial tears, and complete tears ofthe rotator cuff.**	

Methodical Notes

Funding Sources:

COI:

Study Quality:

Heterogeneity:

Publication Bias:

Notes:

NEWCASTLE - OTTAWA Checklist: Cohort

Desmeules, F. et al. Acromio-humeral distance variation measured by ultrasonography and its association with the outcome of rehabilitation for shoulder impingement syndrome. Clin J Sport Med. 14. 197-205. 2004

Evidence level	Methodical Notes	Patient characteristics	Interventions
Evidence level: 4 **Study type: case control study**	**Funding sources:** **Conflict of Interests:** **Randomization:** **Blinding:** **Dropout rates:**	**Total no. patients: n=21** **Recruiting Phase: 06/02-04/03** **Inclusion criteria: 13 healthy volunteers** **13 patients with Impingementsydrome: clinical tests, no RM rupture in ultrasound** **Exclusion criteria: RM rupture in ultrasound**	**Interventions: rehab programme** **Comparison: healthy subjects**

Notes:	**only 8 in SID group, 13 in healthy group** **Author's conclusion: The ultrasound measure of AHD is reliable and sen-sitive. Although a distinct pattern of AHD variation in SIS patientscould not be confirmed, a strong positive relationship was found be-tween the reduction of AHD narrowing and functional improvementfollowing rehabilitation. Ultrasound measurement of AHD mighthelp identify SIS patients who will benefit from rehabilitation.**	
Outcome Measures/results	**Primary AHD in ultrasound in 0° and 45° and 90° abduction** **Secondary WORC index after rehab programme**	**Results: Intraclass correlation coefficient for interobserver reliabil-ity ranged from 0.86 to 0.92 for the 3 shoulder positions. A significantreduction of the AHD was found within groups between rest and ac-tive abduction (P< 0.05). Comparison of AHD between groups wasnot statistically different (P= 0.06;< 0.80). In pre-post rehabilita-tion analysis, improvement of the Western Ontario Rotator Cuff In-dex score was positively correlated to the reduction of the AHD nar-rowing as the arm was abducted (r= 0.86;P= 0.01).**

Kappe, T. et al. Predictive value of preoperative clinical examination for subacromial decompression in impingement syndrome. Knee Surg Sports Traumatol Arthrosc. 23. 443-8. 2015

Evidence level	Methodical Notes	Patient characteristics	Interventions
Evidence level: 3 **Study type: cohort study**	**Funding sources:** **Conflict of Interests:** **Randomization: -** **Blinding: -** **Dropout rates:**	**Total no. patients: 49 shoulders in 47 pat** **Recruiting Phase:** **Inclusion criteria: SIS diagnosis according to anamnesis and clinical examination, cons therapy without improvement, MR imaging to show bursitis and exclude other pathologies, temporary relief after subacromial injection** **Exclusion criteria: RC tear that needed repair, calcifying tendinitis, shoulder stiffness, shoulder trauma, instability, GH arthritis Samilson 2-3**	**Interventions: SAD** **Comparison: none**
Notes:	**no comparability, otherwise good** **Author's conclusion: Presence of multiple clinical impingement tests are valid predictors of outcome after SAD**		
Outcome Measures/results	**Primary Constant score, WORC index** **Secondary clinical examination**	**Results: significant greater improvement in scores in patients with a positive Hawkins-Kennedy Test, Neer and Jobe test. Patients with at least 4 pos tests pre op had sign greater improvement in Constant score**	

Magaji, S. A. et al. Arthroscopic subacromial decompression is effective in selected patients with shoulder impingement syndrome. J Bone Joint Surg Br. 94. 1086-9. 2012

Evidence level	Methodical Notes	Patient characteristics	Interventions
Evidence level: 3 Study type: cohort study	Funding sources: Conflict of Interests: Randomization: Blinding: Dropout rates:	Total no. patients: 92 Recruiting Phase: 2002-2006 Inclusion criteria: painful arc, Hawkins Test pos, no RC tear, physiotherapy before surgery inc Taping, Thera-band exercises, radiological impingement criteria Exclusion criteria: GH Arthritis, full thickness RC tears, ACJ arthritis, accident in anamnesis, work related injuries of the shoulder	Interventions: SAD Comparison: 2/3/4 positive criteria pre op present
Notes:	no control group without surgery, but 9 patients initially included whose symptoms resolved after 6 months and therefore had no surgery - they were excluded from the study (this is nearly 10%) Author's conclusion: The four criteria help to identify patients who likely benefit from SAD		
Outcome Measures/results	Primary new Oxford shoulder score Secondary	Results: greatest improvement (and sign greater than in other groups) when 4 criteria pre op present	

Read, J. W. et al. Shoulder ultrasound: diagnostic accuracy for impingement syndrome, rotator cuff tear, and biceps tendon pathology. J Shoulder Elbow Surg. 7. 264-71. 1998

Evidence level	Methodical Notes	Patient characteristics	Interventions
Evidence level: 4 Study type: cohort study	Funding sources: Conflict of Interests: Randomization: Blinding: Dropout rates:	Total no. patients: 42 Recruiting Phase: 1993-1994 Inclusion criteria: Patients accounted for arthroscopic or open shoulder surgery because of RC pathology or long head of biceps pathology Exclusion criteria:	Interventions: ultrasound, followed by shoulder surgery Comparison:

Notes:	**up to 11 months between ultrasound and surgery** **Author's conclusion: Ultrasound good for ruling other pathologies out when diagnosing impingement**	
Outcome Measures/results	**Primary comparison whether the pathologies had been detected in ultrasound pre op** **Secondary**	**Results: Ultrasound: All RC full thickness tears detected, only 6/13 partial thickness tears detected, LHB tendinitis detected when high-grade, not low-grade, no SLAP lesions diagnosed, dynamic ultrasound can help confirm but not exclude impingement**

Singh, H. P. et al. A preoperative scoring system to select patients for arthroscopic subacromial decompression. J Shoulder Elbow Surg. 23. 1251-6. 2014

Evidence level	Methodical Notes	Patient characteristics	Interventions
Evidence level: 3 **Study type: Prospecitve cohort study**	**Funding sources: -** **Conflict of Interests: -** **Randomization: -** **Blinding: -** **Dropout rates:**	**Total no. patients: 112** **Recruiting Phase: 2005-2010** **Inclusion criteria: Patients accounted for SAD with minimum 6 months symptoms, 3 months physio, steroid injection** **Exclusion criteria:**	**Interventions: SAD** **Comparison: -**
Notes:	**Author's conclusion: This scoring system can identify patients who would have a prompt benefit from ASAD. Theimpact of surgery in patients with a PrOS of4 points is questionable.**		
Outcome Measures/results	**Primary improvement in OSS** **Secondary Find out which preopertiv parameters could predict a positive outcome**	**Results: The variables associated with good outcome were shoulder pain with overhead activities, persis-tent symptoms for more than 6 months, symptoms persistent despite a 3-month course of supervised phys-iotherapy, consistently positive Hawkins test result, radiologic changes of impingement on both acromionand humerus in the subacromial region, and improvement for more than 1 week after a steroid injection.These 6 criteria were combined into a single score for this study, termed thepreoperative score(PrOS).Sixty-two patients who had been symptomatic for 1 year with a preoperative score of 5 to 6 showed sig-nificant improvement in OSS at 3 months after surgery (P<.001 thirty-eight patients with a score to no statistically significant improvement in oss at months but had further slight twelve of>2 had no significant improvement in OSS at 3 months or 1 year.**	

Evidenztabellen für Kapitel 7

Inhalt: 5 Literaturstellen

OXFORD (2011) Appraisal Sheet: Systematic Reviews

Burger, M. et al. Effect of corticosteroid injections versus physiotherapy on pain, shoulder range of motion and shoulder function in patients with subacromial impingement syndrome: A systematic review and meta-analysis. S Afr J Physiother. 72. 318. 2016			
Evidence level/Study Types	**P - I - C**	**Outcomes/Results**	**Literature References**
Evidence level: 2 **Study type: systematic review** **Databases: Pubmed, Science Direct, EBSCO Host: SPORTDiscus, EBSCO Host: CINAHL, Cochrane, Scopus and PEDro** **Search period: inception to 02/16** **Inclusion Criteria: RCTs in english language, adults (≥18 years), male and/ or females, with primary symptoms of moderate or severe unilateral shoulder pain that was made worse with movement and had a non-capsular pattern of restriction. Tests confirming SIS could include a positive Neer or Hawkins–Kennedy impingement test** **Exclusion Criteria: history of previous shoulder injuries, for example, previous shoulder dislocations, rotator cuff ruptures or scapula and/or humeral head/neck fractures, adhesive capsulitis, glenohumeral**	**Intervention: CSIs including, but not limited to, injections at the midpoint of the acromion as well as in the subacromial space of the symptomatic shoulder** **Comparison: Physiotherapy management including, but not confined to, manual stretches, contract–relax techniques, strengthening exercises directed to the shoulder girdle or thoracic or cervical spine, electrotherapy modalities and home advice regarding management and precautions. Physiotherapy management had to include a combination of passive and active joint and soft-tissue mobilisation techniques**	**Primary: pain VAS** **Secondary: shoulder function (GRS scale, SDQ), shoulder ROM** **Results: The PEDro scores of the three RCTs that qualified for this review ranged from 7 to 8/10. There is Level II evidence suggesting that besides a significant improvement in shoulder function in favour of CSI at 6–7 weeks follow-up ($p < 0.0001$), no evidence was found for the superiority of CSIs compared with physiotherapy for pain, ROM and shoulder function in the short- (1–3 months), mid- (6 months) and long term (12 months).** **Author's Conclusion: In patients with SIS only a short term significant improvement in shoulder function was found in favour of CSIs.**	

arthritis or previous shoulder surgery			

Methodical Notes

Funding Sources:

COI:

Study Quality:

Heterogeneity:

Publication Bias:

Notes:
weakness: Injections subacromial and ACJ, impingement diagnosis based only on one clinical sign (Neer or Hawkiins)

OXFORD (2011) Appraisal Sheet: RCT

Lee, J. H. et al. Clinical effectiveness of botulinum toxin type B in the treatment of subacromial bursitis or shoulder impingement syndrome. Clin J Pain. 27. 523-8. 2011

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 1 **Study type: RCT** **Number of Patient: 61** **Recruitung Phase:** **Inclusion Criteria: SIS diagnosis: Neer, Hawkins pos** **Exclusion Criteria: fracture, glenohumeral osteoarthritis, bone tumors, and osteonecrosis. Patients with a history of shoulder and cervical trauma, cervical radiculopathy, neurologic deficit of an upper limb, additional musculoskeletal problems of an upper limb,**	**Intervention: subacromial injection with LA + Botulinumtoxin B** **Comparison: subacromial injection with LA + Triamcinolone**	**Primary: DASH** **Secondary: NRS** **Results: Both groups obtained a significant improvment of NRS, DASH, and active shoulder abduction at 1 and 3 months followup. BT group showed significantly better outcomes in terms of reduction of NRS and DASH at 3 months than TA group. BT group showed strong trend toward the larger degree of active shoulder abduction than the TA group at 3 months follow-up, as well. Whereas, no significant difference was found in NRS, DASH, and active shoulder abduction between the 2 groups at 1 month**

and clinical and ultrasonographic evidence of total rotator cuff tear were excluded		follow-up. Author's Conclusion: BT type B can be a useful strategy and has great potential for replacing steroids as a treatment for SB or SIS.

Methodical Notes

Funding Sources:

COI:

Randomization: non involved staff member

Blinding: patient was blinded

Dropout Rate/ITT-Analysis:

Notes:

Min, K. S. et al. A double-blind randomized controlled trial comparing the effects of subacromial injection with corticosteroid versus NSAID in patients with shoulder impingement syndrome. J Shoulder Elbow Surg. 22. 595-601. 2013

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 1 Study type: RCT Number of Patient: 32 Recruitung Phase: unclear Inclusion Criteria: 1. Shoulder pain with passive and/or active abduction in the 60-120 arc of motion 2. Positive Neer's Test 3. Positive Hawkin's Test 4. Diagnosis of subacromial bursitis based on tenderness	Intervention: subacromi Comparison: subacromi	Primary: UCLA score Secondary: VAS, ROM Results: At 1 month follow-up, both treatment arms resulted in increased range of motion and decreased pain. The steroid group decreased in active abduction while the NSAID group increased (steroid: 134, NSAID: 151, P ¼ .03). The mean improvement in the UCLA shoulder rating scale at 4 weeks was 7.15 for the NSAID group and 2.13 for the steroid group (P ¼ .03). Subgroup analysis of the UCLA scale demonstrated an increase in both forward flexion strength (P ¼ .04) and patient satisfaction (P ¼ .03) in the NSAID group. No significant difference could be seen in all other outcome measures. Author's Conclusion: In this study, an injection of ketorolac resulted in greater improvements in the UCLA shoulder rating scale than an injection of triamcinolone at 4 weeks follow-up. While both triamcinolone and ketorolac are effective in the treatment of isolated subacromial impingement, ketorolac appears to have equivalent if not superior efficacy; all the while decreasing patient exposure to the potential side- effects of corticosteroids.

to palpation anterior/lateral to the acromion. **Exclusion Criteria: 1. Age <18 years** **2. Symptoms less than one month** **3. Previous shoulder injections within the past 3 months 4. Evidence of os-acromiale or other confounding shoulder pathology on plain radiographs** **5. Evidence (MRI) or history of rotator cuff tear** **6. Evidence (Radiographs) or history of shoulder osteoarthritis 7. Systemic inflammatory condition** **8. Pending litigation or work-related claims related to the shoulder** **9. Previous shoulder surgery on the affected shoulder** **10. Evidence of local infection** **11. Evidence of adhesive capsulitis** **12. Previous history of gastrointestinal ulcers or bleeding disorders** **13. Evidence of shoulder instability**		

Methodical Notes

Funding Sources:

COI:

Randomization:

Blinding: double blinded

Dropout Rate/ITT-Analysis: initially 48 pat, 16 drop outs

Notes:

Pasin, T. et al. Comparison of the Effectiveness of Platelet-Rich Plasma, Corticosteroid, and Physical Therapy in Subacromial Impingement Syndrome. Arch Rheumatol. 34. 308-316. 2019

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 3 **Study type: Case control trial** **Number of Patient: 90** **Recruitung Phase: 09/15-09/16** **Inclusion Criteria: patients who presented with symptoms of shoulder pain at least for three months without major trauma** **Pat with SIS stage 2: Detailed physical examinations were performed. Manual muscle strength and speed test, Hawkins test, Neer compression test, Jobe test, painful arch test, and Yergason's test results were evaluated, and the shoulder joint range of motion was also evaluated using a standardized goniometer. Routine blood tests including erythrocyte sedimentation rate, complete blood count, C-reactive protein, and rheumatoid factor were studied after detailed**	**Intervention: PRP injection subacromially** **Comparison: corticosteroid injection, physiotherapy program**	**Primary: UCLA, quick DASH** **Secondary: SF 36, VAS** **Results: All scores improved in all three groups compared with the period before treatment. Comparison of the groups showed higher scores in group 1 compared to groups 2 and 3 at week eight on QuickDASH, UCLA SRS, VAS at rest and during activity, and SF-36 pain subgroup scores** **Author's Conclusion: All three treatment modalities were effective in the treatment of SAIS. However, we suggest that the inexpensive and noninvasive methods of physical therapy and exercise should be the first preferred treatment in SAIS owing to causing no adverse events.**

anamnesis and physical examination. Posteroanterior chest radiography, four-way cervical radiography, shoulder radiography for both shoulders, and magnetic resonance imaging (MRI) for the affected shoulder were performed **Exclusion Criteria: Patients with other types of shoulder pain due to cervical radiculopathy, thoracic outlet syndrome, dermatologic disease involving the shoulder, neuromuscular disease with muscle weakness, inflammatory joint disease, infection, metallic implants in the shoulder, cardiovascular disease, history of malignancy, diabetes mellitus or other endocrine system diseases, pregnancy, shoulder, back or neck operations, or those who were cardiac pacemaker carriers using nonsteroidal antiinflammatory drugs in the last week were excluded, SIS stage 1+3 excluded**		

Methodical Notes

Funding Sources:

COI:

Randomization: none

Blinding: none

Dropout Rate/ITT-Analysis:

Notes: no randomisation

Penning, L. I. et al. The effectiveness of injections of hyaluronic acid or corticosteroid in patients with subacromial impingement: a three-arm randomised controlled trial. J Bone Joint Surg Br. 94. 1246-52. 2012

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 1 **Study type: RCT three arms** **Number of Patient: 159** **Recruitung Phase: -** **Inclusion Criteria: Patients over 18 years of age and had pain in the shoulder, either at rest or on movement, pos. painful arc** **Exclusion Criteria: pain for less than six weeks; injection with corticosteroids in the preceding three months; flexion of < 100° in the frontal plane; external rotation limited by > 50% compared with the opposite side; allergy to lidocaine, steroids or hyaluronic acid; pregnancy or suspected pregnancy; dementia; prior infection of the shoulder joints; tumour; osteoporosis; rheumatoid arthritis according to the American College of Rheumatology (ACR) criteria21; referred pain, such as from the neck; an associated neurological disorder;**	**Intervention: subacromial injection with corticosteroid + lidocaine** **Comparison: subacromial injection with hyaluronic acid + lidocaine, injection with lidocaine alone**	**Primary: VAS** **Secondary: painful arc; range of movement; the Constant shoulder score25; patient-specific disability26; shoulder disability questionnaire27; shoulder pain score; and functional mobility test** **Results: The mean short-term reduction in pain on the VAS score at 12 weeks was 7% (SD 2.7; 97.5% confidence interval (CI) 0.207 to 1.55; p = 0.084) in the hyaluronic acid group, 28% (SD 2.8; 97.5% CI 1.86 to 3.65; p < 0.001) in the corticosteroid group and 23% (SD 3.23; 97.5% CI 1.25 to 3.26; p < 0.001) in the placebo group. At 26 weeks there was a reduction in pain in 63% (32 of 51) of patients in the hyaluronic acid group, 72% (38 of 53) of those in the corticosteroid group and 69% (38 of 55) of those in the placebo group** **Author's Conclusion: No convincing benefit from hyaluronic acid injections compared with corticosteroid or placebo injections. Corticosteroid injections produced a significant reduction in pain in the short term (three to 12 weeks), but in the long term the placebo injection produced the best results.**

polymyalgia; ankylosing spondylitis as diagnosed using the modified New York (NY) criteria22; whiplash injury; previous fractures or surgery on the shoulder, upper limb, neck or thorax; and behavioural, cognitive or psychiatric disorders. Patients unable to complete Dutch questionnaires independently or reluctant to adhere to the allocated treatment or to complete follow-up were also excluded.		

Methodical Notes

Funding Sources:

COI:

Randomization: external physician blinded the injections

Blinding: double blinded

Dropout Rate/ITT-Analysis: 22 Pat dropped out and were evaluated according to ITT in their groups

Notes: Placebo = local anaesthetic - no real placebo?!

Evidenztaellen für Kapitel 8

Inhalt: 2 Literaturstellen

OXFORD (2011) Appraisal Sheet: Systematic Reviews

Chen, A. L. et al. The role of the acromioclavicular joint in impingement syndrome. Clin Sports Med. 22. 343-57. 2003			
Evidence level/Study Types	**P - I - C**	**Outcomes/Results**	**Literature References**

Evidence level: 5 **Study type:** **Databases:** **Search period:** **Inclusion Criteria:** **Exclusion Criteria:**	**Intervention:** **Comparison:**	**Primary:** **Secondary:** **Results:** **Author's Conclusion:**	
Methodical Notes			
Funding Sources: **COI:** **Study Quality:** **Heterogeneity:** **Publication Bias:** **Notes:** **no systematic review**			

NEWCASTLE - OTTAWA Checklist: Case Control

Barber, F. A. Coplaning of the acromioclavicular joint. Arthroscopy. 17. 913-7. 2001			
Evidence level	**Methodical Notes**	**Patient characteristics**	**Interventions**
Evidence level: 3 **Study type: Case control study**	**Funding sources:** **Conflict of Interests:** **Randomization: none** **Blinding: none** **Dropout rates:**	**Total no. patients: 76** **Patient characteristics:** **Inclusion criteria: all non-workers compensation patients undergoing ASD 1994-1997** **Exclusion criteria: glonohumeral pathology, rotator cuff repair, isolated ASD with no AC joint treatment**	**Interventions: ASD + undersurface distal clavicle resection** **Comparison: ASD + partial ACJ resection, ASD + full ACJ resection**

Notes:	**inclusion criteria for impingement not described, no description of preop radiographs in comparison with intraop finding** **Author's conclusion: coplaning that removes portions of the distal clavicle up to the level of the resected acromion does not appear to compromise the result of ASD**	
Outcome Measures/results	**Primary Constant Score, ASES, Rowe, SANE scores** **Secondary**	**Results: All patients, regardless of the amount of distal clavicle resected, scored good or excellent results**

Komplikationen gegenüber subacromialer Dekompression

Inhalt: 3 Literaturstellen

OXFORD (2011) Appraisal Sheet: Systematic Reviews

Kromer, T. O. et al. Effects of physiotherapy in patients with shoulder impingement syndrome: a systematic review of the literature. J Rehabil Med. 41. 870-80. 2009

Evidence level/Study Types	P - I - C	Outcomes/Results	Literature References
Evidence level: 2 **Study type: Systematic Review** **Databases: MEDLINE, EMBASE,CINAHL,Cochrane,PEDro** **Search period: 1966-2007** **Inclusion Criteria: RCTs in English, German and Dutch, Diagnosed SIS or one sign (pain with overhead activities, painful arc sign, Neer sign, or Hawkins-Kennedy sign.** **Exclusion Criteria: adhesive capsulitis, frozen shoulder, osteoarthritis, fractures, systemic infections and systemic diseases, neoplasm and metastasis**	**Population: median sample n=56, men and women with a similar age. Diagnosed SIS or one sign (pain with overhead activities, painful arc sign, Neer sign, or Hawkins-Kennedy sign.** **Intervention: rehabilitation program, isometic strengthening, exercise therapy,home based excercise, ultrasound, ice, motor retraining.... Table 4** **Comparison:**	**Primary: Pain and Functioning** **Secondary:** **Results: Physiotherapist-led exercises + manual therapy significantly better resilts int the short term for pain and functioning than exercises alone.** **Author's Conclusion: There is moderate evidence that adding manual therapy to a standardized shoulder-specific exercise programm is superior in pain improvement compared with an isolated exercise regimen at 3 and 8 weeks follow-up.**	**Östör AJK, Richards CA, Prevost AT, Speed 1. CA, Hazleman BL. Diagnosis and relation to general health of shoulder disorders presenting to primary care. Rheumatology 2005; 44: 800–805.** **2. van der Windt DA, Koes BW, de Jong BA, Bouter LM. Shoulder disorders in general practice: incidence, patient characteristic, and management. Ann Rheum Dis 1995; 54: 959–964** **3. Lewis JS, Green AS, Dekel**

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Methodical Notes

Funding Sources:

COI:

Study Quality:

Heterogeneity:

Publication Bias:

Notes:

OXFORD (2011) Appraisal Sheet: RCT

Farfaras, S. et al. Subacromial Decompression Yields a Better Clinical Outcome Than Therapy Alone: A Prospective Randomized Study of Patients With a Minimum 10-Year Follow-up. Am J Sports Med. 46. 1397-1407. 2018

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 2 **Study type: RCT** **Number of Patient: 87** **Recruitung Phase: 11/98-01/02** **Inclusion Criteria: subacromial pain persisting after conservative therapy (nonstructured physiotherapy, nonsteroidal anti-inflammatory drugs, and local corticosteroid injection). The patients also tested positive for impingement (Neer sign and Hawkin test). subacromial pain for at least 6 months** **Exclusion Criteria: diabetes mellitu as well as any neurologic or spinal disorder, radiographic OA, the presence of chronic joint disorders (eg, rheumatoid arthritis), full-thickness rotator cuff rupture, and SAIS stage III.**	**Intervention: Open acromioplasty** **Comparison: arthroscopic acromioplasty, physiotherapy**	**Primary: The Constant score, the Watson and Sonnabend score, and the 36-Item Short Form Health Survey (SF-36) questionnaire** **Secondary:** **Results: The Constant score improved significantly at follow-up for the OSG (P = .003) and ASG (P = .011), while no significant improvement was detected for the PTG. The OSG revealed a significant improvement versus the PTG at follow-up (P = .011); otherwise, no significant differences were found. For the Watson and Sonnabend score, the OSG revealed a significant improvement in 13 of 14 questions. The corresponding finding was made for the ASG and PTG in 9 of 14 questions (P = .14). According to ultrasound, 1 of 20 patients in the OSG had a full-thickness rotator cuff rupture on the index side. The corresponding finding was made for 1 of 18 patients in the ASG and 4 of 28 in the PTG (P = .29). Per the radiographs, 3 of 20 patients in the OSG had moderate or severe OA in the index shoulder. The corresponding finding was made for 1 of 18 patients in the ASG and 0 of 28 in the PTG (P = .12).** **Author's Conclusion: After a minimum 10 years of follow-up, the surgical treatment of SAIS appears to render better clinical results than physical therapy alone. No significant differences were found among the groups in terms of the presence of full-thickness rotator cuff ruptures and OA**

Methodical Notes

Funding Sources:

COI:

Randomization: 4boxes m/f >/< 55years, patients chose envelope

Blinding: none

Dropout Rate/ITT-Analysis:

Notes:

Ketola, S. et al. Does arthroscopic acromioplasty provide any additional value in the treatment of shoulder impingement syndrome?: a two-year randomised controlled trial. J Bone Joint Surg Br. 91. 1326-34. 2009

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 2 **Study type: RCT** **Number of Patient: 140** **Recruitung Phase: 06/2001-06/2004** **Inclusion Criteria: positive Neer's test, pain in the shoulder which was resistant to rest, anti-inflammatory drugs, subacromial glucocorticosteroid injections, and physiotherapy, and symptoms that had persisted for at least three months.** **Exclusion Criteria: glenohumeral or acromioclavicular osteoarthritis, signs of glenohumeral instability, previous surgery to the affected shoulder, a full thickness tear of the rotator cuff, cervical radicular syndrome, adhesive capsulitis, or neuropathy of the shoulder region**	**Intervention: Acromioplasty + Exercise program** **Comparison: only exercise program**	**Primary: VAS 3, 6, 12 and 24 months after intervention** **Secondary: muscle strength, passive ROM, Neer Test, DASH Score** **Results: at 24 months arthroscopic decompression with acromioplasty followed by a structured exercise treatment (combined treatment) did not differ significantly from a supervised exercise programme (exercise group) in mean self-reported pain on VAS, or in secondary outcome measures of disability, pain at night, shoulder disability questionnaire score, number of painful days, and proportion of pain-free patients** **Author's Conclusion: Acromioplasty seems not to be an effective additional treatment over supervised exercise for patients with shoulder impingement syndrome when evaluated at two years, and the costs are much higher than for exercise therapy alone.**

Methodical Notes

Funding Sources:

COI:

Randomization: PC envelope

Blinding: FU examinor was blinded **Dropout Rate/ITT-Analysis: 14 Patients in exercise group underwent operation, 12 patients in OP group cancelled operation but attended FU visits** **Notes:**

Lasertherapie

Inhalt: 3 Literaturstellen

OXFORD (2011) Appraisal Sheet: Systematic Reviews

Dong, W. et al. Treatments for shoulder impingement syndrome: a PRISMA systematic review and network meta-analysis. Medicine (Baltimore). 94. e510. 2015

Evidence level/Study Types	P - I - C	Outcomes/Results	Literature References
Evidence level: 2 **Study type: Systematic Review mit Metaanalyse** **Databases: Medline, EMBASE, the Cochran Central Register of Controlled Trials (CENTRAL)** **Search period: bis 15. April 2014** **Inclusion Criteria: - RCTs** **- Teilnehmer älter als 18 Jahre** **- diagnsotiziertes Schulterimpingement Syndrom (nicht verursacht durch Trauma**	**Population: Patienten mit Schulterimpingement Syndrom** **Intervention: Intervention zur Behandlung von Schulterimpingement Syndrom** **Comparison: Vergleichsbehandlung (inkl. Placebo und Scheinbehandlung)**	**Primary: Pain Score** **Constant-Murley Score (CMS)** **Secondary:** **Results: - die Literaturrecherche brachte 915 Studien hervor, nach Durchsicht und Bewertung wurden hiervon 52 Artikel in die qualitative Auswertung und 33 Artikel in die quantitative Auswertung einbezogen** **- 28 Studien bezogen sich auf nicht-operative Therapiemaßnahmen (26 enthielten Angaben zum Pain Score/12 zum CMS)** **- 5 Studien bezogen sich auf operative Behandlungen (5 enthielten Angaben zum Pain score/3 zum CMS)** **- Insgesamt wurden die Ergebnisse von 2300 Patienten in die Übersichtsarbeit einbezogen, davon wurden 2065 nicht-operativ behandelt und 235 unterzogen sich einem operativen Eingriff.** **Nicht-operative Therapie** **- die Ergebnisse deuten auf die Wirksamkeit der Bewegungstherapie** **- Kombinationen aus Bewegungstherapie mit anderen Interventionen (spezifische Übungen, Kinesio-Taping, Low-Level-Lasertherapie, radiale extrakorporale Stosswellentherapie und manuelle Therapie, sowie einige**	**1. Van der Heijden GJM. Shoulder disorders: a state-of-the-art review. Baillieres Best Pract Res Clin Rheumatol. 1999;13:287–309.** **2. Michener LA, McClure PW, Karduna AR. Anatomical and biomechanical mechanisms of subacromial impingement syndrome. Clin Biomech (Bristol, Avon). 2003;18:369–379.** **3. Koester MC, George MS, Kuhn JE. Shoulder**

oder systematische Erkrankung) - Bewertung von mindestens zwei Interventionen zur Behandlung des Schulterimpingement Syndroms, einschließlich Placebo- oder Scheinbehandlung - dokumentierte Ergebnisse zu Wirkung auf Schmerzlinderung und funktioneller Wiederherstellung - Follow-up nach mindestens 2 Wochen Exclusion Criteria: keine Exklusions-Kriterien formuliert		weniger häufig angewandte Therapien wie Akupunktur, diakutane Fibrolyse, Therapie mit gepulsten elektromagnetischen Feldern und Mikrowellen-Diathermie-Ultraschalltherapie) zeigen einen Trend zur höheren Effektivität als Bewegungstherapie allein - Medikamenteninjektionen zeigen nur in Kombination mit Bewegungstherapie positivere Effekte - In Bezug auf die Auswirkung auf den CMS wurden ähnliche Effekte beobachtet wie beim Pain Score, auch wenn hier nur wenige Studien einbezogen werden konnten - Bei Kinesio-Taping, spezifischen Übungen und Akupunkturtherapien wurde die Überlegenheit der kombinierten Behandlungsoptionen durch signifikante Unterschiede unterstützt. - bei gepulsten elektromagnetischen Feldern, diakutaner Fibrolyse und Ultraschall-Therapien lediglich eine Tendenz zu einem Nutzen erkennbar - die Low-Level-Lasertherapie zeigt in Kombination mit Bewegungstherapie eine relativ schlechtere Wirkung als isolierte Bewegungstherapie - Bei den Behandlungsoptionen, die die lokalisierte Injektion von NSAR und Bewegungstherapie kombinierten, unterschieden sich die Ergebnisse der CMS deutlich von den Ergebnissen des Schmerz-Scores; insbesondere wiesen diese Behandlungsoptionen im Vergleich zur alleinigen Bewegungstherapie eine signifikante Unterlegenheit auf Operative Therapien - gebräuchstliche Methoden: arthroskopische und offene Techniken - kein signifikanter Unterschied im Behandlungseffekt für modifizierte Methoden (z.B. mit Radiofrequenz etc.), weder im Hinblick auf den Schmerz-Score noch auf das CMS - arthroskopische Technik tendiert zu einer besseren Wirksamkeit als die offene Operationstechnik - Bursektomie ohne Akromioplastie scheint nicht so gut zu sein wie die Standard-ASD und die ASD in Kombination mit Radiofrequenz - Bewegungstherapie hat auch in dieser Untergruppe eine ausgezeichnete Wirkung Author's Conclusion: Übungsbehandlungen und übungsbasierte Behandlungen sind die wichtigsten Interventionen in der Behandlung von Patienten mit Schulterimpingement Syndrom (SIS). Für Patienten, die eine nichtoperative Behandlungsoption in einem frühen Stadium der SIS suchen, sollte Bewegung in Kombination mit anderen Therapien empfohlen werden. Unter diesen Therapien sollten Kinesiotaping, spezifische Übungen und Akupunkturtherapie als erste Behandlungsoptionen in Betracht gezogen werden während die Therapie mit gepulsten elektromagnetischen Feldern, lokalisierte Kortikoidinjektion, diakutane Fibrolyse und Ultraschalltherapie als zweite Behandlungsoptionen in Betracht gezogen werden können; eine Low-Level-Lasertherapie und die lokalisierte Injektion von NSAR wird	impingement syndrome. Am J Med. 2005;118:452–455. 4. Neer CSII. Impingement lesions. Clin Orthop Relat Res. 1983: 70–77. 5. Aktas I, Akgun K, Cakmak B. Therapeutic effect of pulsed electromagnetic field in conservative treatment of subacromial impingement syndrome. Clin Rheumatol. 2007;26:1234–1239. 6. Galace De Freitas D, Marcondes FB, Monteiro RL, et al. Pulsed electromagnetic field and exercises in patients with shoulder impingement syndrome: a randomized, double-blind, placebo-controlled clinical trial. Arch Phys Med Rehabil. 2014;95:345–352. 7. Senbursa G, Baltaci G, Atay A. Comparison of conservative treatment with and without manual physical therapy for patients with shoulder impingement syndrome: a prospective,

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Methodical Notes

Funding Sources: Keine finanziellen Interessen.

COI: kein Interessenskonflikt

Study Quality: - Randomisierung und Zuteilung der untersuchten Gruppen nur bei 16 bzw. 18 Studien ersichtlich
- die meisten RCTs hatten kurze Follow-up Zeiten
- die meisten Vergleiche wurden nur innerhalb eines RCT's gezogen
- eine unzureichende Verblindung könnte die Ergebnisse der Studien beeinflusst haben

Heterogeneity: heterogene Studien

Publication Bias: - nur 7 RCTs wiesen ein geringes Risiko für Publikationsbias auf
- 24 RCTs hatten ein hohes Risiko
- die Verblindung wurde in 14 der 33 Studien eindeutig beschrieben
- Die Ergebnisse der paarweisen Meta-Analyse und der Netzwerk-Meta-Analyse stimmten gut miteinander überein. Im Hinblick auf nicht-operative Behandlungen zeigten übungsbasierte Therapien bessere Behandlungseffekte. Bei den operativen Behandlungen zeigte die arthroskopische Technik tendenziell eine bessere Wirksamkeit als die offene Operationstechnik. Diese Ergebnisse wurden durch Inkonsistenztest, Sensitivitätstest und Meta-Regression unterstützt.

Notes:

Gebremariam, L. et al. Subacromial impingement syndrome--effectiveness of physiotherapy and manual therapy. Br J Sports Med. 48. 1202-8. 2014

Evidence level/Study Types	P - I - C	Outcomes/Results	Literature References
Evidence level: 2 Study type: Systematic Review Databases: The Cochrane Library, PubMed, EMBASE, PEDro, CINAHL Search period: bis März 2009 Inclusion Criteria: - Systematic Reviews und RCTs - Schulterimpingement Syndrom (nicht verursacht durch ein akutes Trauma, oder eine systemischen Erkrankung wie durch CANS definiert) - Bewertung einer Intervention für Schulterimpingement	Population: Patienten mit Schulterimpingement Syndrom (nicht verursacht durch ein akutes Trauma, oder einer systemischen Erkrankung wie durch CANS definiert) Intervention: Interventionen zur Behandlung des Schulterimpingement Syndroms Comparison:	Primary: Schmerz Funktion Wiederherstellung Secondary: Results: - Die Literatursuche brachte 141 Reviews und 562 RCTs hervor - Nach Durchsicht und Bewertung wurden 2 Reviews und 10 RCTs in die Analyse einebzogen - Übungstherapie vs. LaserPlacebo - moderate Evidenz, dass kurzfristig Übungstherapie effektiver ist als LaserPlacebo - keine Evidenz für langfristige Effektivität im Vergleich - Übungstherapie vs. Kontrollen (ohne Intervention) - moderate Evidenz, dass kurzfristig und mittelfristig Übungstherapie effetiver ist als Kontrollen - Übungstherapie vs. Hyperthermie - moderate Evidenz, dass eine Hyperthermie-behandlung kurzfristig effektiver ist als Übungsbehandlung - Übungstherapie vs. Schultergurt - keine Evidenz für kurfristige Effektivität im Vergleich - Übungstherapie vs. Ultraschall - keine Evidenz für kurzfristige Effektivität im Vergleich - Übungstherapie vs. (supervisierter) physiotherapie - keine Evidenz für kurzfristige Effektivität im Vergleich	1 Huisstede BM, Miedema HS, Verhagen AP, et al. Multidisciplinary consensus on the terminology and classification of complaints of the arm, neck and/or shoulder. Occup Environ Med 2007;64:313–19. 2 Huisstede BM, Wijnhoven HA, Bierma-Zeinstra SM, et al. Prevalence and characteristics of complaints of the arm, neck, and/or shoulder (CANS) in the open population. Clin J Pain 2008;24:253–9. 3 Huisstede BM, Bierma-Zeinstra SM,

- dokumentierte Ergebnisse bezogen auf Schmerz, Funktion oder Wiederherstellung - Follow-up Periode von mindesten 2 Wochen - keine sprachlichen Einschränkungen Exclusion Criteria: keine explizite Definition von Exklusions-Kriterien		- betriebliche Gesundheitsförderung vs. Training - eingeschränkte Evidenz, dass BGF kurzfristig effektiver ist als Training - Übungstherapie vs Übungstherapie+Mobilisation - widersprüchliche Evidenz für die kurzfristige Effektivität im Vergleich - Eigenübungsprogramm+MT vs. Eigenübungsprogramm - eingeschränkte Evidenz, dass Eigenübungsprogramm+MT kurzfristig effektiver ist als isoliertes Eigenübungsprogramm - Ultraschall vs. Placebo - keine Evidenz für die kurz-, mittel- und langfristige Effektivität im Vergleich - Ultraschall vs. Hyperthermie - moderate Evidenz, dass Hyperthermie kurzfristig effektiver ist als Ultraschall - Iontophorese (Essigsäure) vs. Placebo - keine Evidenz für die Effektivität im Vergleich - Ultraschall vs. Kortikosteroidinjektion - keine Evidenz für kurzfristige Effektivität im Vergleich - Ultraschall vs. Akupunktur - keine Evidenz für kurz-, mittel-, langfristige Effektivität im Vergleich - Laser vs. Placebo - widersprüchliche Evidenz für kurzfristige Effektivität im Vergleich - Laser vs. Ultraschall - eingeschränkte Evidenz, dass Laser kurzfristig effektiver ist als Ultraschall - PEMF vs. Placebo - widersprüchliche Evidenz für Effektivität im Vergleich Author's Conclusion: Zusammenfassend lässt sich sagen, dass nur ein RCT zur manuellen Therapie in diese Übersicht aufgenommen wurde. Es wurde nur eine begrenzte Evidenz für die Wirksamkeit der manuellen Therapie als Zusatztherapie zum Selbsttraining gefunden. Alle anderen in diese Übersicht einbezogenen Studien konzentrierten sich auf Physiotherapie. Es wurden widersprüchliche Evidenzniveaus für die Wirksamkeit von Lasertherapie und Ultraschall gefunden. Für die Mobilisierung als Zusatztherapie zu Übungen wurden kurzfristig widersprüchliche Evidenzniveaus für die Wirksamkeit gefunden. Obwohl wir für die Hyperthermie im Vergleich zur Bewegungstherapie oder Ultraschall kurzfristig die besten Ergebnisse fanden (mäßige Evidenz), erwiesen sich Hyperthermie und Bewegungstherapie im Vergleich zu Kontrollen oder Placebo kurzfristig als wirksamer (mäßige Evidenz). Hinsichtlich der Wirksamkeit der Hyperthermie wurden keine mittel- oder langfristigen Ergebnisse untersucht. Mittelfristig zeigte die Bewegungstherapie im Vergleich zu Placebo oder Kontrollen die besten Ergebnisse (mäßige Evidenz), während langfristig keine Evidenz gefunden wurde. Wegen des Fehlens einer detaillierten Beschreibung der verwendeten Übungsprotokolle ist die aktuelle Evidenz jedoch in Bezug auf die Anwendung in der klinischen Praxis schwer zu interpretieren. Daher sollten sich	Koes BW, et al. Incidence and prevalence of upper-extremity musculoskeletal disorders. A systematic appraisal of the literature. BMC Musculoskelet Disord 2006;7:7. 4 Ostor AJ, Richards CA, Prevost AT, et al. Diagnosis and relation to general health of shoulder disorders presenting to primary care. Rheumatology (Oxford) 2005;44:800–5. 5 Fongemie AE, Buss DD, Rolnick SJ. Management of shoulder impingement syndrome and rotator cuff tears. Am Fam Physician 1998;57:667–74, 80–2. 6 van Rijn RM, Huisstede BM, Koes BW, et al. Associations between work-related factors and specific disorders of the shoulder—a systematic review of the literature. Scand J Work Environ Health 2010;36:189–201. 7 Gebremariam L, Hay EM, Koes BW, et al.

		zukünftige RCTs, die sich mit der Übungstherapie befassen, auch auf folgende Aspekte konzentrieren: auf die (Langzeit-)Wirkung verschiedener Übungsprotokolle, einschließlich der Intensität, Dauer, Häufigkeit und Belastung der Übungen.	**Effectiveness of surgical and postsurgical interventions for the subacromial impingement syndrome: a systematic review. Arch Phys Med Rehabil 2011;92:1900–13. 8 Morrison DS, Frogameni AD, Woodworth P. Non-operative treatment of subacromial impingement syndrome. J Bone Joint Surg Am 1997;79:732–7. 9 Huisstede BM, Gebremariam L, van der Sande R, et al. Evidence for effectiveness of Extracorporal Shock-Wave Therapy (ESWT) to treat calcific and non-calcific rotator cuff tendinosis—a systematic review. Man Ther 2011;16:419–33. 10 van der Sande R, Rinkel WD, Gebremariam L, et al. Subacromial impingement syndrome: effectiveness of pharmaceutical interventions-nonsteroidal anti-inflammatory**

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			quality into data synthesis. Spine (Phila Pa 1976) 2007;32:796–806.

Methodical Notes

Funding Sources: Diese Forschung wurde von Fonds Nuts Ohra finanziert.

COI: Kein Interessenskonflikt

Study Quality: - 5 von 10 eingeschlossenen RCTs waren von hoher Qualität
- Die häufigsten methodologischen Mängel waren
- nicht Verblindung der Untersucher
- unklare Randomisierung

Heterogeneity: Quantitative Analysen waren aufgrund der Hetero´genität der Studien nicht möglich.

Publication Bias:

Notes:

Steuri, R. et al. Effectiveness of conservative interventions including exercise, manual therapy and medical management in adults with shoulder impingement: a systematic review and meta-analysis of RCTs. Br J Sports Med. 51. 1340-1347. 2017

Evidence level/Study Types	P - I - C	Outcomes/Results	Literature References
Evidence level: 2 Study type: Systematisches Review und Meta-Analyse Databases: Medline, CENTRAL, CINAHL, Embase und PEDro Search period: bis Januar 2017 Inclusion Criteria: Beschwerden über Schulterschmerzen (Basierend auf Michener et al.): - Painful arc zwischen 40° und 120° in Abduktion, Beugung - Schmerz bei aktiver	Population: - Erwachsene(18 Jahre und älter) mit diagnostiziertem Schulter Impingement Intervention: - konservative Interventionen (Kinesiotape, Laser u. a.) Comparison: - jede Art von	Primary: Die in dieser systematischen Übersicht betrachteten primären Endpunkte waren Schmerzen - Schmerz bei Aktivität - Schmerzen in der Nacht - Globaler Schmerz - Schmerz in Ruhe - Schmerz-Unterskalen von zusammengesetzten Skalen - Schmerz nicht spezifiziert und Schulterfunktion - Mittelwert mehrerer Funktionswerte, wenn Mittelwert	1. Abrisham SM, Kermani-Alghoraishi M, Ghahramani R, Jabbari L, Jomeh H, Zare M. Additive effects of low-level laser therapy with exercise on subacromial syndrome: a randomised, double-blind, controlled trial. Clinical rheumatology 2011;30(10):1341-6 doi: 10.1007/s10067-011-1757-7. 2. Adebajo AO, Nash P, Hazleman BL. A prospective double blind dummy placebo controlled study comparing triamcinolone hexacetonide injection with oral diclofenac 50 mg TDS in patients with rotator cuff tendinitis. The Journal of rheumatology 1990;17(9):1207-10. 3. Akgun K, Birtane M, Akarirmak U. Is local subacromial corticosteroid injection beneficial in subacromial impingement syndrome? Clinical rheumatology 2004;23(6):496-500 doi: 10.1007/s10067-004-0930-7.

Armhebung - Test von Neer, Hawkins-Kennedy, Speed oder Jobe - Empty can test - Resistenter schmerzhafte oder schwache Schulterabduktion - Resistente oder schwache Schulter-Außenrotation - Diagnose basierend auf Kriterien nach Cyriax (d.h. schmerzhafter Bogen oder schmerzhafter Abduktionstest) - Impingement-Test mit Lidocain - Empfindlichkeit bei Palpation der Sehnen der Rotatorenmanschette Outcomes: - Schmerz, Funktion, aktives Range of Motion Studiendesign - Randomisierte kontrollierte Studien Kontrollierter Follow-up-Zeitraum - Basierend auf vordefinierten Kriterien Exclusion Criteria: - Fallberichte, Behandlungen nach der Operation, erfüllten nicht die spezifizierten Ergebnisparameter, traumatische Vorfälle, geschrieben in Chinesisch und Farsi(es wurde auch ein Artikel auf türkisch ausgeschlossen?)	Interventionen (einschließlich Plazebo, andere Behandlungen oder Operationen)	und SD in der Studie berechnet wurden - Disability subscale von SPADI (falls verfügbar; sonst Gesamtpunktzahl) - Constant-Murley-Gesamtpunktzahl - Disabilities of the arm, shoulder and hand (DASH) - Oxford Shoulder Scale - University of California Los Angeles Shoulder Rating Scale (UCLA) - Shoulder Disability Questionnaire (SDQ) - American Shoulder and Elbow Surgeons standardised shoulder assessment form (ASES) - Shoulder Function Assessment (SFA) - Funktionsweise der Kurzform und andere Algofunktionale Skala - Globale Beurteilungen von Patienten - Globale Beurteilungen von Ärzten Secondary: Das sekundäre Ergebnis war die aktive Bewegungsreichweite - Aktive Abduktion - Aktive Flexion - Aktive Außenrotation Results: Die Ergebnisse wurden aus dem am längsten verfügbaren Follow-up (für die Hauptanalyse) und dem ersten danach verfügbaren Zeitpunkt extrahiert. Die zusätzliche Tape- und Lasertherapie-Behandlung zur	4. Akkaya N, Akkaya S, Gungor HR, Yasar G, Atalay NS, Sahin F. Effects of weighted and un-weighted pendulum exercises on ultrasonographic Acromiohumeral distance in patients with subacromial impingement syndrome. Journal of back and musculoskeletal rehabilitation 2016 doi:10.3233/bmr-160737. 5. Aksakal M, Ermutlu C, Ozkaya G, Ozkan Y. Lornoxicam injection is inferior to betamethasone in the treatment of subacromial impingement syndrome : A prospective randomized study of functional outcomes. Der Orthopade 2016 doi: 10.1007/s00132-016-3302-5. 6. Aktas I, Akgun K, Cakmak B. Therapeutic effect of pulsed electromagnetic field in conservative treatment of subacromial impingement syndrome. Clinical rheumatology 2007;26(8):1234-9 doi: 10.1007/s10067-006-0464-2. 7. Akyol Y, Ulus Y, Durmus D, et al. Effectiveness of microwave diathermy on pain, functional capacity, muscle strength, quality of life, and depression in patients with subacromial impingement syndrome: a randomized placebo-controlled clinical study. Rheumatology international 2012;32(10):3007-16 doi: 10.1007/s00296-011-2097-2. 8. Al Dajah SB. Soft Tissue Mobilization and PNF Improve Range of Motion and Minimize Pain Level in Shoulder Impingement. Journal of physical therapy science 2014;26(11):1803-5 doi: 10.1589/jpts.26.1803. 9. Alvarez CM, Litchfield R, Jackowski D, Griffin S, Kirkley A. A prospective, double-blind, randomized clinical trial comparing subacromial injection of betamethasone and xylocaine to xylocaine alone in chronic rotator cuff tendinosis. The American journal of sports medicine 2005;33(2):255-62. 10. Álvarez-Nemegyei J, Bassol-Perea A, Pasos JR. Efficacy of the local injection of methylprednisolone acetate in the subacromial impingement syndrome. A randomized, double-blind trial. Reumatología Clínica (English Edition) 2008;4(2):49-54. 11. Ammer K, Mayr H. Magnetfeldtherapie bei tendopathischer periarthropathia humeroscapularis (Magnetic field therapy in case of tendopathic periarthropathia humeroscapularis -- report of a double-blind study) [German]. Orthopadische Praxis 1991;27:696-699 1991. 12. Pinar Doruk Analan, Berrin Leblebici, Mehmet Adam. Effects of therapeutic ultrasound and exercise on pain,

		Physiotherapie könnte einen kleinen Nutzen bringen. Kinesiotape: Schmerz: Tape ist dem Plazebo überlegen (5 Studien). Funktion: Das Tape ist dem Plazebo-Tape überlegen, aber nur im kürzesten Follow-up (3 Studien). Laser: Laser ist dem Plazebo-Laser überlegen (3 Studien). Laser plus Übung ist dem Plazebo-Laser plus Übung überlegen (3 Studien). (6 Studien). Author's Conclusion: Obwohl die Evidenz nur von sehr geringer Qualität ist, kann bei Patienten mit Schulter-Impingementsymptomen Bewegung Tape und Lasertherapie hinzugefügt werden.	function, and isokinetic shoulder rotator strength of patients with rotator cuff disease. Journal of physical therapy science 2015;27(10):3113-17 5p. 13. Arias-Buria JL ST-D, Raquel Valero-Alcaide, Jaime Salom-Moreno, Maria A. Atim-Arratibel, Cesar Fernandez-de-las-Penas. Ultrasound-Guided Percutaneous Electrolysis and Eccentric Exercises for Subacromial Pain Syndrome: A Randomized Clinical Trial. Evidence-based Complementary & Alternative Medicine (eCAM) 2015:1-9 9p doi: 10.1155/2015/315219. 14. Arias-Buría JL, Fernández-de-las-Peñas C, Palacios-Ceña M, Koppenhaver SL, Salom-Moreno J. Exercises and Dry Needling for Subacromial Pain Syndrome: A Randomized Parallel-Group Trial. Journal of Pain 2017;18(1):11-18 doi: 10.1016/j.jpain.2016.08.013. 15. Atkinson M, Mathews R, Brantingham JW, et al. A randomized controlled trial to assess the efficacy of shoulder manipulation versus placebo in the treatment of shoulder pain due to rotator cuff tendinopathy. Journal of the American Chiropractic Association 2008 Dec;45(9):11-26 2008. 16. Atya AM. Efficacy of microcurrent electrical stimulation on pain, proprioception accuracy and functional disability in subacromial impingement: RCT. Indian Journal of Physiotherapy and Occupational Therapy 2012 Jan-Mar;6(1):15-18 2012.17. Aytar A, Baltaci G, Uhl TL, Tuzun H, Oztop P, Karatas M. The effects of scapular mobilization in patients with subacromial impingement syndrome: a randomized, double-blind, placebo-controlled clinical trial. J Sport Rehabil 2015;24(2):116-29 doi: 10.1123/jsr.2013-0120. 18. Bae YH, Lee GC, Shin WS, Kim TH, Lee SM. Effect of motor control and strengthening exercises on pain, function, strength and the range of motion of patients with shoulder impingement syndrome. Journal of Physical Therapy Science 2011 Aug;23(4):687-692 2011. 19. Bal A, Eksioglu E, Gurcay E, Gulec B, Karaahmet O, Cakci A. Low-level laser therapy in subacromial impingement syndrome. Photomedicine and laser surgery 2009;27(1):31-6 doi: 10.1089/pho.2007.2222. 20. Bang MD, Deyle GD. Comparison of supervised exercise with and without manual physical therapy for patients with shoulder impingement syndrome. The Journal of orthopaedic and sports physical therapy 2000;30(3):126-37 doi: 10.2519/jospt.2000.30.3.126.

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Methodical Notes

Funding Sources: Nicht genannt

COI: Keine erklärt

Study Quality: Die Studienqualität der inkludierten Studien wurde mit Hilfe des Cochrane Collaboration's Tool bewertet. Für alle Vergleiche und Ergebnisse wurde die Qualität der Evidenz als sehr gering eingestuft. Der wahre Effekt wird wahrscheinlich im Wesentlichen von der Schätzung des Effekts abweichen.

Verblindung (wie sie bei therapeutischen Studien selten möglich ist), die methodische Qualität, eine große klinische Diversität (wie zum Beispiel Dauer der Symptome, diagnostische Kriterien, Geschlechterverhältnis), variable Länge der Follow-up, die große klinische und statistische Heterogenität sowie die geringe Teilnehmerzahl für die meisten Vergleiche waren hierbei die Hauptprobleme.

Heterogeneity: Es liegt eine große Heterogenität und somit schlechte Verallgemeinerbarkeit zwischen den Ergebnissen der einzelnen Studien vor.

Tape:
Schmerz: Tape war Plazebo-Tape überlegen (5 Studien). $Chi^2 = 14,79$, $I^2 = 73$ %
Funktion: Tape war Plazebo-Tape überlegen, aber nur im 3-monatigen Follow-up (3 Studien). $Chi^2 = 3,54$, $I^2 = 43$ %

Laser: Laser war Plazebo-Laser überlegen (3 Studien). $Chi^2 = 4,72$, $I^2 = 58$ %
Laser plus Übungen war Plazebo-Laser plus Übungen überlegen(6 Studien). $Chi^2 = 10,59$, $I^2 = 53$ %

Publication Bias: Die Vergleiche beinhalteten weniger als 10 Studien, so dass Funnel Plots nicht untersucht wurden. Der Zugriffsfehler wird aufgrund mehrerer verwendeter, einschlägiger Datenbanken als gering eingeschätzt. Jedoch wurde nicht berichtet, ob kostenbedingt Studien nicht abrufbar waren. Es wurden ausschließlich englisch-sprachige Studien inkludiert.

Notes:
Abwertung aufgrund 1.5 (eingeschlossene Studien sind heterogen)

NEWCASTLE - OTTAWA Checklist: Case Control

Loading...

Manuelle Therapie

Inhalt: 9 Literaturstellen

OXFORD (2011) Appraisal Sheet: Systematic Reviews

Desjardins-Charbonneau, A. et al. The efficacy of manual therapy for rotator cuff tendinopathy: a systematic review and meta-analysis. J Orthop Sports Phys Ther. 45. 330-50. 2015			
Evidence level/Study Types	**P - I - C**	**Outcomes/Results**	**Literature References**
Evidence level: 1 **Study type: Systematic Review and Meta Analysis** **Databases: Medline, Embase, PEDro, CINAHL** **Search period: Seit Eröffnung bis Juni 2014** **Inclusion Criteria: RC tendinopathy/tendinitis, Shoulder Impingement Syndrome, subacromial bursitis, adults, RCT, MT vs another intervention, published in English or French** **Exclusion Criteria: postsurgical condition, calcific tendinopathy, full thickness RC tear**	**Intervention:** **Primär: MT vs another intervention or placebo** **Sekundär: MT alone, Mt + exercise program, MT + other intervention** **Comparison: other intervention, placebo or multimodal intervention**	**Primary: 4 Studies: VAS** **9 Studies validated functional outcome Range of Motion** **Secondary:** **Results: 10/11 Pain relief using MT alone or in combination** **4/4 Pain relief using MT alone vs placebo** **5/7 Pain relief MT+ exercise higher than exercise alone** **4/6 long term functional outcome higer MT+exercise than exercise alone** **Author's Conclusion: MT alleine als auch in Kombination mit Trainingstherapie mit anderen Verfahren kann einen scherzreduzierenden Effekt bringen** **Mt ist Placebo in Bezug auf Schmerzreduktion überlegen**	**Atkinson M, Matthews R, Brantingham JW, et** **al. A randomized controlled trial to assess the** **efficacy of shoulder manipulation vs. placebo** **in the treatment of shoulder pain due to rotator** **cuff tendinopathy. J Am Chiropr Assoc. 2008;45:11-26.** **2. Bang MD, Deyle GD. Comparison of supervised** **exercise with and without manual physical therapy for patients with shoulder impingement** **syndrome. J Orthop Sports Phys Ther. 2000;30:126-137. http://dx.doi.org/10.2519/jospt.2000.30.3.126** **3. Bansal K, Padamkumar S. A comparative study** **between the efficacy of therapeutic ultrasound** **and soft tissue massage (deep friction massage)** **in supraspinatus tendinitis. Indian J Physiother** **Occup Ther. 2011;5:80-84.** **4. Barbosa RI, Goes R, Mazzer N, Fonseca MCR. The influence of joint mobilization on tendinopathy of the biceps brachii and supraspinatus muscles. Rev Bras Fisioter. 2008;12:298-303. http://dx.doi.org/10.1590/S1413-35552008000400008** **5. Bennell K, Wee E, Coburn S, et al. Efficacy**

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Methodical Notes			

Funding Sources:

COI:

Study Quality:

Heterogeneity:

Publication Bias:

Notes:

Desmeules, F. et al. Therapeutic exercise and orthopedic manual therapy for impingement syndrome: a systematic review. Clin J Sport Med. 13. 176-82. 2003

Evidence level/Study Types	P - I - C	Outcomes/Results	Literature References

Evidence level: 4 **Study type: Systematic Review** **Databases: Medline, Cochrane Database of Systematic Reviews, PEDro, TRIP, CINAHL,** **Search period: Oktober 2002** **Inclusion Criteria: Schulter Impingementsyndrom, Rotatorenmanschettentendinitis oder -tendinose, oder Bursitis, Studien mit Schulterschmerz als einziges Einschlusskriterium, die berichten viele Schulterimpingementpatienten eingeschlossen zu haben, wurden ebenfalls inkludiert. Mindestens eine der beiden Behandlungsmethoden musste therapeutisches Training oder Manuelle Therapie sein.** **Exclusion Criteria: Die Mehrheit der inkludierten Studien hat Rotatorenmanschettenrupturen ausgeschlossen. Einige definierte Instabilität, Schultersteife, ACG-, Halswirbelsäulen-, neurologische oder systemische Erkrankungen als Ausschlusskriterien. Für das Review selbst wurden keine Ausschlusskriterien genannt.**	**Population: Schulter Impingementsyndrom, Rotatorenmanschettentendinitis oder -tendinose, oder Bursitis oder Schulterschmerz als einziges Symptom.** **8 Studien wurden eingeschlossen.** **Intervention: Trainingstherapie oder Manuelle Therapie** **Als Begleittherapien waren zudem typische physiotherapeutische Verfahren wie Wärme-, Kälte-, Elektro-, Massage oder Querfriktion zulässig.** **Comparison: Acromioplastik, Placebo, keine Intervention**	**Primary: Schmerz, Bewegungsausmaß, Kraft und Funktion** **Secondary:** **Results: Eine Datensynthese war in dem Review nicht möglich. Vier von sieben Studien, inklusive drei von vier Studien mit der besten methodischen Qualität zeigen Vorteile für die Behandlung mit Manueller Therapie oder Trainingstherapie gegenüber den Vergleichsgruppen.** **Author's Conclusion: Insbesondere für Schmerz scheinen positive Effekte zu überwiegen. Auch für Funktion, Bewegungsausmaß und Kraft ergeben sich tendenziell Vorteile durch Manuelle Therapie oder Trainingstherapie oder Kombinationen aus beiden Therapiearten. Dennoch sind der Ergebnisse heterogen und dahingehend weiter zu überprüfen.**	**1. van der Windt DA, Koes BW, de Jong BA, et al. Shoulder disorders in general practice: incidence, patient characteristics, and management. Ann Rheum Dis. 1995;54:959–964.** **2. Bang MD, Deyle GD. Comparison of supervised exercise with and without manual physical therapy for patients with shoulder impingement syndrome. J Orthop Sports Phys Ther. 2000;30:126–137.** **3. Brox JI, Gjengedal E, Uppheim G, et al. Arthroscopic surgery versus supervised exercises in patients with rotator cuff disease (stage II impingement syndrome): a prospective, randomized, controlled study in 125 patients with a 2 1/2-year follow-up. J Shoulder Elbow Surg. 1999;8:102–111.** **4. Brox JI, Staff PH, Ljunggren AE, et al. Arthroscopic surgery compared with supervised**

			exercises in patients with rotator cuff disease (stage II impingement syndrome). BMJ. 1993;307:899–903. 5. Somty R. OMT: what is it? International Federation of Orthopaedic Manipulative Therapists Web site. Available at: http://www. omt.org/homepage /omt/omt.html. Accessed October 2002. 6. Gillespie WJ, Gillespie LD, Morton LM. Cochrane Musculoskeletal Injuries Group. In: The Cochrane Library. Oxford, England: Update Software; 2001. 7. Clarke M, Oxman A, eds. Cochrane Reviewers Handbook, 4.1.1. In: The Cochrane Library. Oxford, England: Update Software; 2001. 8. Anderson NH, Sojbjerg JO, Johannsen HV, et al. Self-training versus physiotherapist-supervised rehabilitation of the shoulder in patients treated with arthroscopic

			subacromial decompression: a clinical randomized study. J Shoulder Elbow Surg. 1999;8:99–101. **9. Conroy DE, Hayes KW. The effect of joint mobilization as a component of comprehensive treatment of primary shoulder impingement syndrome. J Orthop Sports Phys Ther. 1998;28:3–14.** **10. Ginn KA, Herbert RD, Khouw W, et al. A randomized, controlled clinical trial of a treatment of shoulder pain. Phys Ther. 1997;77: 802–809; discussion 810–811.** **11. Rahme H, Solem-Bertoft E, Westerberg CE, et al. The subacromial impingement syndrome: a study of results of treatment with special emphasis on predictive factors and pain-generating mechanisms. Scand J Rehabil Med. 1998;30:253–262.** **12. Winters JC, Sobel JS, Groenier KH, et al. Comparison of physiotherapy, manipulation, and**

			corticosteroid injection for treating shoulder complaints in general practice: randomised, single blind study. BMJ. 1997;314:1320–1325. 13. van der Heijden GJ. Shoulder disorders: a state of the art review. Baillieres Clin Rheumatol. 1999;13:287–309. 14. Bigliani LU, Levine WN. Subacromial impingement syndrome. J Bone Joint Surg Am. 1997;79:1854–1868. 15. Clarnette RG, Miniaci A. Clinical exam of the shoulder. Med Sci Sports Exerc. 1998;30(suppl 4):1–6. 16. Graichen H, Bonel H, Stammberger T, et al. Three-dimensional analysis of the width of the subacromial space in healthy subjects and patients with impingement syndrome. AJR Am J Roentgenol. 1999;172:1081–1086. 17. Tardif J, Lirette R. Rotator cuff lesions: diagnosis and treatment. Can J CME. 1999;11:49–67. 18. Lyons PM, Orwin JF.

			Rotator cuff tendinopathy and subacromial impingement syndrome. Med Sci Sports Exerc. 1998;30(suppl 4): 12–17. **19. Miniaci A, Fowler PJ. Impingement in the athlete. Clin Sports Med. 1993;12:91–110.** **20. Morrison DS, Frogameni AD, Woodworth P. Nonoperative treatment of subacromial impingement syndrome. J Bone Joint Surg Am. 1997;79:732–737.** **21. Morrison DS, Greenbaum BS, Einhorn A. Shoulder impingement. Orthop Clin North Am. 2000;31:285–293.** **22. Schmitt L, Snyder-Mackler L. Role of scapular stabilizers in etiology and treatment of impingement syndrome. J Orthop Sports Phys Ther. 1999;29:31–38.** **23. Jobe FW, Moynes DR. Delineation of diagnostic criteria and a rehabilitation program for rotator cuff injuries. Am J Sports Med.**

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			Update Software; 2002.

Methodical Notes

Funding Sources: nicht genannt

COI: nicht genannt

Study Quality: Die Studienqualität der inkludierten Studien wurde mit Hilfe eines trinominalen Bewertungsinstrumentes der Cochrane Muskuloskeletal Injuries Group bewertet. Es ergibt sich eine durchschnittliche Gesamtpunktzahl von 13,9 von 24 möglichen Punkten, was für dieses Instrument 58 Prozent der möglichen Methodenstärke bedeutet. Mangelnde Verblindung, wie sie bei therapeutischen Studien jedoch selten Möglich ist, und eine schlechte oder fehlende Definition der zur Anwendung kommenden Interventionen waren hierbei die Hauptprobleme.

Heterogeneity: Es liegt eine große Heterogenität und somit schlechte Verallgemeinerbarkeit zwischen den Ergebnissen der einzelnen Studien vor.

Publication Bias: Der Publikationsbias ist für dieses Review nur begrenzt bewertbar. Ein Funnel Plot wurde nicht erstellt. Der Zugriffsfehler wird aufgrund mehrerer verwendeter, einschlägiger Datenbanken als gering eingeschätzt. Jedoch wurde nicht berichtet, ob kostenbedingt Studien nicht abrufbar waren. Es wurden ausschließlich englische Studien inkludiert.

Notes:
high heterogeneity not just between results, but study quality too

Dong, W. et al. Treatments for shoulder impingement syndrome: a PRISMA systematic review and network meta-analysis. Medicine (Baltimore). 94. e510. 2015

Evidence level/Study Types	P - I - C	Outcomes/Results	Literature References
Evidence level: 2 **Study type: Systematic Review mit Metaanalyse** **Databases: Medline, EMBASE, the Cochran Central Register of Controlled Trials (CENTRAL)** **Search period: bis 15. April 2014** **Inclusion Criteria: - RCTs**	**Population: Patienten mit Schulterimpingement Syndrom** **Intervention: Intervention zur Behandlung von Schulterimpingement Syndrom** **Comparison: Vergleichsbehandlung (inkl. Placebo und**	**Primary: Pain Score** **Constant-Murley Score (CMS)** **Secondary:** **Results: - die Literaturrecherche brachte 915 Studien hervor, nach Durchsicht und Bewertung wurden hiervon 52 Artikel in die qualitative Auswertung und 33 Artikel in die quantitative Auswertung einbezogen** **- 28 Studien bezogen sich auf nicht-operative Therapiemaßnahmen (26 enthielten Angaben zum Pain Score/12 zum CMS)** **- 5 Studien bezogen sich auf operative Behandlungen (5 enthielten Angaben zum Pain score/3 zum CMS)** **- Insgesamt wurden die Ergebnisse von 2300 Patienten in die Übersichtsarbeit einbezogen, davon wurden 2065 nicht-operativ behandelt**	**1. Van der Heijden GJM. Shoulder disorders: a state-of-the-art review. Baillieres Best Pract Res Clin Rheumatol. 1999;13:287–309.** **2. Michener LA, McClure PW, Karduna AR. Anatomical and biomechanical mechanisms of subacromial impingement**

- Teilnehmer älter als 18 Jahre - diagnsotiziertes Schulterimpingement Syndrom (nicht verursacht durch Trauma oder systematische Erkrankung) - Bewertung von mindestens zwei Interventionen zur Behandlung des Schulterimpingement Syndroms, einschließlich Placebo- oder Scheinbehandlung - dokumentierte Ergebnisse zu Wirkung auf Schmerzlinderung und funktioneller Wiederherstellung - Follow-up nach mindestens 2 Wochen Exclusion Criteria: keine Exklusions-Kriterien formuliert	Scheinbehandlung)	und 235 unterzogen sich einem operativen Eingriff. Nicht-operative Therapie - die Ergebnisse deuten auf die Wirksamkeit der Bewegungstherapie - Kombinationen aus Bewegungstherapie mit anderen Interventionen (spezifische Übungen, Kinesio-Taping, Low-Level-Lasertherapie, radiale extrakorporale Stosswellentherapie und manuelle Therapie, sowie einige weniger häufig angewandte Therapien wie Akupunktur, diakutane Fibrolyse, Therapie mit gepulsten elektromagnetischen Feldern und Mikrowellen-Diathermie-Ultraschalltherapie) zeigen einen Trend zur höheren Effektivität als Bewegungstherapie allein - Medikamenteninjektionen zeigen nur in Kombination mit Bewegungstherapie positivere Effekte - In Bezug auf die Auswirkung auf den CMS wurden ähnliche Effekte beobachtet wie beim Pain Score, auch wenn hier nur wenige Studien einbezogen werden konnten - Bei Kinesio-Taping, spezifischen Übungen und Akupunkturtherapien wurde die Überlegenheit der kombinierten Behandlungsoptionen durch signifikante Unterschiede unterstützt. - bei gepulsten elektromagnetischen Feldern, diakutaner Fibrolyse und Ultraschall-Therapien lediglich eine Tendenz zu einem Nutzen erkennbar - die Low-Level-Lasertherapie zeigt in Kombination mit Bewegungstherapie eine relativ schlechtere Wirkung als isolierte Bewegungstherapie - Bei den Behandlungsoptionen, die die lokalisierte Injektion von NSAR und Bewegungstherapie kombinierten, unterschieden sich die Ergebnisse der CMS deutlich von den Ergebnissen des Schmerz-Scores; insbesondere wiesen diese Behandlungsoptionen im Vergleich zur alleinigen Bewegungstherapie eine signifikante Unterlegenheit auf Operative Therapien - gebräuchstliche Methoden: arthroskopische und offene Techniken - kein signifikanter Unterschied im Behandlungseffekt für modifizierte Methoden (z.B. mit Radiofrequenz etc.), weder im Hinblick auf den Schmerz-Score noch auf das CMS - arthroskopische Technik tendiert zu einer besseren Wirksamkeit als die offene Operationstechnik - Bursektomie ohne Akromioplastie scheint nicht so gut zu sein wie die Standard-ASD und die ASD in Kombination mit Radiofrequenz - Bewegungstherapie hat auch in dieser Untergruppe eine ausgezeichnete Wirkung Author's Conclusion: Übungsbehandlungen und übungsbasierte Behandlungen sind die wichtigsten Interventionen in der Behandlung von Patienten mit Schulterimpingement Syndrom (SIS). Für Patienten, die eine nichtoperative Behandlungsoption in einem frühen Stadium der SIS suchen, sollte Bewegung in Kombination mit anderen Therapien empfohlen werden.	syndrome. Clin Biomech (Bristol, Avon). 2003;18:369–379. 3. Koester MC, George MS, Kuhn JE. Shoulder impingement syndrome. Am J Med. 2005;118:452–455. 4. Neer CSII. Impingement lesions. Clin Orthop Relat Res. 1983: 70–77. 5. Aktas I, Akgun K, Cakmak B. Therapeutic effect of pulsed electromagnetic field in conservative treatment of subacromial impingement syndrome. Clin Rheumatol. 2007;26:1234–1239. 6. Galace De Freitas D, Marcondes FB, Monteiro RL, et al. Pulsed electromagnetic field and exercises in patients with shoulder impingement syndrome: a randomized, double-blind, placebo-controlled clinical trial. Arch Phys Med Rehabil. 2014;95:345–352. 7. Senbursa G, Baltaci G, Atay A. Comparison of conservative treatment with and

		Unter diesen Therapien sollten Kinesiotaping, spezifische Übungen und Akupunkturtherapie als erste Behandlungsoptionen in Betracht gezogen werden während die Therapie mit gepulsten elektromagnetischen Feldern, lokalisierte Kortikoidinjektion, diakutane Fibrolyse und Ultraschalltherapie als zweite Behandlungsoptionen in Betracht gezogen werden können; eine Low-Level-Lasertherapie und die lokalisierte Injektion von NSAR wird jedoch nicht empfohlen. Bei Patienten mit chronischem SIS können operative Behandlungsoptionen in Betracht gezogen werden. In diesem Fall ist die standardmäßige arthroskopische subakromiale Dekompressionsoperation eine relativ überlegene Option gegenüber der offenen subakromialen Dekompression und der arthroskopischen Bursektomie. Insbesondere sollte die Entscheidung für die operative Behandlung jedoch mit Vorsicht getroffen werden, da ähnliche Ergebnisse auch durch die Durchführung einer Bewegungstherapie erzielt werden können.	**without manual physical therapy for patients with shoulder impingement syndrome: a prospective, randomized clinical trial. Knee Surg Sports Traumatol Arthrosc. 2007;15:915–921. 8. Bang MD, Deyle GD. Comparison of supervised exercise with and without manual physical therapy for patients with shoulder impingement syndrome. J Orthop Sports Phys Ther. 2000;30:126–137. 9. Conroy DE, Hayes KW. The effect of joint mobilization as a component of comprehensive treatment for primary shoulder impingement syndrome. J Orthop Sports Phys Ther. 1998;28:3–14. 10. Cook C, Learman K, Houghton S, et al. The addition of cervical unilateral posterior-anterior mobilisation in the treatment of patients with shoulder impingement syndrome: a randomised clinical trial. Man Ther.**

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Methodical Notes

Funding Sources: Keine finanziellen Interessen.

COI: kein Interessenskonflikt

Study Quality: - Randomisierung und Zuteilung der untersuchten Gruppen nur bei 16 bzw. 18 Studien ersichtlich

- die meisten RCTs hatten kurze Follow-up Zeiten
- die meisten Vergleiche wurden nur innerhalb eines RCT's gezogen
- eine unzureichende Verblindung könnte die Ergebnisse der Studien beeinflusst haben

Heterogeneity: heterogene Studien

Publication Bias: - nur 7 RCTs wiesen ein geringes Risiko für Publikationsbias auf
- 24 RCTs hatten ein hohes Risiko
- die Verblindung wurde in 14 der 33 Studien eindeutig beschrieben
- Die Ergebnisse der paarweisen Meta-Analyse und der Netzwerk-Meta-Analyse stimmten gut miteinander überein. Im Hinblick auf nicht-operative Behandlungen zeigten übungsbasierte Therapien bessere Behandlungseffekte. Bei den operativen Behandlungen zeigte die arthroskopische Technik tendenziell eine bessere Wirksamkeit als die offene Operationstechnik. Diese Ergebnisse wurden durch Inkonsistenztest, Sensitivitätstest und Meta-Regression unterstützt.

Notes:

Faber, E. et al. Treatment of impingement syndrome: a systematic review of the effects on functional limitations and return to work. J Occup Rehabil. 16. 7-25. 2006

Evidence level/Study Types	P - I - C	Outcomes/Results	Literature References
Evidence level: 3 Study type: Systematic Review Databases: PubMed, EMBASE, Cinahl Search period: Pubmed 1966–April 2004 Embase1980–April 2004 Cinahl (1982–April 2004). Inclusion Criteria: - RCTs, quasi-randomized trials, CTa - Vergleich von Behandlungen und Rehabilitationsmaßnahmen nach einer Behandlung bei Patienten mit Impingementsyndrom der Schulter	Population: Patienten mit Impingementsyndrom der Schulter Intervention: Behandlungen und Rehabilitationsmaßnahmen Comparison: Behandlungen und Rehabilitationsmaßnahmen	Primary: Krankenstand Rückkehr zur Arbeit funktionelle Einschränkungen (begrenzt auf ADL) Secondary: Results: - Die Literaturrecherche brachte 94 Artikel hervor, davon wurden nach Sichtung und Überprüfung der Inhalte 18 Studien in die Analyse eingeschlossen - Funktionelle Einschränkungen waren in 16 der eingeschlossenen Studien ein Ergebnismaß, und die Fähigkeit zu arbeiten oder an den Arbeitsplatz zurückzukehren war in vier Studien ein Ergebnismaß, nur in zwei Studien wurden beide Ergebnismaße verwendet. - vier Studien verwendeten irgendeine Form von Medikation als Intervention, sieben Studien hatten eine physiotherapeutische Intervention, von denen	van der Windt DA, Koes BW, de Jong BA, Bouter LM. Shoulder disorders in general practice: incidence, patient characteristics, and management. Ann Rheum Dis 1995; 54(12): 959–964. 2. Goupille P, Sibilia J, Groupe Rhumatologique Francais de l'Epaule (G.R.E.P.). Local corticosteroid injections in the treatment of rotator cuff tendinitis (except for frozen shoulder and calcific tendinitis). Clin Exp Rheumatol 1996; 14(5): 561–566. 3. Checroun AJ, Dennis MG, Zuckerman JD. Open versus arthroscopic decompression for

- Krankenstand/Rückkehr zur Arbeit/ funktionelle Einschränkungen als Outcome - Funktionelle Einschränkungen waren begrenzt auf ADLs (ROM kein Messwert) Exclusion Criteria: Inklusionskriterien wurden nicht erfüllt		eine Studie diese mit einer operativen Intervention verglich, drei weitere Studien verglichen zwei Arten von operativen Interventionen, und vier Studien untersuchten verschiedene postoperative Physiotherapie Protokolle. - vier Studien untersuchten eine medikamentöse Behandlung (Vergleich Steroidinjektionen vs. andere Formen der Medikation): widersprüchliche Evidenz - sieben Studien untersuchten Physiotherapie als Intervention (2x ESWT vs. Placebo; 2x Laser vs. Placebo; 3x Übungstherapie vs. keine Intervention/MT/OP+Placebo) - starke Evidenz, dass ESWT nicht effektiver als Placebo ist in Bezug auf funktionelle Einschränkungen - moderate Evidenz, dass Ultraschall nicht effektiver als Placebo ist in Bezug auf funktionelle Einschränkungen - eingeschränkte Evidenz, dass Laser nicht effektiver als Placebo ist in Bezug auf funktionelle Einschränkungen - eingeschränkte Evidenz, dass Übungstherapie effektiver ist als keine Intervention zur Verbesserung funktioneller Einschränkungen - moderate Evidenz, dass Übungstherapie+MT effektiver ist als eine isolierte Übungstherapie zur Verbesserung von funktionellen Einschränkungen - begrenzte Evidenz, dass kein Unterschied zwischen Übungstherapie, arthroskopischer Akromioplastik und Placebolaser in Bezug auf den Arbeitsstatus besteht. - 3 Studien untersuchten operative Interventionen (offene Akromioplastik vs. arthroskopische Akromioplastik): - eingeschränkte Evidenz, dass eine Arthroskopie kurzfristig effektiver ist als eine offene Akromioplastik in Bezug auf funktionelle Einschränkungen - moderate Evidenz, dass langfristig kein Unterschied zwischen beiden Interventionen besteht in Bezug auf funktionelle Einschränkungen - eingeschränkte Evidenz, dass eine Arthroskopie effektiver ist als eine offene Akromioplastik in Bezug auf die Rückkehr zur Arbeit	subacromial impingement. A comprehensive review of the literature from the last 25 years. Bull Hosp Jt Dis 1998; 57(3): 145–151. 4. Buchbinder R, Green S, Youd JM. Corticosteroid injections for shoulder pain. Cochrane Database Syst Rev 2003; 1: CD004016. 5. Desmeules F, Cote CH, Fremont P. Therapeutic exercise and orthopedic manual therapy for impingement syndrome: A systematic review. Clin J Sport Med 2003; 13(3): 176–182. 6. Green S, Buchbinder R, Glazier R, Forbes A. Interventions for shoulder pain. Cochrane Database Syst Rev 2000; 2: CD001156. 7. Green S, Buchbinder R, Hetrick S. Physiotherapy interventions for shoulder pain. Cochrane Database Syst Rev 2003; 2: CD004258. 8. Ejnisman B, Andreoli CV, Soares BGO, Fallopa F, Peccin MS, Abdalla RJ, Cohen M. Interventions for tears of the rotator cuff in adults. Cochrane Database Syst Rev 2004; 1: CD002758. 9. World Health Organization. International Classification of Functioning, Disability and Health (ICF). Geneva: World Health Organization, 2001. 10. Waddell G,AylwardM, Sawney P. Back pain, incapacity forwork and social security benefits: An international literature review and analysis. London: Royal Society of Medicine Press, 2002. 11. Strand LI, Ljunggren AE,

		- 4 Studien untersuchten postoperative Interventionen (Vgl. unterschiedlicher Formen von Übungstherapie) - eingeschränkte Evidenz, dass es keine Unterschiede zwischen supervisierter Übungstherapie und einem Eigenübungsprogramm gibt in Bezug auf funktionelle Einschränkungen und Dauer des krankheitsbedingtem Arbeitsausfalls - eingeschränkte Evidenz, dass es keine Unterschiede zwischen den untersuchten Behandlungsformen (Anweisungen eines Physiotherapeuten vs. Videoinstruktionen/ Continuous Passive Motion vs. manuellem Durchbewegen/postoperative Physiotherapie+Continuous Passive Motion vs. postoperative Physiotherapie) gibt in Bezug auf funktionelle Einschränkungen Author's Conclusion: - die gewählten Outcomes wurden in den gefundenen Studien nur selten als Messwert untersucht, diese sollten bei zukünftigen Studien mehr Berücksichtigung finden. - Es gibt moderate Hinweise darauf, dass Bewegung in Kombination mit manueller Therapie wirksamer ist als Bewegung allein. - Es gibt begrenzte Evidenz für die Wirksamkeit der folgenden Interventionen: Bewegung ist wirksamer als keine Intervention bei funktionellen Einschränkungen, orales Diclofenac ist wirksamer als schmerzstillende Injektionen, sowohl bei funktionellen Einschränkungen als auch bei der Arbeitsfähigkeit nach einem Jahr. Kurzfristig ist die arthroskopische Akromioplastik im Hinblick auf Funktionseinschränkungen und die Rückkehr an den Arbeitsplatz wirksamer als die offene Akromioplastik. - Es gibt jedoch moderate Evidenz dafür, dass langfristig die offene und die arthroskopische Akromioplastik im Hinblick auf Funktionseinschränkungen gleich wirksam sind. - Es gibt starke Evidenz, dass die extrakorporale Stosswellentherapie nicht wirksam ist, und mässige Evidenz, dass Ultraschall nicht wirksam ist. - Für alle anderen Interventionen gibt es nur	Haldorsen EM, Espehaug B. The impact of physical function and pain on work status at 1-year follow-up in patients with back pain. Spine 2001; 26(7): 800–808. 12. Evanoff B, Abedin S, Grayson D, Dale AM, Wolf L, Bohr P. Is disability underreported following work injury?. J Occup Rehabil 2002; 12(3): 139–150. 13. Lotters F,Hogg-Johnson S, BurdorfA.Health status, its perceptions, and effect on return towork and recurrent sick leave. Spine 2005; 30(9): 1086–1092. 14. Ren XS, Selim AJ, Fincke G, Deyo RA, Linzer M, Lee A, Kazis L. Assessment of functional status, low back disability, and use of diagnostic imaging in patients with low back pain and radiating leg pain. J Clin Epidemiol 1999; 52(11): 1063–1071. 15. Dionne CE, Von Korff M, Koepsell TD, Deyo RA, Barlow WE, Checkoway H. A comparison of pain, functional limitations, and work status indices as outcome measures in back pain research. Spine 1999; 24(22): 2339–2345. 16. Chipchase LS, O'Connor DA, Costi JJ, Krishnan J. Shoulder impingement syndrome: Preoperative health status. J Shoulder Elbow Surg 2000; 9(1): 12–15. 17. Neer CS. Anterior acromioplasty for the chronic impingement syndrome in the shoulder: A

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Methodical Notes

Funding Sources: Die Studie wurde finanziell unterstützt durch den Erasmus MC Revolving Fund und den Niederländischen Orden der medizinischen Fachärzte

COI: keine Angaben

Study Quality: - nur 6 der 18 eingeschlossenen Studien wurden mit einer hohen Qualität bewertet
- bei 60% der Studien konnten die notwendigen Informationen nicht aus dem Artikel gewonnen werden. Die Zuteilung der Behandlung und die Kointerventionen wurden in den meisten Fällen nicht erwähnt.

- in 70% der Studien waren die Untersucher nicht verblindet.
- Mangel an qualitativ hochwertigen Studien.

Heterogeneity: keine klinische Homogenität der Studien

Publication Bias:

Notes:

Gebremariam, L. et al. Subacromial impingement syndrome--effectiveness of physiotherapy and manual therapy. Br J Sports Med. 48. 1202-8. 2014

Evidence level/Study Types	P - I - C	Outcomes/Results	Literature References
Evidence level: 2 Study type: Systematic Review Databases: The Cochrane Library, PubMed, EMBASE, PEDro, CINAHL Search period: bis März 2009 Inclusion Criteria: - Systematic Reviews und RCTs - Schulterimpingement Syndrom (nicht verursacht durch ein akutes Trauma, oder eine systemischen Erkrankung wie durch CANS definiert) - Bewertung einer Intervention für Schulterimpingement - dokumentierte Ergebnisse bezogen auf Schmerz, Funktion oder	Population: Patienten mit Schulterimpingement Syndrom (nicht verursacht durch ein akutes Trauma, oder einer systemischen Erkrankung wie durch CANS definiert) Intervention: Interventionen zur Behandlung des Schulterimpingement Syndroms Comparison:	Primary: Schmerz Funktion Wiederherstellung Secondary: Results: - Die Literatursuche brachte 141 Reviews und 562 RCTs hervor - Nach Durchsicht und Bewertung wurden 2 Reviews und 10 RCTs in die Analyse einebzogen - Übungstherapie vs. LaserPlacebo - moderate Evidenz, dass kurzfristig Übungstherapie effektiver ist als LaserPlacebo - keine Evidenz für langfristige Effektivität im Vergleich - Übungstherapie vs. Kontrollen (ohne Intervention) - moderate Evidenz, dass kurzfristig und mittelfristig Übungstherapie effetiver ist als Kontrollen - Übungstherapie vs. Hyperthermie - moderate Evidenz, dass eine Hyperthermie-behandlung kurzfristig effektiver ist als Übungsbehandlung - Übungstherapie vs. Schultergurt - keine Evidenz für kurfristige Effektivität im Vergleich - Übungstherapie vs. Ultraschall - keine Evidenz für kurzfristige Effektivität im Vergleich - Übungstherapie vs. (supervisierter) physiotherapie - keine Evidenz für kurzfristige Effektivität im Vergleich - betriebliche Gesundheitsförderung vs. Training - eingeschränkte Evidenz, dass BGF kurzfristig effektiver ist als Training - Übungstherapie vs Übungstherapie+Mobilisation	1 Huisstede BM, Miedema HS, Verhagen AP, et al. Multidisciplinary consensus on the terminology and classification of complaints of the arm, neck and/or shoulder. Occup Environ Med 2007;64:313–19. 2 Huisstede BM, Wijnhoven HA, Bierma-Zeinstra SM, et al. Prevalence and characteristics of complaints of the arm, neck, and/or shoulder (CANS) in the open population. Clin J Pain 2008;24:253–9. 3 Huisstede BM, Bierma-Zeinstra SM, Koes BW, et al. Incidence and prevalence of

Wiederherstellung **- Follow-up Periode von mindesten 2 Wochen** **- keine sprachlichen Einschränkungen** **Exclusion Criteria: keine explizite Definition von Exklusions-Kriterien**		**- widersprüchliche Evidenz für die kurzfristige Effektivität im Vergleich** **- Eigenübungsprogramm+MT vs. Eigenübungsprogramm** **- eingeschränkte Evidenz, dass Eigenübungsprogramm+MT kurzfristig effektiver ist als isoliertes Eigenübungsprogramm** **- Ultraschall vs. Placebo** **- keine Evidenz für die kurz-, mittel- und langfristige Effektivität im Vergleich** **- Ultraschall vs. Hyperthermie** **- moderate Evidenz, dass Hyperthermie kurzfristig effektiver ist als Ultraschall** **- Iontophorese (Essigsäure) vs. Placebo** **- keine Evidenz für die Effektivität im Vergleich** **- Ultraschall vs. Kortikosteroidinjektion** **- keine Evidenz für kurzfristige Effektivität im Vergleich** **- Ultraschall vs. Akupunktur** **- keine Evidenz für kurz-, mittel-, langfristige Effektivität im Vergleich** **- Laser vs. Placebo** **- widersprüchliche Evidenz für kurzfristige Effektivität im Vergleich** **- Laser vs. Ultraschall** **- eingeschränkte Evidenz, dass Laser kurzfristig effektiver ist als Ultraschall** **- PEMF vs. Placebo** **- widersprüchliche Evidenz für Effektivität im Vergleich** **Author's Conclusion: Zusammenfassend lässt sich sagen, dass nur ein RCT zur manuellen Therapie in diese Übersicht aufgenommen wurde. Es wurde nur eine begrenzte Evidenz für die Wirksamkeit der manuellen Therapie als Zusatztherapie zum Selbsttraining gefunden. Alle anderen in diese Übersicht einbezogenen Studien konzentrierten sich auf Physiotherapie. Es wurden widersprüchliche Evidenzniveaus für die Wirksamkeit von Lasertherapie und Ultraschall gefunden. Für die Mobilisierung als Zusatztherapie zu Übungen wurden kurzfristig widersprüchliche Evidenzniveaus für die Wirksamkeit gefunden. Obwohl wir für die Hyperthermie im Vergleich zur Bewegungstherapie oder Ultraschall kurzfristig die besten Ergebnisse fanden (mäßige Evidenz), erwiesen sich Hyperthermie und Bewegungstherapie im Vergleich zu Kontrollen oder Placebo kurzfristig als wirksamer (mäßige Evidenz). Hinsichtlich der Wirksamkeit der Hyperthermie wurden keine mittel- oder langfristigen Ergebnisse untersucht. Mittelfristig zeigte die Bewegungstherapie im Vergleich zu Placebo oder Kontrollen die besten Ergebnisse (mäßige Evidenz), während langfristig keine Evidenz gefunden wurde. Wegen des Fehlens einer detaillierten Beschreibung der verwendeten Übungsprotokolle ist die aktuelle Evidenz jedoch in Bezug auf die Anwendung in der klinischen Praxis schwer zu interpretieren. Daher sollten sich zukünftige RCTs, die sich mit der Übungstherapie befassen, auch auf folgende Aspekte konzentrieren: auf die (Langzeit-)Wirkung verschiedener Übungsprotokolle, einschließlich der Intensität, Dauer, Häufigkeit und**	**upper-extremity musculoskeletal disorders. A systematic appraisal of the literature. BMC Musculoskelet Disord 2006;7:7.** **4 Ostor AJ, Richards CA, Prevost AT, et al. Diagnosis and relation to general health of shoulder disorders presenting to primary care. Rheumatology (Oxford) 2005;44:800–5.** **5 Fongemie AE, Buss DD, Rolnick SJ. Management of shoulder impingement syndrome and rotator cuff tears. Am Fam Physician 1998;57:667–74, 80–2.** **6 van Rijn RM, Huisstede BM, Koes BW, et al. Associations between work-related factors and specific disorders of the shoulder—a systematic review of the literature. Scand J Work Environ Health 2010;36:189–201.** **7 Gebremariam L, Hay EM, Koes BW, et al. Effectiveness of surgical and postsurgical**

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Methodical Notes

Funding Sources: Diese Forschung wurde von Fonds Nuts Ohra finanziert.

COI: Kein Interessenskonflikt

Study Quality: - 5 von 10 eingeschlossenen RCTs waren von hoher Qualität
- Die häufigsten methodologischen Mängel waren
- nicht Verblindung der Untersucher
- unklare Randomisierung

Heterogeneity: Quantitative Analysen waren aufgrund der Hetero´genität der Studien nicht möglich.

Publication Bias:

Notes:

Kromer, T. O. et al. Effects of physiotherapy in patients with shoulder impingement syndrome: a systematic review of the literature. J Rehabil Med. 41. 870-80. 2009

Evidence level/Study Types	P - I - C	Outcomes/Results	Literature References
Evidence level: 2 **Study type: Systematic Review** **Databases: MEDLINE, EMBASE,CINAHL,Cochrane,PEDro** **Search period: 1966-2007** **Inclusion Criteria: RCTs in English, German and Dutch, Diagnosed SIS or one sign (pain with overhead activities, painful arc sign, Neer sign, or Hawkins-Kennedy sign.** **Exclusion Criteria: adhesive capsulitis, frozen shoulder, osteoarthritis, fractures, systemic infections and systemic diseases, neoplasm and metastasis**	**Population: median sample n=56, men and women with a similar age. Diagnosed SIS or one sign (pain with overhead activities, painful arc sign, Neer sign, or Hawkins-Kennedy sign.** **Intervention: rehabilitation program, isometic strengthening, exercise therapy,home based excercise, ultrasound, ice, motor retraining.... Table 4** **Comparison:**	**Primary: Pain and Functioning** **Secondary:** **Results: Physiotherapist-led exercises + manual therapy significantly better resilts int the short term for pain and functioning than exercises alone.** **Author's Conclusion: There is moderate evidence that adding manual therapy to a standardized shoulder-specific exercise programm is superior in pain improvement compared with an isolated exercise regimen at 3 and 8 weeks follow-up.**	**Östör AJK, Richards CA, Prevost AT, Speed 1. CA, Hazleman BL.** **Diagnosis and relation to general health of shoulder disorders** **presenting to primary care. Rheumatology 2005; 44: 800–805.** **2. van der Windt DA, Koes BW, de Jong BA, Bouter LM. Shoulder** **disorders in general practice: incidence, patient characteristic, and** **management. Ann Rheum Dis 1995; 54: 959–964** **3. Lewis JS, Green AS, Dekel**

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Methodical Notes

Funding Sources:

COI:

Study Quality:

Heterogeneity:

Publication Bias:

Notes:

Saito, H. et al. Scapular focused interventions to improve shoulder pain and function in adults with subacromial pain: A systematic review and meta-analysis. Physiother Theory Pract. 34. 653-670. 2018

Evidence level/Study Types	P - I - C	Outcomes/Results	Literature References
Evidence level: 2 Study type: Systematic Review mit Metaanalyse Databases: PubMed, the Cochrane Central Register of Controlled Trials [Central], EMBASE [via Ovid] and PEDro Search period: bis September 2016 Inclusion Criteria: Die Einschlusskriterien umfassten Studien, die Teilnehmer ab 18 Jahren mit einem subacromialen Schmerzsyndrom einschlossen. Die klinische Diagnose durch folgende Kriterienbestimmt worden sein: 1) Schulterschmerzen; und 2) mindestens ein positiver Befund bei den Tests Jobe, Hawkins, Neer, full can or empty can Exclusion Criteria: Studien an Teilnehmern, die eine andere Primärdiagnose hatten (d.h. adhäsive Kapsulitis, akromioklavikuläre Gelenkpathologie und Halswirbelsäulenpathologie) wurden ausgeschlossen.	Population: Die Gesamtzahl der Teilnehmer in den sechs RCTs lag bei 250, d.h. zwischen 18 und 68 in jeder Studie. Das Durschnittsalter lag in den einzelnen Studien zwischen 45,4 und 62 Jahren. Intervention: Skapulafocussierte Interventionen wie Skapulamobiisation und Skapula-Stabilisierungsübungen Comparison: Placebo-/Scheinskapulaübungen, Pendelübungen,	Primary: Schulterschmerz, Schuterfunktion, Schulterbewegichkeit in Flexion und in Obduktion Secondary: Supraspinatus muscle strength, pectorals minor muscle length, forward shoulder posture Results: In adults with SAPS, scapular focused interventions significantly improved pain with activities (MD [95% CI] = −0.88 [−1.19 to −0.58], I2 43%) and shoulder function (−11.31 [−17.20 to −5.41] I2 65%) in the short term. No between-group difference in shoulder pain and function were found at follow up (4 weeks). A between-group difference in shoulder abduction ROM in the short term only was found (12.71 [7.15 to 18.26]°, I2 36%). No between-group difference in flexion ROM, supraspinatus muscle strength, pectoralis minor length or forward shoulder posture were found. Author's Conclusion: In conclusion, in adults with SAPS, scapular focused interventions can improve short-term shoulder pain and function.	Angst F, Schwyzer HK, Aeschlimann A, Simmen BR, Goldhahn J 2011 Measures of adult shoulder function: Disabilities of the Arm, Shoulder, and Hand Questionnaire (DASH) and its short version (QuickDASH), Shoulder Pain and Disability Index (SPADI), American Shoulder and Elbow Surgeons (ASES) Society standardized shoulder assessment form, Constant (Murley) Score (CS), Simple Shoulder Test (SST), Oxford Shoulder Score (OSS), Shoulder Disability Questionnaire (SDQ), and Western Ontario Shoulder Instability Index (WOSI). Arthritis Care and Research 63 (Suppl 11): S174–S188. Aytar A, Baltaci G, Uhl T, Tuzun H, Oztop P, Karatas M 2015 The effects of scapular mobilization in patients with subacromial impingement syndrome: A randomized, dou- ble-blind, placebo-controlled clinical trial. Journal of Sport Rehabilitation 24: 116–129. Balke M, Schmidt C, Dedy N, Banerjee M, Bouillon B, Liem D 2013 Correlation of acromial morphology with impinge- ment syndrome and rotator cuff tears. Acta Orthopaedica 84: 178–183. Başkurt Z, Başkurt F, Gelecek N, Özkan MH 2011 The effec- tiveness of scapular stabilization exercise in the patients with subacromial impingement syndrome. Journal of Back and Musculoskeletal Rehabilitation 24: 173–179. Bury J, West M, Chamorro-Moriana G, Littlewood C 2016 Effectiveness

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			syndrome and scapular dyskinesis. Annals of the Rheumatic Diseases 74: 1311–1316.

Methodical Notes

Funding Sources: ≠µ

COI:

Study Quality: Only Randomized Controlled Trials were included.
Quality or risk of bias was cross-checked by four reviewers.
Effect sizes with a 95% CI for between-group differences of the outcome measures used were calcu- lated for each of the included studies.

Heterogeneity: Clinical heterogeneity within all included trials was examined and reported. Statistical heterogeneity was investigated by visual assessment of forest plots and calculation of the I2 statistic.
For pain and ROM there was no substantial heterogeneity. For shoulder function there is substantial heterogeneity.

Publication Bias: no comment

Notes:

Steuri, R. et al. Effectiveness of conservative interventions including exercise, manual therapy and medical management in adults with shoulder impingement: a systematic review and meta-analysis of RCTs. Br J Sports Med. 51. 1340-1347. 2017

Evidence level/Study Types	P - I - C	Outcomes/Results	Literature References
Evidence level: 2 **Study type: Systematisches Review und Meta-Analyse** **Databases: Medline, CENTRAL, CINAHL, Embase und PEDro** **Search period: bis Januar 2017** **Inclusion Criteria: Beschwerden über Schulterschmerzen (Basierend auf Michener et al.):** **- Painful arc zwischen 40° und**	**Population: - Erwachsene(18 Jahre und älter) mit diagnostiziertem Schulter Impingement** **Intervention: - konservative Interventionen (Kinesiotape, Laser u. a.)**	**Primary: Die in dieser systematischen Übersicht betrachteten primären Endpunkte waren Schmerzen** **- Schmerz bei Aktivität** **- Schmerzen in der Nacht** **- Globaler Schmerz** **- Schmerz in Ruhe** **- Schmerz-Unterskalen von zusammengesetzten Skalen** **- Schmerz nicht spezifiziert** **und Schulterfunktion**	**1. Abrisham SM, Kermani-Alghoraishi M, Ghahramani R, Jabbari L, Jomeh H, Zare M. Additive effects of low-level laser therapy with exercise on subacromial syndrome: a randomised, double-blind, controlled trial. Clinical rheumatology 2011;30(10):1341-6 doi: 10.1007/s10067-011-1757-7.** **2. Adebajo AO, Nash P, Hazleman BL. A prospective double blind dummy placebo controlled study comparing triamcinolone hexacetonide injection with oral diclofenac 50 mg TDS in patients with rotator cuff tendinitis. The Journal of rheumatology 1990;17(9):1207-10.** **3. Akgun K, Birtane M, Akarirmak U. Is local subacromial corticosteroid injection beneficial in subacromial impingement**

120° in Abduktion, Beugung - Schmerz bei aktiver Armhebung - Test von Neer, Hawkins-Kennedy, Speed oder Jobe - Empty can test - Resistenter schmerzhafte oder schwache Schulterabduktion - Resistente oder schwache Schulter-Außenrotation - Diagnose basierend auf Kriterien nach Cyriax (d.h. schmerzhafter Bogen oder schmerzhafter Abduktionstest) - Impingement-Test mit Lidocain - Empfindlichkeit bei Palpation der Sehnen der Rotatorenmanschette Outcomes: - Schmerz, Funktion, aktives Range of Motion Studiendesign - Randomisierte kontrollierte Studien Kontrollierter Follow-up-Zeitraum - Basierend auf vordefinierten Kriterien Exclusion Criteria: - Fallberichte, Behandlungen nach der Operation, erfüllten nicht die spezifizierten Ergebnisparameter, traumatische Vorfälle, geschrieben in Chinesisch und Farsi(es wurde auch ein Artikel auf türkisch ausgeschlossen?)	Comparison: - jede Art von Interventionen (einschließlich Plazebo, andere Behandlungen oder Operationen)	- Mittelwert mehrerer Funktionswerte, wenn Mittelwert und SD in der Studie berechnet wurden - Disability subscale von SPADI (falls verfügbar; sonst Gesamtpunktzahl) - Constant-Murley-Gesamtpunktzahl - Disabilities of the arm, shoulder and hand (DASH) - Oxford Shoulder Scale - University of California Los Angeles Shoulder Rating Scale (UCLA) - Shoulder Disability Questionnaire (SDQ) - American Shoulder and Elbow Surgeons standardised shoulder assessment form (ASES) - Shoulder Function Assessment (SFA) - Funktionsweise der Kurzform und andere Algofunktionale Skala - Globale Beurteilungen von Patienten - Globale Beurteilungen von Ärzten Secondary: Das sekundäre Ergebnis war die aktive Bewegungsreichweite - Aktive Abduktion - Aktive Flexion - Aktive Außenrotation Results: Die Ergebnisse wurden aus dem am längsten verfügbaren Follow-up (für die Hauptanalyse) und dem ersten danach verfügbaren Zeitpunkt extrahiert.	syndrome? Clinical rheumatology 2004;23(6):496-500 doi: 10.1007/s10067-004-0930-7. 4. Akkaya N, Akkaya S, Gungor HR, Yasar G, Atalay NS, Sahin F. Effects of weighted and un-weighted pendulum exercises on ultrasonographic Acromiohumeral distance in patients with subacromial impingement syndrome. Journal of back and musculoskeletal rehabilitation 2016 doi:10.3233/bmr-160737. 5. Aksakal M, Ermutlu C, Ozkaya G, Ozkan Y. Lornoxicam injection is inferior to betamethasone in the treatment of subacromial impingement syndrome : A prospective randomized study of functional outcomes. Der Orthopade 2016 doi: 10.1007/s00132-016-3302-5. 6. Aktas I, Akgun K, Cakmak B. Therapeutic effect of pulsed electromagnetic field in conservative treatment of subacromial impingement syndrome. Clinical rheumatology 2007;26(8):1234-9 doi: 10.1007/s10067-006-0464-2. 7. Akyol Y, Ulus Y, Durmus D, et al. Effectiveness of microwave diathermy on pain, functional capacity, muscle strength, quality of life, and depression in patients with subacromial impingement syndrome: a randomized placebo-controlled clinical study. Rheumatology international 2012;32(10):3007-16 doi: 10.1007/s00296-011-2097-2. 8. Al Dajah SB. Soft Tissue Mobilization and PNF Improve Range of Motion and Minimize Pain Level in Shoulder Impingement. Journal of physical therapy science 2014;26(11):1803-5 doi: 10.1589/jpts.26.1803. 9. Alvarez CM, Litchfield R, Jackowski D, Griffin S, Kirkley A. A prospective, double-blind, randomized clinical trial comparing subacromial injection of betamethasone and xylocaine to xylocaine alone in chronic rotator cuff tendinosis. The American journal of sports medicine 2005;33(2):255-62. 10. Álvarez-Nemegyei J, Bassol-Perea A, Pasos JR. Efficacy of the local injection of methylprednisolone acetate in the subacromial impingement syndrome. A randomized, double-blind trial. Reumatología Clínica (English Edition) 2008;4(2):49-54. 11. Ammer K, Mayr H. Magnetfeldtherapie bei tendopathischer periarthropathia humeroscapularis (Magnetic field therapy in case of tendopathic periarthropathia humeroscapularis -- report of a double-blind study) [German]. Orthopadische Praxis 1991;27:696-699 1991.

		Die zusätzliche Tape- und Lasertherapie-Behandlung zur Physiotherapie könnte einen kleinen Nutzen bringen. Kinesiotape: Schmerz: Tape ist dem Plazebo überlegen (5 Studien). Funktion: Das Tape ist dem Plazebo-Tape überlegen, aber nur im kürzesten Follow-up (3 Studien). Laser: Laser ist dem Plazebo-Laser überlegen (3 Studien). Laser plus Übung ist dem Plazebo-Laser plus Übung überlegen (3 Studien). (6 Studien). Author's Conclusion: Obwohl die Evidenz nur von sehr geringer Qualität ist, kann bei Patienten mit Schulter-Impingementsymptomen Bewegung Tape und Lasertherapie hinzugefügt werden.	12. Pinar Doruk Analan, Berrin Leblebici, Mehmet Adam. Effects of therapeutic ultrasound and exercise on pain, function, and isokinetic shoulder rotator strength of patients with rotator cuff disease. Journal of physical therapy science 2015;27(10):3113-17 5p. 13. Arias-Buria JL ST-D, Raquel Valero-Alcaide, Jaime Salom-Moreno, Maria A. Atim-Arratibel, Cesar Fernandez-de-las-Penas. Ultrasound-Guided Percutaneous Electrolysis and Eccentric Exercises for Subacromial Pain Syndrome: A Randomized Clinical Trial. Evidence-based Complementary & Alternative Medicine (eCAM) 2015:1-9 9p doi: 10.1155/2015/315219. 14. Arias-Buría JL, Fernández-de-las-Peñas C, Palacios-Ceña M, Koppenhaver SL, Salom-Moreno J. Exercises and Dry Needling for Subacromial Pain Syndrome: A Randomized Parallel-Group Trial. Journal of Pain 2017;18(1):11-18 doi: 10.1016/j.jpain.2016.08.013. 15. Atkinson M, Mathews R, Brantingham JW, et al. A randomized controlled trial to assess the efficacy of shoulder manipulation versus placebo in the treatment of shoulder pain due to rotator cuff tendinopathy. Journal of the American Chiropractic Association 2008 Dec;45(9):11-26 2008. 16. Atya AM. Efficacy of microcurrent electrical stimulation on pain, proprioception accuracy and functional disability in subacromial impingement: RCT. Indian Journal of Physiotherapy and Occupational Therapy 2012 Jan-Mar;6(1):15-18 2012.17. Aytar A, Baltaci G, Uhl TL, Tuzun H, Oztop P, Karatas M. The effects of scapular mobilization in patients with subacromial impingement syndrome: a randomized, double-blind, placebo-controlled clinical trial. J Sport Rehabil 2015;24(2):116-29 doi: 10.1123/jsr.2013-0120. 18. Bae YH, Lee GC, Shin WS, Kim TH, Lee SM. Effect of motor control and strengthening exercises on pain, function, strength and the range of motion of patients with shoulder impingement syndrome. Journal of Physical Therapy Science 2011 Aug;23(4):687-692 2011. 19. Bal A, Eksioglu E, Gurcay E, Gulec B, Karaahmet O, Cakci A. Low-level laser therapy in subacromial impingement syndrome. Photomedicine and laser surgery 2009;27(1):31-6 doi: 10.1089/pho.2007.2222. 20. Bang MD, Deyle GD. Comparison of supervised exercise with and without manual physical therapy for patients with shoulder impingement syndrome. The

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Methodical Notes

Funding Sources: Nicht genannt

COI: Keine erklärt

Study Quality: Die Studienqualität der inkludierten Studien wurde mit Hilfe des Cochrane Collaboration's Tool bewertet. Für alle Vergleiche und Ergebnisse wurde die Qualität der Evidenz als sehr gering eingestuft. Der wahre Effekt wird wahrscheinlich im Wesentlichen von der Schätzung des Effekts abweichen.

Verblindung (wie sie bei therapeutischen Studien selten möglich ist), die methodische Qualität, eine große klinische Diversität (wie zum Beispiel Dauer der Symptome, diagnostische Kriterien, Geschlechterverhältnis), variable Länge der Follow-up, die große klinische und statistische Heterogenität sowie die geringe Teilnehmerzahl für die meisten Vergleiche waren hierbei die Hauptprobleme.

Heterogeneity: Es liegt eine große Heterogenität und somit schlechte Verallgemeinerbarkeit zwischen den Ergebnissen der einzelnen Studien vor.

Tape:
Schmerz: Tape war Plazebo-Tape überlegen (5 Studien). $Chi^2 = 14,79$, $I^2 = 73$ %
Funktion: Tape war Plazebo-Tape überlegen, aber nur im 3-monatigen Follow-up (3 Studien). $Chi^2 = 3,54$, $I^2 = 43$ %

Laser: Laser war Plazebo-Laser überlegen (3 Studien). $Chi^2 = 4,72$, $I^2 = 58$ %
Laser plus Übungen war Plazebo-Laser plus Übungen überlegen(6 Studien). $Chi^2 = 10,59$, $I^2 = 53$ %

Publication Bias: Die Vergleiche beinhalteten weniger als 10 Studien, so dass Funnel Plots nicht untersucht wurden. Der Zugriffsfehler wird aufgrund mehrerer verwendeter, einschlägiger Datenbanken als gering eingeschätzt. Jedoch wurde nicht berichtet, ob kostenbedingt Studien nicht abrufbar waren. Es wurden ausschließlich englisch-sprachige Studien inkludiert.

Notes:
Abwertung aufgrund 1.5 (eingeschlossene Studien sind heterogen)

OXFORD (2011) Appraisal Sheet: RCT

Gomes, Cafp et al. Combined Use of Diadynamic Currents and Manual Therapy on Myofascial Trigger Points in Patients With Shoulder Impingement Syndrome: A Randomized Controlled Trial. J Manipulative Physiol Ther. 41. 475-482. 2018

Population	Intervention - Comparison	Outcomes/Results

Evidence level: 2 **Study type: Randomized Controlled Trial** **Number of Patient: 60** **Recruitung Phase: ?** **Inclusion Criteria: - Alter zwischen 18 und 59 Jahren** **- mindestens 3 Monate anterolaterale, unilaterale Schulterschmerzen (mind. 4 auf NRPS)** **- mindestens 2 von 3 Ergebnissen der Tests nach Neer, Hawkins und Jobe müssen positiv sein** **- aktive unilaterale myofasziale Triggerpunkte im oberen Teil des Trapezmuskels auf der betroffenen Seite** **Exclusion Criteria: - beidseitiges Schulterimpingement Syndrom** **- Fybromyalgie** **- Muskelverletzungen** **- Schultertrauma in der Vorgeschichte** **- andere Erkrankungen der Schulter** **- Muskelsehenenrupturen** **- Laxheit der Bänder** **- Anzeichen und Symptome von Taubheit oder Kribbeln in der oberen Extremität** **- Kortikosteroidinjektionen in der Schulter oder die Verwendung von Schmerzmitteln, Entzündungshemmern oder Muskelrelaxantien innerhalb der letzten sechs Monate** **- eine physiotherapeutische Behandlung innerhalb der letzten sechs Monate**	**Intervention: Manuelle Therapie (nach festgelegtem Behandlungsschema) + diadynamische Ströme an myofaszialen Triggerpunkten des oberen Trapezmuskels** **Comparison: nur Manuelle Therapie (nach festgelegtem Behandlungsschema)** **oder** **nur diadynamische Ströme an myofaszialen Triggerpunkten des oberen Trapezmuskels**	**Primary: Schulterschmerz/-einschränkung (Shoulder Pain and Disability Index - SPADI)** **Secondary: Schmerzintensität (Numeric Pain Rating Scale - NRPS)** **Results: - signifikante Verbesserungen aller Ergebnisse im Laufe der Zeit für alle drei Gruppen** **- die Kombination von Manueller Therapie und diadynamischen Reizströmen war signifikant effektiver (NRPS, SPADI-pain, SPADI-disability) als die isolierte Anwendung beider Maßnahmen, jedoch waren nur die Unterschiede in Bezug auf den NRPS Score auch klinisch relevant** **Author's Conclusion: Die Kombination von Manueller Therapie und diadynamischen Reizströmen auf myofasziale Triggerpunkte war wirksamer in der Reduzierung der Schmerzintensität (aber nicht in der Reduzierung der Einschränkungen) bei Patienten mit unilateralem Schulterimpingement Syndrom als die isolierte Behandlung mit nur einer der beiden Behandlungsmaßnahmen.**
Methodical Notes		
Funding Sources: Es wurden keine Finanzierungsquellen für diese Studie gemeldet. **COI: Es wurden keine Interessenkonflikte für diese Studie gemeldet.**		

Randomization: zentralisierte computerunterstützte Randomisierung

Blinding: Untersucher verblindet

Dropout Rate/ITT-Analysis: 3 Dropouts in der Gruppe, in der isoliert mit diadynamischen Strömen behandelt wurde (5%)

Notes:

Rehabilitation nach Operation

Inhalt: 5 Literaturstellen

OXFORD (2011) Appraisal Sheet: RCT

Albornoz-Cabello, M. et al. Effects of adding interferential therapy electro-massage to usual care after surgery in subacromial pain syndrome: a randomized clinical trial. Journal of clinical medicine. 8. . 2019

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 2 **Study type: RCT** **Number of Patient: 66** **Recruitung Phase: 56** **Inclusion Criteria: Adult patients with shoulder pain, who underwent acromioplasty in the 12 weeks beforedata collection** **Exclusion Criteria: previous cervical spine or shoulder surgery; a history of neurological ormental illnesses; diagnosed central or peripheral nervous system diseases, concomitant fracturein the neck/shoulder; altered sensitivity to tactile stimuli or loss of sensation in the neck/shoulderor upper extremity [6]; concomitant radiological diagnosis of osteoarthritis of the glenohumeralor acromioclavicular joints; fibromyalgia or rheumatoid arthritis [23]; having received injections ofcorticoids or hyaluronic acid following surgery; symptoms of frozen shoulder [40]; impaired cognitionor communication; and being involved in an on-going medico-legal**	**Intervention: Intervention Group:** **15-min IFT electro-massage overthe neck-shoulder and the glenohumeral joint was added in every treatment session to the usualcare treatment previously described** **Comparison: Control group:** **15 minutes thermotherapy,35 min of active, self-assisted, and isometric exercise therapy, 20 min of manual therapy toretrain scapulohumeral movement and to provide soft and pain-free shoulder traction, and 5 minof pulsatile ultrasound**	**Primary: VAS** **Secondary: Constant murley score (functionality) and pain free ROM** **Results: The ANOVA revealed a significant groupeffect, for those who received IFT electro-massage, for improvements in pain intensity, upper limbfunction, and shoulder flexion, abduction, internal and external rotation (all,p< 0.01). There wereno between-group differences for shoulder extension (p= 0.531) and adduction (p= 0.340). AddingIFT electro-massage to usual care, including manual therapy and exercises, revealed greater positiveeffects on pain, upper limb function, and mobility in adults with SAPS after acromioplasty.** **Author's Conclusion: Adding IFT electro-massage to a two-week supervised usual care protocol combining manualtherapy, exercises, ultrasound, and infrared thermotherapy achieved better results**

dispute Acute inflammation•Pregnancy•Use of electronic devices, including cardiac pacemakers•Active deep vein thrombosis or thrombophlebitis•Tumoral diseases•Use of metal implants when the subject refers unpleasant sensations•Untreated hemorrhagic conditions or active bleeding tissues•Recently radiated tissues•Active tuberculosis, infected tissues, or wounds with underlying osteomyelitis•To the neck or head in individuals with previous seizures•To anterior neck, carotid sinus, over the eyes, or reproductive organs		**on decreasingshoulder pain, and improving upper limb functionality and shoulder pain-free passive range of motion, compared to usual care alone, in adults with SAPS who underwent recent acromioplasty.**

Methodical Notes

Funding Sources: research funding

COI: The authors declare no conflicts of interes

Randomization: not shown in detail

Blinding: yes

Dropout Rate/ITT-Analysis: none

Notes:

Andersen, N. H. et al. Self-training versus physiotherapist-supervised rehabilitation of the shoulder in patients treated with arthroscopic subacromial decompression: a clinical randomized study. J Shoulder Elbow Surg. 8. 99-101. 1999

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 2 **Study type: clinical trial** **Number of Patient: 43** **Recruitung Phase: The patients were included at the Shoulder and Elbow Clinic, Department of**	**Intervention: physiotherapists supervised rehabilitation program, after discharge a written instruction for training at home. in the rehab phase training of 1h/week, in 6 weeks.** **Comparison: We conclude that there is no beneficial effect of physiotherapist-guided rehabilitation when compared with a simple self-training regimen in patients with sub- acromial impingement treated with arthroscopic decompression. Therefore all patients in this category treated at our clinic are now training by**	**Primary: Constant score in which the maximal score achievable is 100 points** **Secondary: not mentioned** **Results: no significant difference between the groups regarding the mentioned characteristics. Four patients (2 in each group) had a partial rotator cuff tear (all bursal side), which in all cases underwent arthroscopic debridement in the same session. No patients had full-thickness rotator cuff tears. No complications occurred with this treatment. When the 2 groups were compared,** patients supervised by the physiotherapist had a significantly poorer pain score after 3 months of rehabilitation (P =

Orthopaedic Surgery, University Hospital of Aarhus **Inclusion Criteria: Persistent pain for more than 8 months** **Exclusion Criteria: not mentioned**	**themselves. Further studies will show whether self-training regimens can be applied on other categories of patients.**	.032) **No other statistical difference was seen between the 2 groups in any of the analyzed parameters including sick leave periods of mean 8.5 weeks and 8.0 weeks, respectively.** **Author's Conclusion: no beneficial effect of physiotherapist-guided rehabilitation when compared with a simple self-training regimen in patients with SI**

Methodical Notes

Funding Sources: not mentioned

COI: not mentioned

Randomization: during surgery in self-training group or physiotherapy (supervised)

Blinding: not mentioned

Dropout Rate/ITT-Analysis: not mentioned

Notes:

Christiansen, D. H. et al. Effectiveness of Standardized Physical Therapy Exercises for Patients With Difficulty Returning to Usual Activities After Decompression Surgery for Subacromial Impingement Syndrome: Randomized Controlled Trial. Phys Ther. 96. 787-96. 2016

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 1 **Study type: multicenter randomized controlled trial was conducted** **Number of Patient: 126** **Recruitung Phase: Patients were recruited from the 6 public departments of orthopedic surgery in Central Denmark Region over a 3-year period until December 31, 2013**	**Intervention: The intervention consisted of a standardized exercise program, which was conducted in 1 of 2 municipal training centers. The development of the intervention and details of the program have been presented elsewhere.** Paper: **1. Christiansen DH, Falla D, Frost P, et al.: Physiotherapy after subacromial decompression surgery: development of a standardised exercise intervention. Physiotherapy. 2015;101:327–339** **2. Physiotherapist manual and home training**	**Primary: The primary outcome measure was the validated Oxford Shoulder Score** **Secondary: 1. Constant Score (evaluated only at baseline and at 3 months)** **2. Fear-Avoidance Beliefs Questionnaire physical activity scale.** Supplementary outcome measures. **Health-related quality of life with the EQ-5D-3L questionnaire at 3 and 12 months** **Index score ranging from 0.6 to 1.0, with higher scores**

At least slight shoulder problems doing usual activities, when assessed on a 5-level scale in a telephone interview **Inclusion Criteria: patients aged 18 to 63 years and living in the region were assessed for eligibility if they had undergone arthroscopic subacromial decompression surgery** **Exclusion Criteria: Exclusion criteria were fullthickness rotator cuff tear, traumatic lesion, rheumatoid arthritis, frozen shoulder, severe fibromyalgia, glenohumeral osteoarthritis, and insufficient Danish language skills**	**pamphlet. Available at: https://www.rm.dk /sundhed/faginfo/forskning/skulderinterventions-projekt/information-tilfagfolk/ physiotherapist-manual-and-hometraining- pamphlet/. Accessed March 14, 2016** **Comparison: Standardized exercise program was compared with the usual care group received no intervention,but they were advised to continue treatment as directed by the hospital.**	**representing a better health state at 3 and 12 months** **Maximum oxygen uptake, positive pain provocation signs, and scapula dyskinesis.at 3 months** **Results: At 3 and 12 months, 92% and 83% of the patients, respectively, were followed up.** **At 3 months, intention-to-treat analysis showed a nonsignificant difference in favor of the physical therapy exercise intervention with regard to the Oxford.** **Analyses of secondary and supplementary outcome measures significantly favored the exercise group with respect to the Constant Score, scapular dyskinesis, maximum oxygen uptake, and Patients' Global Impression of Change scale score.** **At 12 months, significantly larger improvements were found in the physical therapy exercise group with respect to the Oxford Shoulder Score, the Fear-Avoidance Beliefs Questionnaire physical activity scale, the EQ-5D-3L index, and the Patients' Global Impression of Change scale.** **The number of patients who had consulted a physician for their shoulder problem during the intervention period was significantly lower in the physical therapy exercise group than in the usual care group (5 [9%] versus 18 [30%], P.001).** **Adverse Events: Except for muscle tenderness after training and 2 cases of temporary headache in relation to training, no adverse events were noted.** **Author's Conclusion: In conclusion, the results supported the effectiveness of a standardized physical therapy exercise intervention compared with usual care in patients with difficulty returning to usual activities 8 to 12 weeks after subacromial decompression surgery for SIS. Thus, the present study suggests a potential for optimizing the quality of care for patients with SIS who are surgically treated. A detailed exercise manual and a patient pamphlet allow researchers to replicate the trial and clinicians to apply the exercise program.**

Methodical Notes
Funding Sources: The study was conducted within the framework of the Shoulder Intervention Project **This was a researcher-initiated study, primarily funded by the Danish Agency for Science, Technology and Innovation (grant number 09-066985) with co-funding from the Danish** **Ramazzini Centre** **COI: not mentionend** **Randomization: Randomization took place after baseline data collection and was performed by a research secretary, who assigned participants to interventions. Computergenerated randomization (1:1 ratio) was used, with stratification by the surgical department and blocking within strata using randomly permuted block sizes of 12, 8, and 4** **Blinding: The nature of the exercise intervention did not allow blinding of patients and care providers.** **Dropout Rate/ITT-Analysis: Dropout at 3 months: 10 patients** **Dropout at 12 months: another 12 patients** **ITT Analysis: Done** **Notes:**

Hultenheim Klintberg, I. et al. Early activation or a more protective regime after arthroscopic subacromial decompression--a description of clinical changes with two different physiotherapy treatment protocols--a prospective, randomized pilot study with a two-year follow-up. Clin Rehabil. 22. 951-65. 2008

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 2 **Study type: Prospective, randomized pilot study, within-subject design.** **Number of Patient: 43** **Recruitung Phase:** **Inclusion Criteria: Primary impingement according to Neer's classification stage II,** **Exclusion Criteria: were no previous**	**Intervention: traditional group (n¼20) started with active assisted range of motion exercises on the day of surgery, dynamic exercises for the rotator cuff after six weeks and strengthening exercises after eight weeks. T** **Comparison: progressive group (n¼14) started active assisted range of motion and dynamic exercises for the rotator** **cuff on the day of surgery. Strengthening exercises started after six weeks**	**Primary: 1. Intensity of pain: VAS** **2. Patient satisfaction: (1) Very unsatisfied, (2) quite unsatisfied, (3) neither satisfied nor unsatisfied, (4) quite satisfied and (5) very satisfied.** **3. Active range of motion:** **4. Strength testing: isokinetic** **5.Functional assessment** **3, 6, 12 and 24 Months** **Secondary:** **Results: The progressive group reaches significant higher changes from preoperative assessment until named follow-up as shown in the column 'Significance**

surgery to the shoulder, or other diagnoses that could interfere with the treatment or shoulder function		**between groups** **Author's Conclusion: After arthroscopic subacromial decompression surgery, a more proactive and progressive physiotherapy regime was associated with slightly faster recovery of shoulder function.** **No adverse affects were noted**

Methodical Notes

Funding Sources: Financial support was provided by Go¨ teborg University, the Va¨ stra Go¨ taland (research and education) research fund and the Centre for Sports Medicine Research

COI: None declared

Randomization: Randomization with sealed envelopes during surgery

Blinding: No Blinding

Dropout Rate/ITT-Analysis: 2 Patients / No ITT-Analysis

Notes:

Svendsen, S. W. et al. Shoulder function and work disability after decompression surgery for subacromial impingement syndrome: a randomised controlled trial of physiotherapy exercises and occupational medical assistance. BMC Musculoskelet Disord. 15. 215. 2014

Population	Intervention - Comparison	Outcomes/Results
Evidence level: 2 **Study type: pragmatic multicentre randomised controlled trial RCT** **Number of Patient: 130** **Recruitung Phase: 8-12 weeks after shoulder decompression** **Inclusion Criteria:** Patients **must have surgery under a main diagnosis**	**Intervention: Occupational medial assistance, standardized physiotherapy exercises, Occupational medial assistance and physiotherapy exercises, usual care** **Comparison: Comparison of the four groups after 3 months, 12 months and 24 months**	**Primary: after three months: To evaluate the physiotherapy intervention at three months, the primary outcome measure will be change innshoulder function since baseline assessed by** Oxford Shoulder Score (OSS)**, which ranges from 0 to 48 with 48 being the best outcome [29]. To evaluate the occupational intervention at three months, the primary outcome measure will be the sickness absence percentage, i.e. the number of hours of sick-leave due to symptoms from the operated shoulder in relation to the number of planned working hours within three months from baseline. This information is gathered by one month day-by-day calendars. Any hours off work to participate in the project will count in the outcome measure** After 12 months **To evaluate the physiotherapy intervention at 12 months,the primary outcome measure will be OSS. For the subgroup,who are in paid work for at least 25 hours per week,the**

of SIS or acromioclavicular osteoarthritis (International Classification of Diseases 10th revision: M75.1-M75.8 or M19) and with a main shoulder surgery code of arthroscopic subacromial decompression (KNBH51, KNBH91, KNBG09, KNBL39, or KNBM79 according to the Danish version of the Nordic Medico-Statistical Committee Classification of Surgical Procedures). **Clinical control after 8–12 weeks, eligible patients are provided with information material on SIP and are asked to participate in a brief telephone interview. Patients are only recruited if they** have at least slight shoulder **problems** **Exclusion Criteria:** Preoperative assessment**: insufficient skills in danish, main diagnosis M75.1-M75.8 or 19., comorbidity,** Intraoperative assessment**: Rotator Cuff Tear, biceps tendon pathology** **Postoperative** assessment after 8-12 weeks**: frozen shoulder, further shoulder operation planned, no shoulder problems anymore**		**occupational intervention will be evaluated at 12 and24 months, and the physiotherapy intervention will be evaluatedat 24 months, using the primary outcome measure transfer income percentage, i.e. the number of weeks receiving temporary or permanent health-related transfer incomes within 12 and 13–24 months from baseline, respectively, divided by 52 weeks, according to the Danish National Register on Public Transfer Payments** **Secondary:** At three months: **Constant Score will be used as a secondary outcome measure for the physiotherapy intervention [31-33], and OSS will be used as a secondary outcome measure for the occupational intervention to evaluate any deterioration. For both interventions, the Fear Avoidance Belief Score [34], modified to focus on the shoulder will also be used. Furthermore, the physiotherapy intervention will be evaluated using the sickness absence percentage for the subgroup in paid work for at least 25 hours per week.** At 12 months: **Fear Avoidance Belief Score, modified to focus on the shoulder, will be used as a secondary outcome measure for both interventions, and OSS will be used as a secondary outcome measure for the occupational intervention. For the subgroup, who are in paid work for at least 25 hours per week, the physiotherapy intervention will be further evaluated using the transfer income percentage** **For both interventions, supplementary outcome measures will be chosen from the variables presented in Table 1. As an annex to the RCT, participants are asked to answer a short text message once a week for 12 weeks after baseline, rating their pain at rest within the last 24 hours, using an 11-point Numeric Pain Rating Scale ranging from 0 (no pain) to 10 (worst imaginable pain).** **Results: just the methods are shown in this paper. It is embedded in a cohort study, which enables evaluation of selection into the project and reach of the intended target group.** **Author's Conclusion: The paper presents the rationale, design, methods, and operational aspects of the Shoulder Intervention Project (SIP). SIP evaluates a new rehabilitation approach, where physiotherapy and occupational interventions are provided in continuity of surgical episodes of care. If successful, the project may serve as a model for rehabilitation of surgical shoulder patients.**

Methodical Notes

Funding Sources: This work was supported by the Danish Agency for Science, Technology and Innovation, grant number 09–066985, the Danish Working Environment Research Fund, grant number 20120220871/3, and the Danish Ramazzini Centre.

COI: The authors declare that they have no competing interests.

Randomization: At the region's two departments of occupational medicine, participants are individually randomised by a research secretary, using a computerised random number generator with stratification by surgical department and blocking within strata using randomly permuted block sizes of 12, 8, and 4. Blocking within strata is used to ensure an equal distribution of the interventions between the surgical departments.
Randomly permuted block sizes ensure allocation concealment. Once performed, the randomisation result is automatically locked by SIP-online (see below).

Blinding: It is impossible to blind participants and providers of the interventions. To minimise information
bias, we included register-based variables and Constant Score as outcome measures and aimed to ensure blinding of the research physiotherapist.

Dropout Rate/ITT-Analysis:

Notes:

Trainingstherapie

Inhalt: 12 Literaturstellen

OXFORD (2011) Appraisal Sheet: Systematic Reviews

Loading...

OXFORD (2011) Appraisal Sheet: RCT

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NEWCASTLE - OTTAWA Checklist: Case Control

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NEWCASTLE - OTTAWA Checklist: Cohort

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Ultraschall

Inhalt: 5 Literaturstellen

OXFORD (2011) Appraisal Sheet: Systematic Reviews

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OXFORD (2011) Appraisal Sheet: RCT

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NEWCASTLE - OTTAWA Checklist: Case Control

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NEWCASTLE - OTTAWA Checklist: Cohort

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Wärmetherapie

Inhalt: 2 Literaturstellen

OXFORD (2011) Appraisal Sheet: Systematic Reviews

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OXFORD (2011) Appraisal Sheet: RCT

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NEWCASTLE - OTTAWA Checklist: Case Control

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NEWCASTLE - OTTAWA Checklist: Cohort

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