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Anhang 1 zur Leitlinie:

Multimodale Rehabilitationskonzepte für das „Post-Intensive-Care-Syndrom“ (PICS)

S2e-Leitlinie

Von der

Deutschen Gesellschaft für Neurorehabilitation e.V. (DGNR)

in Zusammenarbeit mit

BDH Bundesverband Rehabilitation (als Patient*innenvertretung)

Deutscher Bundesverband für Logopädie (dbl) e.V.

Deutsche Gesellschaft für Fachkrankenpflege und Funktionsdienste (DGF)

Deutsche Gesellschaft für Pflegewissenschaft (DGP)

Deutsche Gesellschaft für Physiotherapiewissenschaft (DGPTW) e.V.

Deutscher Verband Ergotherapie (DVE) e.V.

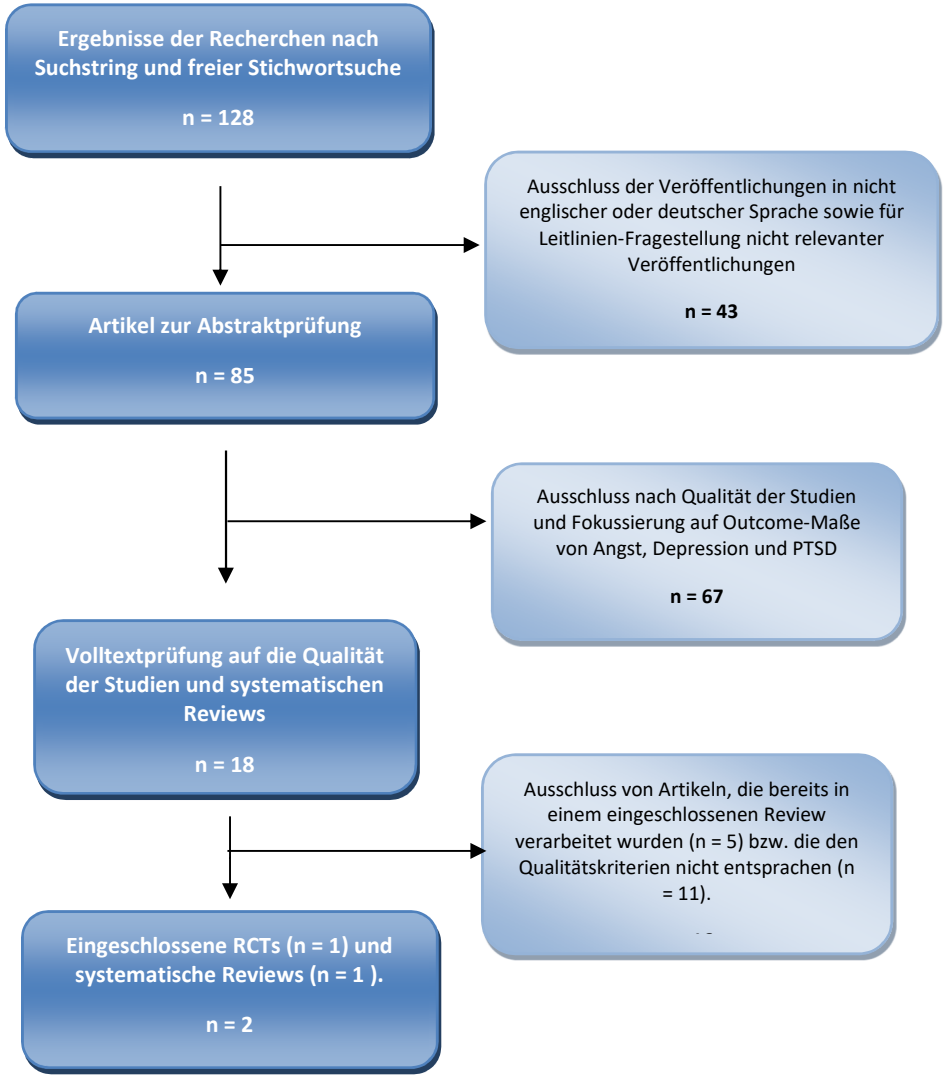
Gesellschaft für Neuropsychologie (GNP) e.V.

Schweizerische Gesellschaft für Neurorehabilitation (SGNR)

MULTIMODALE REHABILITATIONSKONZEPTE FÜR DAS „POST-INTENSIVE-CARE-SYNDROM“ (PICS) 1

1. Intensivstationstagebücher

Recherche



Evidenztabellen

Author, year, level of evidence	**Study type, number of studies, number of participants**	**Search date, searched databases, search algorithm**	Population *(e.g. age, gender distribution, disease duration, severity)*	**Intervention and Control intervention**	**Outcome measures** *(including ICF levels)* **Follow-up period**	**Main results** *(post intervention and follow-up; statistic and its variation, e.g. SMD [95%CI], heterogeneity, significance)* **Risk of bias**	**Validity rating (++ + - --) (Q1-Q13)**	**Relevance for clinical practice (2,1,0, -1)**	**Conclusion** *(based on PICO; results, e.g. clinical relevance of outcome measure(s) and of magnitude of effect estimate (A, B, 0)*
Sun et al. 2020 Effect of intensive care unit diary on incidence of posttraumatic stress disorder, anxiety, and depression of adult intensive care unit survivors: A systematic review and meta-analysis **OCEBM 1**	Systematic review and meta-analysis of prospective randomized controlled or case-controlled studies. 10 studies; -> 8 RCT, 2 case-controlled studies, N = 1210	1 January 2000–1 March 2020. Cochran Library, Pubmed, Embase, CINAHL, and ProQuest databases, China national knowledge infrastructure (CNKI) ((("Intensive Care Unit Diary" OR (ICU Diary") OR ("Diary Therapy"))) AND ((("Post Traumatic Stress Disorder", OR ("Psychological Disorder") OR ("Psychological Symptoms"))) AND (("ICU survivor" OR (“intensive care unit survivor”)) AND ("randomized controlled trial"	A systematic review and meta-analysis were conducted to evaluate the effect of ICU diary therapy on the incidence of PTSD, anxiety, and depression of adult patients after ICU stay and to provide an effective reference for the application of ICU diary in the field of ICU. (comprehensive ICU, cardiac and thoracic ICU).	Intervention group: ICU diary and routine care during ICU stay. Patients began to read their ICU diary after ICU discharge Control group: routine care during ICU stay ICU Follow-Up: 2-3 months after ICU discharge	Primary Outcome: incidence of posttraumatic stress disorders Secondary outcomes: anxiety and depression.	intensive care unit diaries can reduce the incidence of posttraumatic stress disorder, anxiety, and depression.	Q1: + Q2: + Q3: - Q4: + Q5: + Q6: - Q7: + Q8: + Q9: + Q10: - Q11: + Q12: + Q 13: +	2	GRADE moderate

		OR "randomized controlled trial" OR "randomized*"))).							

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

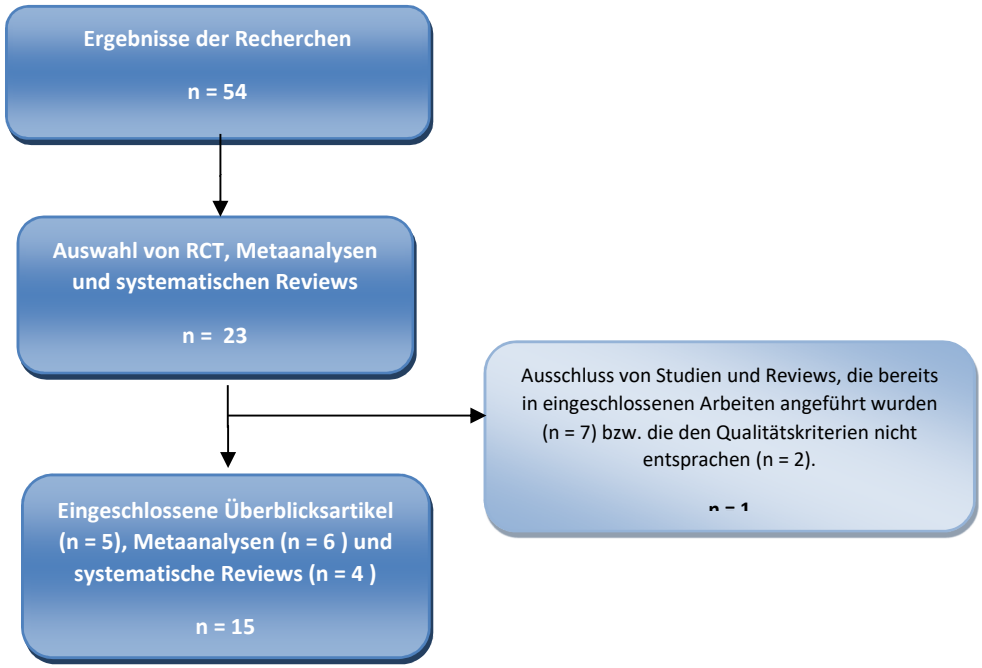
Author, year, level of evidence	**Study type, number of studies, number of participants**	**Search date, searched databases, search algorithm**	**Population** *(e.g. age, gender distribution, disease duration, severity)*	**Intervention and Control intervention**	**Outcome measures** *(including ICF levels)* **Follow-up period**	**Main results** *(post intervention and follow-up; statistic and its variation, e.g. SMD [95%CI], heterogeneity, significance)* **Risk of bias**	**Validity rating (++ + - --) (Q1-Q13)**	**Relevance for clinical practice (2,1,0, -1)**	**Conclusion** *(based on PICO; results, e.g. clinical relevance of outcome measure(s) and of magnitude of effect estimate (A, B, 0)*
Sayde et al., 2020 Implementing an intensive care unit (ICU) diary program at a large academic medical center: Results from a randomized control trial evaluating psychological morbidity associated with critical illness **OCEBM Level of Evidence 2**	RCT n=18 intervention group vs n=17 controls	1 January 2000–1 March 2020. Cochran Library, Pubmed, Embase, CINAHL, and ProQuest databases, China national knowledge infrastructure (CNKI)	n = 18 diary n = 17 education-only age 31-51 sex 24 male ICU > 72h intubation > 24h no preexisting PTSD or neuro-cognitive impairment	bedside education for patients and families 2-3 times a week plus written instructions and personal encouragement to use an ICU-diary diary always present bedside for patient, family and staff versus bedside education for patients and families 2-3 times a week alone	IES-R PHQ-8 HADS GAD-7 at discharge week 4, 12 and follow-up at week 24	significant reduction of depressive symptoms in controls over time significantly greater decrease in PTSD in controls at week 4 Both study groups exhibited clinically significant PTSD symptoms at all timepoints after ICU discharge, with relevant increase of PTSD symptoms by week 12 in both groups no significant group differences in other measures, or at other follow-up intervals. ⍰ no benefit in using an ICU diary versus bedside education-alone	Q1:++ Q2:++ Q3:++ Q4:++ Q5:++ Q6:++ Q7:0 Q8:++ Q9:-- Q10:-- Q11:++ Q12:++ Q13:++ Q14:++	2	GRADE: moderate

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies	1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes.

Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	3. Reporting of side effects and acceptability. 4. Adequate follow-up assessment (long-term effects). 5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias). 8. Comparability of experimental and control groups at baseline (selection bias). 9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias). 13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

2. Delirprävention/Delirtherapie/Stressreduzierende Therapie

Recherche:



Evidenztabellen

Author, year, level of evidence	**Study type, number of studies, number of participants**	**Search date, searched databases, search algorithm**	**Population** *(e.g. age, gender distribution, disease duration, severity)*	**Intervention and Control intervention**	**Outcome measures** *(including ICF levels)* **Follow-up period**	**Main results** *(post intervention and follow-up; statistic and its variation, e.g. SMD [95%CI], heterogeneity, significance)* **Risk of bias**	**Validity rating (++ + - --) (Q1-Q13)**	**Relevance for clinical practice (2,1,0, -1)**	**Conclusion** *(based on PICO; results, e.g. clinical relevance of outcome measure(s) and of magnitude of effect estimate,*
Bannon et al. 2019 The effectiveness of non-pharmacological interventions in reducing the incidence and duration of delirium in critically ill patients: a systematic review and meta-analysis. **OCEBM 1**	RCTs, 2812 participants	Up to March 2018; MEDLINE, EMBASE, CINAHL, web of science, PsycINFO, AMED, Cochrane, Opengray, NHS evidence and refenence lists of included studies, metaRegister of Controlled Trials, WHO International Clinical Trials Registry Platform.	RCTs of critically ill adult patients that evaluated the effectiveness of non-pharmacological interventions compared to usual care, different non-pharmacological interventions or pharmacological interventions	Non-pharmacological interventions vs standard care on incidence and duration of delirium in critically ill patients on incidence and duration of delirium. Secondary outcomes were ICU and hospital mortality, sleep quality, cognitive function, adverse events and quality of life	Pooled data from 4 trials of bright light therapy showed no significant effect between groups (n=829) Pooled data from two trials of multicomponent physical therapy showed no significant effect (n=404). A trial of family voice reorientation showed a beneficial effect (very low quality evidence).	Current evidence does not support the use of non-pharmacological interventions in reducing incidence and duration of delirium in critcally ill patients,	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: + Q9: + Q10: - Q11: + Q12: + Q 13: +	0	GRADE :: low quality (therapeutic option)

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses?

Evidence level 5: pathophysiological-mechanistic arguments	9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

Author, year, level of evidence	**Study type, number of studies, number of participants**	**Search date, searched databases, search algorithm**	**Population** *(e.g. age, gender distribution, disease duration, severity)*	**Intervention and Control intervention**	**Outcome measures** *(including ICF levels)* **Follow-up period**	**Main results** *(post intervention and follow-up; statistic and its variation, e.g. SMD [95%CI], heterogeneity, significance)* **Risk of bias**	**Validity rating (++ + - --) (Q1-Q13)**	**Relevance for clinical practice (2,1,0, -1)**	**Conclusion** *(based on PICO; results, e.g. clinical relevance of outcome measure(s) and of magnitude of effect estimate,*
Deemer et al. 2020 Effect of early cognitive interventions on delirium in critically ill patients: a systematic review. **OCEBM 2**	4 RCTs, one pre-post intervention trial, two multi-phase observational studies.	2014 to 2018. MEDLINE, EMBASE, Joanna Briggs Institute, Cochrane, Scopus, CINAHL. English language publications studying either pediatric or adult critically ill patients were chosen. Seven full-text articles were included in the final review including patients over 16 years of age in single-center mixed medical/surgical ICUs. Algorithm cognitive interventions AND delirium prevention AND critical care.	N= 1051 medical or surgical patients on ICU., variable exclusion criteria	Variable interventions (sensory and/ or cognitive stimulation, positioning, inclusion of family members, music vs. usual treatment)	After application of cognitive intervention protocols, a significant reduction in delirium incidence, duration, occurrence and development was found in four studies.	The study of early cognitive interventions in critically ill patients was identified in a small number of studies with limited sample sizes. An overall high risk of bias and variability within protocols limits the utility of findings for widespread practice implications.	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: entfällt Q9: + Q10: + Q11: + Q12: + Q 13: +	0	GRADE low quality

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?

Evidence level 5: pathophysiological-mechanistic arguments	8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

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Deng et al. 2020 Non-pharmacological interventions to reduce the incidence and duration of delirium in critically ill patients: A systematic review and network meta-analysis**.** **OCEBM 1**	Meta-analysis of RCTs and cohort studies that included adult patients who were admitted to ICUs of any type. 26 studies with 6499 participants. For three included studies number of participants was not given.	Until June 2019, PubMed, Embase, CINAHL, and Cochrane Library database following PRISMA. Key terms or synonyms critical care, delirium and non-paharmacological interventions.	Adult patients who were admitted to ICUs of any type.	To compare non-pharmacological interventions in their ability to prevent delirium in critically ill patients. Intervention types: physical environment intervention, sedation reducing, family participation, exercise program, cerebral hemodynamics improving, multi-component studies, usual care.	In term of reducing the incidence of delirium, the two most effective interventions were family participation and multi-component interventions. All interventions demonstrated nonsignificant efficacy in regards to delirium duration and lenth of stay in ICU. Excercise program facilitated a significant reduction in hospital mortality. Outcomes: Delirium defined as a positive screening test result by a validated instrument, lenght of stay in ICU, in-hospital mortality at either 28 days or the longest follow-up date in hospital.	Family participation and multi-component interventions were most effective. Exercise program facilitated significant reduction in in-hospital mortality. Rsik of bias seems possible.	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: - Q7: + Q8: ? Q9: - Q10: - Q11: + Q12: + Q 13: +	1	GRADE Moderate quality

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])?

Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

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Guerra et al. 2019 Efficacy of music on sedation, analgesia and delirium in critically ill patients. A systematic review of randomized controlled trials. **OCEBM 1**	Review of RCTs. Six studies included. No. of subjects 623.	Medline, Pubmed, Embase, CINAHL, Cochrane, Alt Healthwatch, LILACS, PsycINFO, CAIRSS, RILM. Algorithm not stated. Cochrane Collaboration tool for assessing risk of bias. GRADE.	Adult ICU patients not further specidied	The efficacy of music to provide sedation and analgesia, and reduce incidence of delirium in critically ill patients vs. routine care or placebo	The primary outcome of this review was the efficacy to provide sedation and analgesia in critically ill patients. Sedation was defined as the administration of opioids, benzodiazepines, hypnotics or any other drug with the intention to reduce the level of consciousness and/ or anxiety, analgesia the same with the intention to reduce pain.	One study reported a reduction of sedation requirements with the use of music, while the other 5 did not find any significant difference across groups. Risk of bias present and described.	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: not feasable due to heterogeneity. Q9: + Q10: + Q11: + Q12: + Q 13: +	0	GRADE : low quality

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

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Herling et al. 2018 Interventions for preventing intensive care unit delirium in adults. Cochrane Database Syst Rev **OCEBM 1**	Systematic review of RCTs, 12 RCTs comparing usual care with the following interventions: commonly used drugs (4), sedation regimes (4), physical therapy or cognitive therapy or both (1), environmental interventions (2), preventive nursing care (1).	1980 to April 2018: CENTRAL, MEDLINE, Embase, BIOSIS, International Web of Science, Latin American Caribbean Healtht Sciences Literature, CINAHL. Algorithm Delirium AND ICU AND prevention AND RCT	Adult medical or surgical ICU patients receiving any intervention for preventing ICU delirium. The control should be standard ICU care, placebo or both, altogether 3885 participants.	Haloperidol vs placebo Physical and cognitive therapy intervention vs standard care	Halopoperidol vs placebo neither reduced nor increased in-house mortality, the number of delirium- and coma-free days, number of ventilator-free days or legth of ICU-stay. Neither reduced nor increased in-house mortality, the number of delirium- and coma-free days, the number of ventilator-free days, cognitive impairment as measured by the MMSE or by the Dysexecutive questionnaire.	Haloperidoal vs placebo: no effect. Low risk of bias. Therapy vs standard care: no effect. Risk of bias.	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: + Q9: + Q10: - Q11: + Q12: + Q 13: +	-1	GRADE -: high quality

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Author, year, level of evidence	**Study type, number of studies, number of participants**	**Search date, searched databases, search algorithm**	**Population** *(e.g. age, gender distribution, disease duration, severity)*	**Intervention and Control intervention**	**Outcome measures** *(including ICF levels)* **Follow-up period**	**Main results** *(post intervention and follow-up; statistic and its variation, e.g. SMD [95%CI], heterogeneity, significance)* **Risk of bias**	**Validity rating (++ + - --) (Q1-Q13)**	**Relevance for clinical practice (2,1,0, -1)**	**Conclusion** *(based on PICO; results, e.g. clinical relevance of outcome measure(s) and of magnitude of effect estimate,*
Igwe et al. 2020 Multi-disciplinary and pharmacological interventions to reduce post-operative delirium in elderly patients: A systematic review and meta-analysis. **OCEBM 1,**	25 RCT or quasi-experimental studies included in qualitative synthesis, 4 on haloperidol interventions in meta-analysis. N= 5223	Up to December 2018. CINAHL, Medline, Web of Science, Cochrane Library, Joanna Briggs Institute Critical Appraisal Checklist. A combination of search terms including „delirium prevetion", „anaesthesia", „surgery", „older people", „elderly" and geriatric".	A systematic review and meta-analysis were conducted to synthesize data on clinical interventions used to reduce post-operative delirium among older people undergoing elective an emergency surgery. Age > 64 years	Pharmacological and non-pharmacological interventions to reduce post-operative delirium. Multi-disciplinary interventions consisted of continuous monitoring, screening for delirium, avoidance of polypharmacy, geriatric consultation and nurse-led delirium-prevention strategies	Primary or secondary outcome of studies was incidence/ prevalence of postoperative delirium.	Results found more consistencies across multidisciplinary interventions than pharmacological interventions. Haloperidol was not statistically significantly associated with reduced postoperative delirium incidence any more than placebo.	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: + Q9: + Q10: + Q11: + Q12: + Q 13: +	2	GRADE : High quality

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported?

	11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

Author, year, level of evidence	**Study type, number of studies, number of participants**	**Search date, searched databases, search algorithm**	**Population** *(e.g. age, gender distribution, disease duration, severity)*	**Intervention and Control intervention**	**Outcome measures** *(including ICF levels)* **Follow-up period**	**Main results** *(post intervention and follow-up; statistic and its variation, e.g. SMD [95%CI], heterogeneity, significance)* **Risk of bias**	**Validity rating (++ + - --) (Q1-Q13)**	**Relevance for clinical practice (2,1,0, -1)**	**Conclusion** *(based on PICO; results, e.g. clinical relevance of outcome measure(s) and of magnitude of effect estimate,*
Liang et al. 2021 Effects of nonpharmacological delirium-prevention interventions on critically ill patients' clinical, psychological, and family outcomes: A systematic review and meta-analysis**.** **OCEBM 2**	34 studies (10 RCTs, 8 controlled clinical trials, 16 before-after studies) involving 7159 patients	Until September 2020. MEDLINE, CINAHL, EMBASE, CENTRAL, Web of Science, PsycINFO and 4 Chinese databases. Keywords: delirium nonpharmacological intervention, critical care unit, intensive care unit.	ICU patients > 17 years, studies involving neurological or neurosurgical patients were excluded. Studies that included pharmacological interventions were excluded.	Nonpharmacological interventions included multi-component or single-component interventions aimed at preventing delirium and improving outcomes. Interventions included were not limited to, early mobilisation, family participation, patient education, music, sleep promotion, changes to the physical environment, and multicomponent interventions. vs. usual care.	Outcoms included the incidence and duration of delirium, LOS in the ICU, and mortality	Moderate-certainty evidence demonstrates that early mobilisation, family participation and use of multicomponent interventions are associated with reduced incidence of delirium. Risk of bias was assessed.	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: + Q9: + Q10: - Q11: + Q12: + Q 13: +	2	GRADE moderate quality

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses?

Evidence level 5: pathophysiological-mechanistic arguments	9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

Author, year, level of evidence	**Study type, number of studies, number of participants**	**Search date, searched databases, search algorithm**	**Population** *(e.g. age, gender distribution, disease duration, severity)*	**Intervention and Control intervention**	**Outcome measures** *(including ICF levels)* **Follow-up period**	**Main results** *(post intervention and follow-up; statistic and its variation, e.g. SMD [95%CI], heterogeneity, significance)* **Risk of bias**	**Validity rating (++ + - --) (Q1-Q13)**	**Relevance for clinical practice (2,1,0, -1)**	**Conclusion** *(based on PICO; results, e.g. clinical relevance of outcome measure(s) and of magnitude of effect estimate,*
Litton et al. 2016 The Efficacy of Earplugs as a Sleep Hygiene Strategy for Reducing Delirium in the ICU: A Systematic Review and Meta-Analysis. **OCEBM 2**	Intervention studies (randomized or nonrandomized) assessing the efficacy of earplugs as a sleep hygiene strategy in patients admitted to a critical care environment, 9 studies including 1.455 participants. 6 (5?) RCTs, 3(4? – discrepancy between table and text) before/ after implementation	1966 – July 2015. MEDLINE, EMBASE, Cochrane Central register of controlled trials. Terms. „intensive care", „critical care", „earplugs", „sleep", „sleep disorders", „delirium", reference lists of includes studies and relevant review articles.	Patients admitted to a critical care environment.	Earplugs alone or as part of a bunle with eye shadows or both with additional sleep noise abatement strategies.	Five studies comprising 832 participants reported incident delirium Earplug placement was associated with a relative risk of delirium of 0.59.	Placement of earplugs in patients admitted to the ICU, either in isolation or as part of a bundle of sleep hygiene improvement is associated with a significant reduction in risk of delirium. Risk of bias was high for all studies.	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: + Q9: + Q10: - Q11: + Q12: not stated Q 13: +	2	GRADE: High quality

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

Author, year, level of evidence	**Study type, number of studies, number of participants**	**Search date, searched databases, search algorithm**	**Population** *(e.g. age, gender distribution, disease duration, severity)*	**Intervention and Control intervention**	**Outcome measures** *(including ICF levels)* **Follow-up period**	**Main results** *(post intervention and follow-up; statistic and its variation, e.g. SMD [95%CI], heterogeneity, significance)* **Risk of bias**	**Validity rating (++ + - --) (Q1-Q13)**	**Relevance for clinical practice (2,1,0, -1)**	**Conclusion** *(based on PICO; results, e.g. clinical relevance of outcome measure(s) and of magnitude of effect estimate,*
Luther & McLeod 2017 The effect of chronotherapy on delirium in critical care - a systematic review. **OCEBM 2**	5 RCTs, one study used a cohort-based design with historical control, 1161 participants.	2006-2016, Academic Search Complete, CINAHL Plus, E-Journals, MEDLINE, PsycARTICLES, PsycINFO supplemented by a hand search of relevant articles and journals. Chronotherap* OR chronoenhancement OR light therapy OR environmental light* OR dysnamic linght* OR melanton* AND deliri* OR psychosis OR acute confusional state AND critical Care OR ITU OR ITU OR intensive care OR critically ill.	Adult patients in critical care	Controlled dynamic light intervention vs usual care; bright light intervention vs usual care; melatonn agonist vs placebo, reduction of light and noise vs pre.intervention; frequent patient orientation, use of music, ear plugs/ eye shades, reduction in noise, use of natural light/dimmed lighting in the evening vs usual care	Multi-component non-pharmacological interventions, such as noise and light control, can reduce delirium in critical care, whereas other interventions , such as bright light therapy, have mixed outcomes. Melatonin, as a drug, may be a useful alternative to sedative-hypnotics.	Chronotherapy can reduce the incidence of delirium within critical care. Staff education is critical in the implementation of chronotherapy. Risk of bias present in a number of studies.	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: - Q8: entfällt Q9: + Q10: - Q11: + Q12: - Q 13: +	1	GRADE: moderate quality

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?

Evidence level 5: pathophysiological-mechanistic arguments	8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

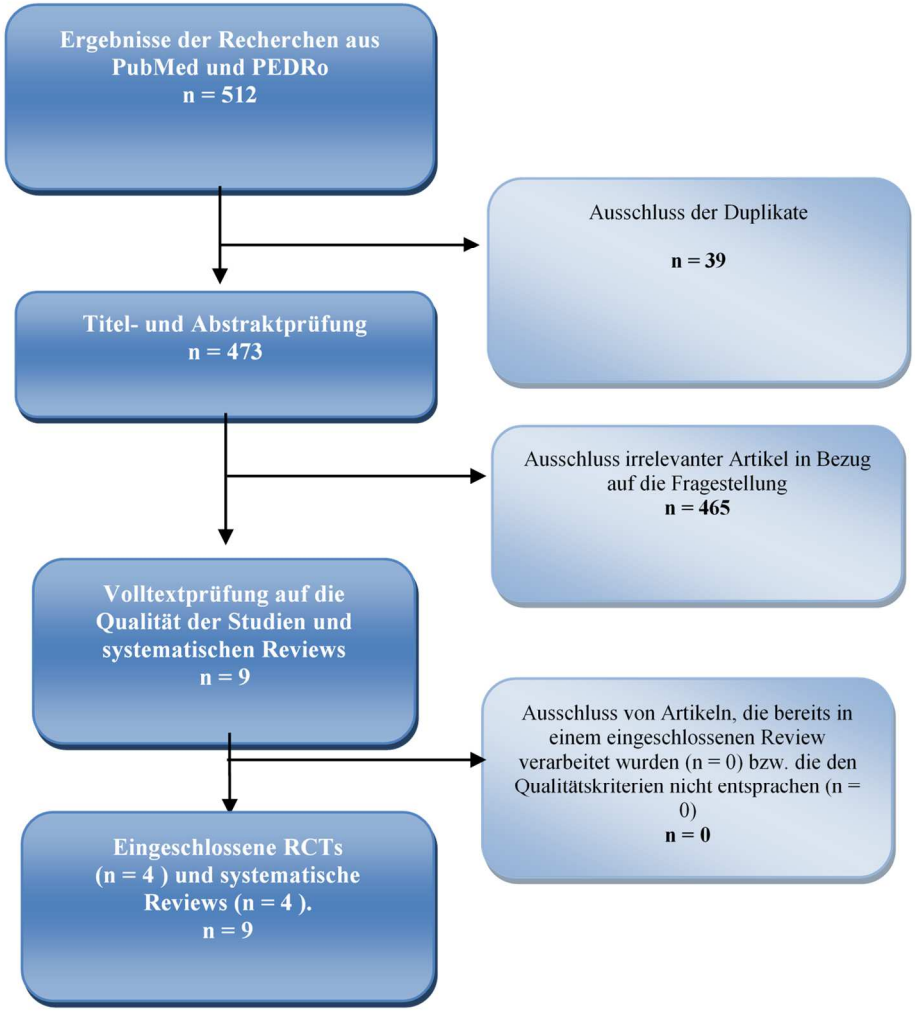
Author, year, level of evidence	**Study type, number of studies, number of participants**	**Search date, searched databases, search algorithm**	**Population** *(e.g. age, gender distribution, disease duration, severity)*	**Intervention and Control intervention**	**Outcome measures** *(including ICF levels)* **Follow-up period**	**Main results** *(post intervention and follow-up; statistic and its variation, e.g. SMD [95%CI], heterogeneity, significance)* **Risk of bias**	**Validity rating (++ + - --) (Q1-Q13)**	**Relevance for clinical practice (2,1,0, -1)**	**Conclusion** *(based on PICO; results, e.g. clinical relevance of outcome measure(s) and of magnitude of effect estimate,*
Trogrlic et al.2015 A systematic review of implementation strategies for assessment, prevention, and management of ICU delirium and their effect on clinical outcomes. **OCEBM 2**	21 studies were evaluated, numbers of patients not reported, 1 RCT, 20 comparison before vs. after	Jan 2000 to April 2014, Pubmed, Embase, PsychINFO, Cochrane, CInahl, algorithm tailored to each database, Clearly defined outcome measures	Adult iICU patients, alcohol withdrawal excluded	Clinical Practice Guideline for the Management of Pain, Agitation, and Delirium (PAD) in Adult Patients Awakening and Breathing Coordination, Choice of Seedative, Delirium Monitoring and Management and Early Mobility (ABCDE bundle), Confusion Assessment Method fort he Intensive Care Unit – CAM-ICU)	ICU lenngth of stay (LOS), mortality	Our findings may indicate that multi-component implementation programs with a higher number of strategies targeting ICU delirium assessment, prevention and treatment and integrated within PAD or ABCDE bundle have the potential to improve clinical outcome.	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: - Q7: + Q8: + Q9: + Q10: + Q11: + Q12: + Q 13: +	2	GRADE High quality

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?

	12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

3. Frühmobilisation

Recherche:



Author, year, level of evidence	Study type, number of studies, number of participants	Search date, searched databases, search algorithm	Population	Intervention and control intervention	Outcome measures, follow-up period	Main results, risk of bias	Validity rating	Relevance for clinical practice (2,1,0,-1)	Conclusion
Fuke et al., 2018, Early rehabilitation to prevent postintensive care syndrome in patients with critical illness: a systematic review and meta-analysis. **OCEBM 1**	Systematic review and meta-analysis, 6 RCT`s, 709 patients	Medline (via PubMed from 1996 to 7 June 2016), Embase (until 7 June 2016) and Cochrane Central Register of Controlled Trials (CENTRAL) databases (until 7 June 2016) for full-text clinical trials conducted in humans to retrieve relevant articles for the literature review	Age >18 years without traumatic brain injury and stroke	Intervention: Rehabilitation included all physiotherapy, occupational therapy and palliative care-related support. Control: standard care or no early rehabilitation.	Short-term outcomes: physical-related outcomes (incidence of ICU-acquired weakness (AW), Medical Research Council (MRC) scale, score), cognitive-related outcomes (delirium-free days), mental status-related outcomes (Hospital Anxiety and Depression Scale (HADS). Long-term outcomes:Health-Related Quality of Life (EuroQol 5 Dimensions (EQ5D), Medical Outcomes Study 36-Item Short Form Health Survey Physical Function scale (SF-36 PF)). Follow-up: 3-6 months	Early rehabilitation significantly improved short-term physical-related outcomes, MRC: mean difference (SMD): 0.38, 95% CI 0.10 to 0.66, p=0.009) (QoE: low) and a decreased incidence of intensive care unit-acquired weakness (OR 0.42, 95% CI 0.22 to 0.82, p=0.01, QoE: low). Early rehabilitation did not improve the long-term outcomes of PICS such as EQ5D and SF-36 PF.	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: + Q9: + Q10: + Q11: - Q12: + Q 13: +	2	GRADE High quality

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

Author, year, study type, evidence level	Intervention	Control intervention	Population	Outcome measures, follow-up period	Main results	Validity rating	Relevance for clinical practise (2,1,0,-1)	Conclusion / Comment
Berney et al., 2021 Functional electrical stimulation in-bed cycle ergometry in mechanically ventilated patients: a multicentre randomised controlled trial. RCT **OECBM 2**	60 min of FES-cycling >5 days/week while in the intensive care unit (ICU) plus usual care rehabilitation	usual care rehabilitation	Mechanically ventilated patients aged ≥18 years with sepsis or systemic inflammatory response syndrome	(1) muscle strength at hospital discharge and (2) cognitive impairment at 6-month follow-up.	FES-cycling (n=80; mean age±SD 59±15) versus control (n=82; 56±14) no significant differences for muscle strength at hospital discharge (mean difference (95% CI) 3.3 (−5.0 to 12.1) Nm), prevalence of cognitive impairment at 6 months (OR 1.1 (95% CI 0.30 to 3.8)) or secondary outcomes measured in-hospital and at 6 and 12 months follow-up	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: + Q9: - Q10: + Q11: + Q12: - Q13: + Q14: +	1 relevant	GRADE Moderate quality

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	Validity rating: yes (y), no (n), or not clear (nc) 1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes. 3. Reporting of side effects and acceptability. 4. Adequate follow-up assessment (long-term effects). 5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias). 8. Comparability of experimental and control groups at baseline (selection bias). 9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias). 13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

Author, year, study type, evidence level	Intervention	Control intervention	Population	Outcome measures, follow-up period	Main results	Validity rating	Relevance for clinical practise (2,1,0,-1)	Conclusion / Comment
Eggmann et al., 2018, Effects of early, combined endurance and resistance training in mechanically ventilated, critically ill patients: A randomised controlled trial **OECBM 2**	Physiotherapy were splited in 2 or more sessions. Therapy was on weekdays and if the interruption of therapy would be harmful to patient's it occurs as well at weekends. Therapy included: motor-assisted bed-cycle(passive and active), 20 minutes with a pedalling rate of 20 cycles/min. The therapy time was increased if necessary needed: 30 minutes to max. 60 minutes with full resistance. The maximum training intensity was 8-12 repetitions with 2-5 sets (2 minutes rest).	Usual care. There were included early mobilisation, respiratory therapy and passive or active exercises. Once a weekday and if the interruption of therapy would be harmful to patient's it occurs as well at weekends.	Age ≥18 years, mechanically ventilated at least 72h, independent patients before hospitalization	(1) functional capacity (6 Minute Walk Distance) and performing activities of daily living (2) performing activities of daily living and muscle strength	There were no significant differences in both groups in 6 Minute Walk Distance nether in muscle strength. Control group (n = 57) received more physiotherapie than the the experimental group (n = 58): sessions: 407 vs. 377, p<0.001; time/sessions: 25min vs.18min, p<0.001. Control group needed less sedation (p<0.001). 6-Minute Walk Distance: Intervention group123m (IQR 25–280) vs. Control group 100m (IQR 0–300); p = 0.542. Functional independence: 98 (IQR 66–119) vs. 98 (IQR 18–115); p = 0.308. Muscle strength: no differences were found, except the trend to better mental in the Intervention group 84 (IQR 68–88) vs 70 (IQR 64–76); p = 0.023. Follow-up: 6 months.	Q1: + Q2: + Q3: + Q4: - Q5: + Q6: + Q7: + Q8: + Q9: - Q10: - Q11: + Q12: + Q13: + Q14: +	1	GRADE Moderate quality

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	Validity rating: yes (y), no (n), or not clear (nc) 1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes. 3. Reporting of side effects and acceptability. 4. Adequate follow-up assessment (long-term effects). 5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias). 8. Comparability of experimental and control groups at baseline (selection bias). 9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias).

	13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

Author, year, level of evidence	Study type, number of studies, number of participants	Search date, searched databases, search algorithm	Population	Intervention and control intervention	Outcome measures, follow-up period	Main results, risk of bias	Validity rating	Relevance for clinical practice (2,1,0,-1)	Conclusion
Taito S, et al. 2018 Rehabilitation for patients with sepsis: A systematic review and meta-analysis. **OCEBM 1**	SR & MA 10 RCTs 1110 patients	MEDLINE, Embase, CENTRAL, PEDro and WHO International Clinical Trials Registry Platform searched through January 2019.	adults who received mechanical ventilation for >24 hours	any protocolised reha- bilitation following ICU discharge, commence earlier and/or be more intensive than the care received by the control group	QOL, ADL function and mortality, Secondary outcomes included functional exer- cise capacity, pain, return-to-work rate, muscle strength, duration of delirium and incidence of adverse events short-term (evaluated at 28–35days) or long-term (evaluated at 6 months	Regarding QOL, the SMD (95% CI) between the intervention and control groups for the physical and mental component summary scores was 0.06 (–0.12 to 0.24) and −0.04 (−0.20 to 0.11), respectively. Rehabilitation did not significantly decrease long-term mortality (RR 1.05, 95% CI 0.66 to 1.66).	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: + Q9: + Q10: + Q11: - Q12: + Q 13: +	2	GRADE High quality

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

Author, year, level of evidence	Study type, number of studies, number of participants	Search date, searched databases, search algorithm	Population	Intervention and control intervention	Outcome measures, follow-up period	Main results, risk of bias	Validity rating	Relevance for clinical practice (2,1,0,-1)	Conclusion
Takaoka et al. 2020 The Efficacy and Safety of In–Intensive Care Unit Leg-Cycle Ergometry in Critically Ill Adults A Systematic Review and Meta-analysis **OCEBM 1**	SR & MA 12 RCTs, 2 non randomized studies Number of patients: not explicitly calculated	From inception to July 18, 2019: Ovid MEDLINE Epub Ahead of Print, In-Process, and Other Non-Indexed Citations; Ovid MEDLINE(R) Daily and Ovid MEDLINE(R); Ovid Excerpta Medica Database; Cochrane Central Register of Controlled Trials; EBSCOhost Cumulative Index of Nursing and Allied Health Literature; REHABDATA; and Physiotherapy Evidence Database. Search algorithm: individual for each database	adult critically ill patients (>18 yr) admitted to an ICU for at least 24 hours, with any admitting diagnoses	leg-cycle ergometry in the ICU compared with patients who performed no leg-cycle ergometry.	physical function, duration of Mechanical Ventilation, length of stay (LOS), mortality, QoL, muscle strength, and safety. Follow-up: not clear, 6 month for QoL	no differences in **1.** physical function at hospital discharge, **2.** duration of MV days; **3.** ICU LOS; **4.** hospital LOS; between cycling and control groups. **5.** QoL at 6 months after hospital discharge **6.** ICU mortality **7.** hospital mortality Risk of Bias: high	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: + Q9: + Q10: + Q11: + Q12: - Q 13: +	1	GRADE High quality

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

Author, year, study type, evidence level	Intervention	Control intervention	Population	Outcome measures, follow-up period	Main results	Validity rating	Relevance for clinical practise (2,1,0,-1)	Conclusion / Comment
Waldauf P, 2021 Functional electrical stimulation-assisted cycle ergometry-based progressive mobility programme for mechanically ventilated patients: randomized controlled trial with 6 month follow-up **OECBM 2**	Functional electrical stimulation-assisted cycle ergometry up to day 28 or ICU discharge	standard rehabilitation that continued up to day 28 or ICU discharge	mechanically ventilated adults estimated to need >7 days of intensive care unit (ICU) stay I: 75, C: 75 patients	Physical function at 6 months	I: 42, C: 46 patients Mean rehabilitation duration of rehabilitation delivered to intervention versus control group was 82 (IQR 66–97) versus 53 (IQR 50–57) min per treatment day, p<0.001. Their Physical Component Summary of SF-36 (primary outcome) was not different at 6 months (50 (IQR 21–69) vs 49 (IQR 26–77); p=0.26).	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: + Q9: - Q10: + Q11: + Q12: + Q13: + Q14: +	1	GRADE : Moderate quality

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes. 3. Reporting of side effects and acceptability. 4. Adequate follow-up assessment (long-term effects). 5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias). 8. Comparability of experimental and control groups at baseline (selection bias). 9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias). 13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

Author, year, level of evidence	Study type, number of studies, number of participants	Search date, searched databases, search algorithm	Population	Intervention and control intervention	Outcome measures, follow-up period	Main results, risk of bias	Validity rating	Relevance for clinical practice (2,1,0,-1)	Conclusion
Wang et al, 2021 Effects of early mobilization on the prognosis of critically ill patients: A systematic review and meta-analysis **OCEBM 1**	SR & MA, 39 RCTs, 3837 patients	PubMed, EMBASE, the Cochrane Library, CINAHL, ProQuest, Web of Science, ProQuest Dissertations and Theses, Chinese BioMedical Literature Service System, WAN-FANG database, CNKI database, and Clinical Trial Register Platform	Critically ill patients	early mo- bilization and rehabilitation (including a range of active or passive physical exercises, except for exclusively NMES, chest physical therapy, and Chinese medicine acupuncture); (4) control: daily nursing care (no exercise interven- tion or only respiratory physiotherapy treatment)	ICUAW, Pneumonia, pressure sore, duration MV, ICU, hospital, delirium handgrip strength, mortality 3-6 months post discharge	early mobi- lization improved ventilator-associated pneumonia patients' Medical Research Council score; reduced the incidence of intensive care unit-acquired weakness and intensive care unit-related complications such as ventilator-associated pneumonia, deep vein thrombosis, and pressure sores; and shortened the dura- tion of mechanical ventilation, length of intensive care unit stay and hospital stay. However, **there were no statistically significant differences** in handgrip strength, delirium rate, intensive care unit mortality, hospital mortality, and physical function- and mental health-related quality of life **at 2–3 months and 6 months post-hospital discharge.**	Q1: + Q2: + Q3: - Q4: + Q5: + Q6: + Q7: + Q8: + Q9: + Q10: + Q11: + Q12: + Q 13: +	2	GRADE High quality

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

Author, year, study type, evidence level	Intervention	Control intervention	Population	Outcome measures, follow-up period	Main results	Validity rating	Relevace for clinical practise (2,1,0,-1)	Conclusion / Comment
Wright et al. 2017 Intensive versus standard physical rehabilitation therapy in the critically ill (EPICC): a multicentre, parallel-group, randomised controlled trial **OECBM 2**	90 min physical rehabilitation per day (Monday to Friday)	30 min of physical rehabilitation per day (Monday to Friday)	18 years or older and had received 48 hours or more of either invasive or non-invasive ventilation.	Primary: **1)** Physical Component Summary (PCS) measure of the 36 item Short Form survey (SF-36) (version **2)** Quality of Life questionnaire at 6 months. Secondary : **1)** Mental Health Component Summary (MCS) measure of the SF-36; **2)** physical ability at ICU discharge (Modified Rivermead Mobility Index); **3)** length of ICU and hospital stay; exercise capacity (6 min walk test); **4)** functional status (Functional Independence Measure); **5)** hand grip strength; and survival status and place of residence at 3 and 6 months following randomisation. Follow-up : discharge, 3 and 6 months	**No difference in primary outcome, mean (SD) PCS measure of the SF-36 at 6 months**: **1)** intervention group: 37 (12.2) **2)** standard care group: 37 (11.3) with an adjusted difference in means −1.1 (95% CI −7.1 to 5.0). Secondary outcomes: similar between groups across all follow-up time points. Only the Functional Independence Measure at 3 months, was significantly different between groups	Q1: + Q2: + Q3: + Q4: + Q5: - Q6: + Q7: + Q8: + Q9: - Q10: - Q11: + Q12: - Q13: + Q14: +	1	GRADE. Moderate quality

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies	1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes. 3. Reporting of side effects and acceptability. 4. Adequate follow-up assessment (long-term effects). 5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias). 8. Comparability of experimental and control groups at baseline (selection bias).

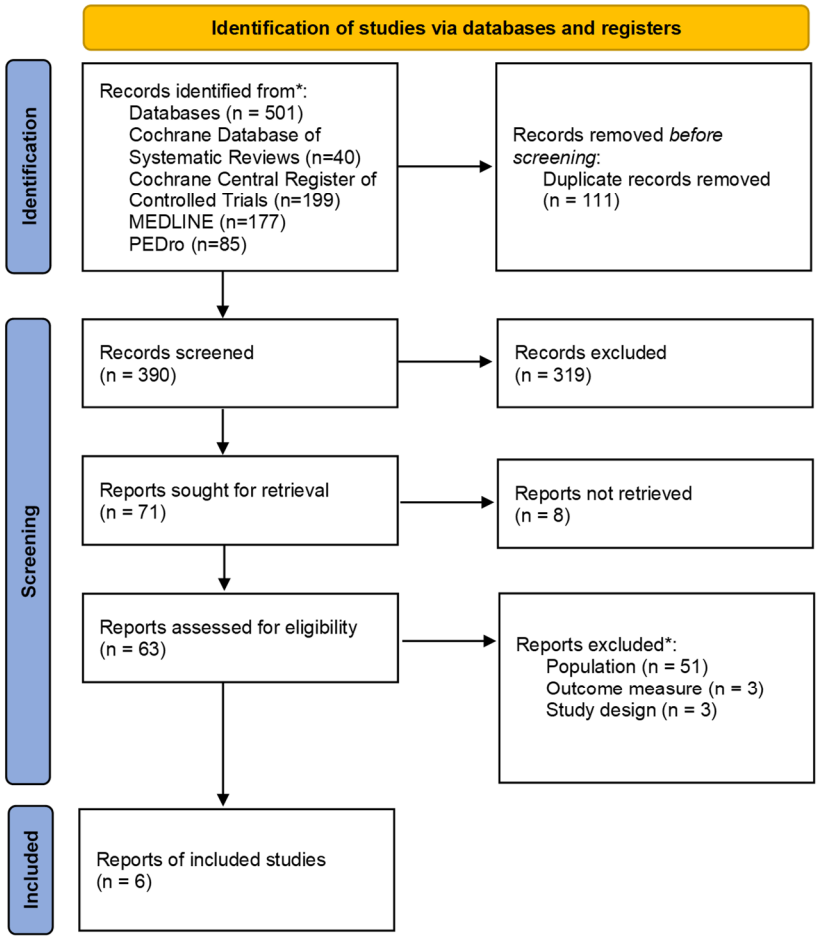
Evidence level 5: pathophysiological-mechanistic arguments	9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias). 13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

Author, year, level of evidence	Study type, number of studies, number of participants	Search date, searched databases, search algorithm	Population	Intervention and control intervention	Outcome measures, follow-up period	Main results, risk of bias	Validity rating	Relevance for clinical practice (2,1,0,-1)	Conclusion
Waldauf et al, 2020 Effects of Rehabilitation Interventions on Clinical Outcomes in Critically Ill Patients: Systematic Review and Meta-Analysis of Randomized Controlled Trials **OCEBM 1**	SR & MA, 43 RCTs (9xCycling 14xNMES 20x Mobilization) 3548 patients	Cochrane Central Register of Controlled Trials, MEDLINE, Web of Science, Physi- otherapy Evidence Database, Scientific Electronic Library Online and Latin American & Caribbean Health Sciences Literature data- bases, WHO Trail register	Critically ill patients	Cycling NMES Mobilization vs usual care	Mortality, length of stay in ICU and at hospital, days on mechanical ventilator, and adverse events. ICU stay	The exercise interven- tions had no influence on mortality (odds ratio 0.94 [0.79–1.12], n = 38 randomized controlled trials) but reduced duration of me- chanical ventilation (mean difference, –1.7 d [–2.5 to –0.8 d], n = 32, length of stay in ICU (–1.2 d [–2.5 to 0.0 d], n = 32) but not at hospital (–1.6 [–4.3 to 1.2 d], n = 23). Effect on MV only in lower APACHE II(<20) and protocolized rehab No benefits for early start (<5d), Protocolized physical rehabilitation, but not supine cycling or NMES alone, shortens the time spent on MV and in the ICU	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: + Q9: + Q10: + Q11: + Q12: + Q 13: +	2	GRADE High quality

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

4. Motorische Therapie

Recherche



Author, year, study type, evidence level	Intervention	Control intervention	Population	Outcome measures, follow-up period	Main results	Validity rating	Relevance for clinical practise (2,1,0,-1)	Conclusion / Comment
(Waldauf et al., 2021) Functional electrical stimulation-assisted cycle ergometry-based progressive mobility programme for mechanically ventilated patients: randomised controlled trial with 6 months follow-up. RCT **OCEBM 2**	progressive mobility programme tailored to patients' condition supplemented by the use of functional electrical stimulation-assisted cycle ergometry (FESCE) 90 minutes/day for max. 28 days	Both groups received usual best medical and nursing care in the ICU, which included daily sedation holds when applicable, respiratory physiotherapy and management as usual in the routine practice. Standard physiotherapy 2x/day for 6 days/week	- Recruited from multidisciplinary Intensive Care Unit (ICU) - Age > 18 years - received mechanical ventilation for less than 72 hours -predicted to need ICU for a week or more	- Primary: Physical Component Summary (PCS) score of the SF-36 quality of life questionnaire, 6 months - Secondary: Physical Fitness in Intensive Care Test (PFIT-s), rectus muscle cross-sectional diameter on B-mode ultrasound, mean daily nitrogen balance, muscle power as per the Medical Research Council score, number of ventilator-free days and ICU length of stay, at discharge from ICU or day 28, whichever occurred earlier	N=150 (75/75) - Median PCS of SF-36 50 (IQR 21–69) in the intervention group and 49 (IQR 26–77) in controls, (p=0.261) - no significant differences in any of seven other prespecified secondary outcomes	Q1: + Q2: + Q3: + Q4: ++ Q5: + Q6: ++ Q7: + Q8: ++ Q9: - Q10: ++ Q11: ++ Q12: ++ Q13: + Q14: ++	-1 <u>Notes on adverse effects:</u> - Numbers of intracranial pressure (ICP) elevations/days with ICP measured 1.5 (0.2 to 2.9) (n=4 patients, 15 ICP days) in the intervention group and 0 (n=3 patients, 15 ICP days) in the controls, (p=0.018) - mental component summary score of SF-36 at 6 months 54.8 (IQR 37.1–69.6) in the intervention group versus 70.2 (IQR 51.5–81.3) in the controls, p=0.009 <u>Comment:</u> Relatively high performing control group	GRADE: Moderate quality

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect	1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes. 3. Reporting of side effects and acceptability. 4. Adequate follow-up assessment (long-term effects).

Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias). 8. Comparability of experimental and control groups at baseline (selection bias). 9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias). 13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

Author, year, study type, evidence level	Intervention	Control intervention	Population	Outcome measures, follow-up period	Main results	Validity rating	Relevance for clinical practise (2,1,0,-1)	Conclusion / Comment
Veldema et al, 2019 Cycle ergometer training vs resistance training in ICU-acquired weakness. RCT **OCEBM 2**	For 4 weeks, in addition to standard care Intervention arm 1) Wheelchair ergometer training, 20 min, 13/20 Borg Scale, 5x/week Intervention arm 2) resistance training, 20 minutes, 16/20 Borg Scale, 3 exercised/ session, 16 repetitions, 30-40 sec breaks	Routine therapy	ICU-acquired weakness (confirmed by clinical examination and electrophyisiological measures) Funcional Ambulaiton Category 0-3/5 preserved active movement of the lower limbs (see below for details) absence of coexistent neurological or orthopaedic illness	Walking ability (Functional ambulation category, Timed-up-and-go test, 10-metre walk test, 6 Minutes walk test) Muscle strength of lower extremeties (Medical Research Council (MRC)) Cardiovascular endurance and muscular endurance (fatigue threshold test) Health related quality of life (SF-36)	39 (13/12/14) Ergometer training and resistance training enhanced the effectiveness of standard care in order to improve (a) lower limb muscle strength, (b) walking ability and (c) cardiorespiratory fitness during inpatient rehabilitation of intensive care acquired weakness. In addition, ergometer training may be superior to resistance training.	Q1: ++ Q2: ++ Q3: ++ Q4: + Q5: ++ Q6: ++ Q7: ++ Q8: - Q9: - Q10: ++ Q11: ++ Q12: ++ Q13: - Q14: +	0	GRADE: Low quality Ergometer training may improve maximum strength, cardiovascular fitness and trunk strength after 4 weeks Resistance training may improve gait speed (10 metre walk test) at 4 weeks Results not robust due small sample size

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes. 3. Reporting of side effects and acceptability. 4. Adequate follow-up assessment (long-term effects). 5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias). 8. Comparability of experimental and control groups at baseline (selection bias). 9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias). 13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

Author, year, level of evidence	Study type, number of studies, number of participants	Search date, searched databases, search algorithm	Population	Intervention and control intervention	Outcome measures, follow-up period	Main results, risk of bias	Validity rating	Relevance for clinical practice (2,1,0,-1)	Conclusion
Mehrholz et al., 2015 Physical rehabilitation for critical illness myopathy and neuropathy. Cochrane Database of Systematic Reviews **OCEBM 1**	Systematic Review, inclusion of RCTs, quasi-RCTs and cross-over RCTs**, 0 included studies**	July 2014, Cochrane Neuromuscular Disease Group Specialized Register, CENTRAL, MEDLINE, CINAHL Plus, PEDro, several study registers	> 18 years In- and out-patient setting Confirmed or probable diagnosis of CIP or CIM	Physical rehabilitation intervention (e.g. physiotherapy and/ or occupational therapy) compared to any other intervention	Primary: Activities of daily living (FIM, Barthel Index, FSS-ICU, ACIF, PFIT, gait speed, 6 Minute walking test)	3591 records, 25 eligible full-texts, 0 included studies t= 0 n= 0	Q1: ++ Q2: ++ Q3: ++ Q4: ++ Q5: ++ Q6: not applicable Q7: not applicable Q8: not applicable Q9: not applicable Q10: not applicable Q11: not applicable Q12:++ Q 13: not applicable	Not applicable	"In the absence of any high quality evidence, clinicians should base their decisions on clinical experience, individual circumstances and patient preferences as appropriate."

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

Author, year, study type, evidence level	Intervention	Control intervention	Population	Outcome measures, follow-up period	Main results	Validity rating	Relevance for clinical practise (2,1,0,-1)	Conclusion / Comment
Connolly, A. et al., 2015 Exercise-based rehabilitation after hospital discharge for survivors of critical illness with intensive care unit-acquired weakness: A pilot feasibility trial. RCT **OCEBM 2**	Exercise-based rehabilitation program (EBRP), outpatient physiotherapy gymnasium 16 sessions, 40 minutes, 2x/ week including warm-up and cool-down periods and a combination of cardiovascular, upper and lower limb strength, balance, and functional exercises individually tailored for patients Patients were strongly encouraged to undertake 1 independent exercise session per week using an accompanying exercise manual to guide and record this.	standard care weekly telephone calls, there was no specific advice on exercise rehabilitation provided during these telephone calls.	age 18 years or more MV for 48 hours or more Glasgow Coma Scale 15/15, survival to hospital discharge Sufficient mobility to participate in an EBRP after hospital discharge. diagnosis of ICU-AW at ICU discharge.	exercise capacity—Incremental Shuttle Walk Test (ISWT) Six Minute Walking Test (6MWT) Health related quality of life—Short Form 36 v.2 questionnaire (SF-36, Acute Recall version) physical (PCS) and mental (MCS) component scores and the Hospital Anxiety and Depression Scale (HADS) Follow-up 3 months	N=20 (10/10) There were no between-group differences at baseline, change frombaseline or at completion of the trial.	Q1: ++ Q2: ++ Q3: ++ Q4: + Q5: ++ Q6: ++ Q7: + Q8: + Q9: - Q10: - Q11: ++ Q12: ++ Q13: -- Q14: ++	0 No adverse events	GRADE: Low quality No recommendation possible Study underpowered, lager trail necessary

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies	1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes. 3. Reporting of side effects and acceptability. 4. Adequate follow-up assessment (long-term effects). 5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias).

Evidence level 5: pathophysiological-mechanistic arguments	8. Comparability of experimental and control groups at baseline (selection bias). 9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias). 13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

Author, year, study type, evidence level	Intervention	Control intervention	Population	Outcome measures, follow-up period	Main results	Validity rating	Relevance for clinical practise (2,1,0,-1)	Conclusion / Comment
Chen et al, 2019 Effects of Electrical Muscle Stimulation in Subjects Undergoing Prolonged Mechanical Ventilation RCT **OCEBM 2**	Electrical muscle stimulation (EMS) 2x/day, 30 minutes, 5x/weeks, for 2 weeks Vastus lateralis and recuts femoris of both legs	Sham stimulation	Age 20 years mechanical ventilation for 6 h/d for 21 d failure to be weaned in the ICU medical stability (arterial blood gas pH 7.35–7.45, PaO2 60 mm Hg at 40% FIO2, absence of signs and symptoms of infection, and hemodynamic stability).	<u>Primary:</u> Pulmonary function measurement Muscle function measurement Physical Functional Status Measurement <u>Secondary:</u> Respiratory Care Center (RCC) Hospitalization Outcomes	N=37 (18/19) <u>Primary:</u> No significant differences between groups for pulmonary function measures Significant lower skin-fold thickness post-intervention in EMS group compared to control group Significant higher muscle strength of the right quadriceps post-intervention in the EMS group compared to control group No significant differences were found in pre- or post-measurements of Functional Independence Measure scores between the electrical muscle stimulation and control groups. No significant differences with regard to weaning rate, mortality, length of stay, ventilator days in RCC	Q1: ++ Q2: ++ Q3: - Q4: - Q5: ++ Q6: ++ Q7: ++ Q8: ++ Q9: + Q10: - Q11: ++ Q12: ++ Q13: ++ Q14: +	0 N=2 discontinued therapy N=2 loss to follow-up	GRADE : Low quality

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies	1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes. 3. Reporting of side effects and acceptability.

Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	4. Adequate follow-up assessment (long-term effects). 5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias). 8. Comparability of experimental and control groups at baseline (selection bias). 9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias). 13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

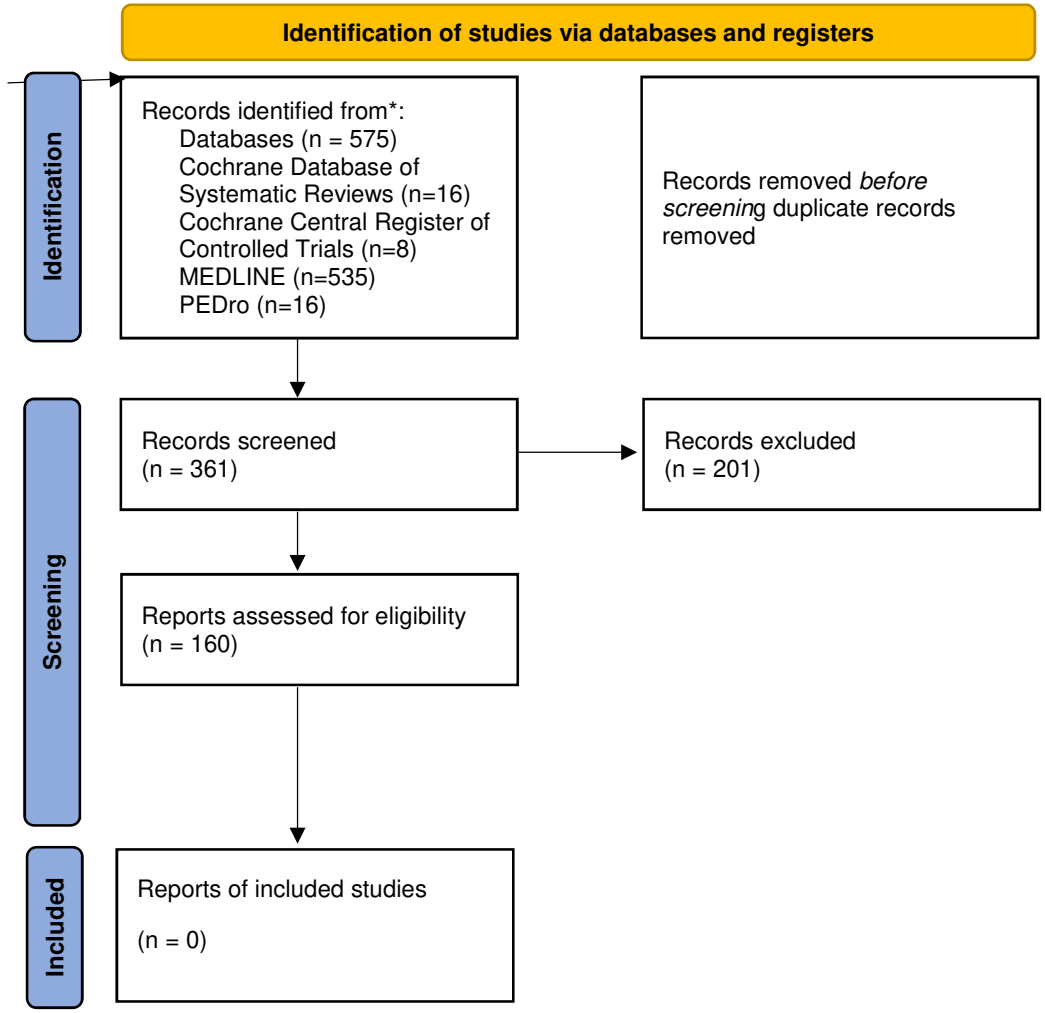
Author, year, study type, evidence level	Intervention	Control intervention	Population	Outcome measures, follow-up period	Main results	Validity rating	Relevance for clinical practise (2,1,0,-1)	Conclusion / Comment
Bissett et al., 2016 Inspiratory muscle training to enhance recovery from mechanical ventilation: a randomised trial RCT **OECBM 2**	Inspiratory muscle training (using threshold IMT inspiratory muscle trainer) in addition to usual care 5x/ week for 2 weeks; 5 sets of 5 breaths, >50% maximum inspiratory pressure (MIP)	Usual care physiotherapy: individually tailored and supervised programme of interventions, which included any of the following: assisted mobilisation, secretion clearance treatments including positive expiratory pressure techniques, deep breathing exercises without a resistance device and upper and lower limb exercises	- invasively mechanically ventilated for 7 days or longer - successfully weaned from mechanical ventilation (>48 hours) - aged ≥16 years - able to provide informed consent - alert and able to participate in training with a Riker score of 4	<u>Primary</u> Inspiratory muscle performance (MIP) Inspiratory muscle fatigue (fatigue resistance index (FRI)) <u>Secondary</u> Quality of life (SF-36v2) Dyspnoea (Modified Borg Dyspnoea Scale) Physical function (acute care index of function (ACIF)) ICU readmission requirement for reintubation post-ICU hospital length of stay in-hospital mortality	N= 70 (34/36) Significant greater increase in the IMT group than the control group (17% in IMT group vs 6% in control, p=0.024) No statistically significant change in FRI was observed for either group at the end of the study period (0.03 vs 0.02, p=0.81) Quality-of-life measures demonstrated statistically significant improvements from baseline in the IMT group only (mean difference=14, p=0.001 for EQ5D; mean difference=0.08, p=0.001 for SF-36) No significant between group differences for other secondary outcome measures	Q1: + Q2: ++ Q3: ++ Q4: - Q5: ++ Q6: ++ Q7: ++ Q8: + Q9: - Q10: ++ Q11: ++ Q12: ++ Q13: ++ Q14: +	1	GRADE : Moderate quality Significant improvement in 1 primary outcome and in 1 secondary outcome No long-term effects reported

Evidence level according to OCEBM 2011	Validity rating

Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes. 3. Reporting of side effects and acceptability. 4. Adequate follow-up assessment (long-term effects). 5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias). 8. Comparability of experimental and control groups at baseline (selection bias). 9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias). 13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

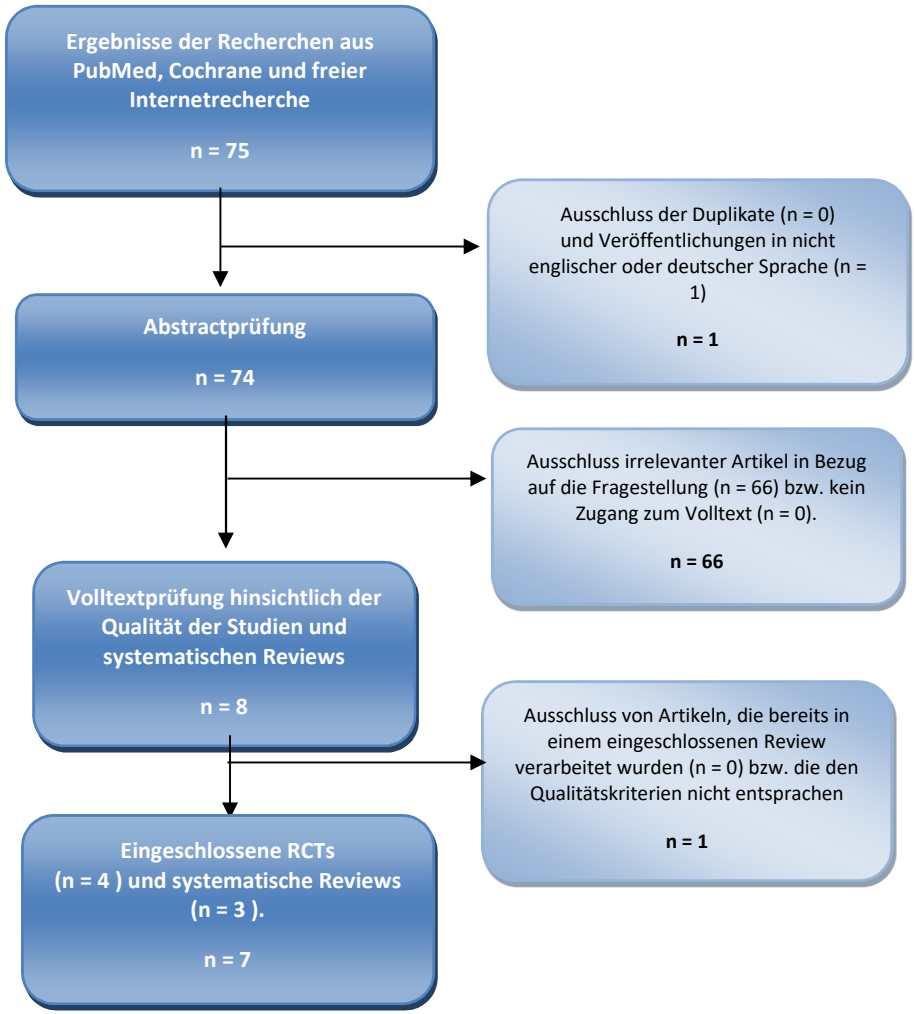
4.1. Geräte-gestützte Therapie

Recherche:



5. Dysphagie/Dekanülierung

Recherche:



Author, year, level of evidence	Study type, number of studies, number of participants	Search date, searched databases, search algorithm	Population	Intervention and control intervention	Outcome measures, follow-up period	Main results, risk of bias	Validity rating	Relevance for clinical practice (2, 1, 0, -1)	Conclusion
1. Skoretz, S. A., Riopelle, S. J., Wellman, L., & Dawson C. (2020). Investigating swallowing and tracheostomy following critical illness: A scoping review. Critical Care Medicine, 48: e141-e151. **OCEBM 1**	85 studies with a very heterogeneous study design	Search in 8 electronic databases (MEDLINE, PsycInfo, Healthstar, etc.), search period from the beginning of database-specific online availability to May 2017; additional manual search in 10 journals; search algo-rithm according to the methodological guidelines of a scoping review, keywords: tracheotomy, tracheostomy, trachea, swallow, oropharyngeal dysphagia	Adults ≥17 years of age with post-tracheostomy care in the acute setting; n≥10, exclusion: head and neck tumors, esophageal surgery; sample ranged from 10-3320 tracheostomized patients, dysphagia occurred between 11-93% in each study	Scoping review should describe literature base, key concepts, data gaps, study designs, methodology, swallowing assessments, and rehabilitation concepts	Studies were stratified by content area, some in multiple categories: Dysphagia frequency (n=8), swallowing physiology (n=27), risk factors (n=31), interventions (n = 21), assessment comparisons (n=12), and patient etiology; 25 studies showed a dysphagia frequency >40%, but collected with different assessments; besides tracheostomy, endotracheal intubation was shown to be a risk factor for the development of dysphagia due to laryngeal damage and dyscoordination; overall, there are only a few intervention studies with small samples	Very different evidence in the individual studies due to heterogeneity in patient selection and study design; dysphagia frequency in the tracheotomized population is high, therefore instrumental swallowing assessments with standardized evaluation should be used	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: not applicable Q7: + Q8: not applicable Q9: + Q10: + Q11: + Q12: - Q 13: +	2	GRADE : high quality Important review

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate?

	13. Do the results sufficiently support the conclusions drawn?

Author, year, study type, evidence level	Intervention	Control intervention	Population	Outcome measures, follow-up period	Main results	Validity rating	Relevance for clinical practise (2, 1, 0, -1)	Conclusion / Comment
2 Lynch, Y. T., Clark, B. J., Macht, M., White, S. D., Taylor, H., Wimbish, T., & Moss, M. (2017). The accuracy of the bedside swallowing evaluation for detecting aspiration in survivors of acute respiratory failure. Journal of Critical Care, 39: 143-148. RCT **OCEBM 2**	Within 3 days after extubation (after at least 24h mechanical ventilation): BSE (bedside swallowing evaluation). 3-WST (3-oz, 90 ml water swallowing test). Excluded: Tracheostomy, Pre-existing dysphagia	blinded FEES	45/54 patients after acute respiratory failure (AFR) referred from a university-affiliated tertiary center; median age 55, (47-65) 61% male; median duration of mechanical ventilation 3.3 days; median APACHE II score 22 (IQR=16-27); median Charlson Comorbidity Index 2 (IQR=1-3). 22% (n=10) COPD	14 Pat (31%) aspirated in the FEES; the BSE and its components, including the 3-WST, showed variable results for aspiration in survivors of the ARF No follow-up	Compared with FEES, the 3-WST yielded a sensitivity of 77% (95% CI), 50-92%), a specificity of 65% (95% CI, 47-79%), and an area under the receiver operating characteristic curve (AUC) of 0.71; Therapy recommendation for modified diet: sensitivity of 86% (95% CI, 60-96%), a specificity of 52% (95% CI, 35-68%), and an AUC of 0.69 Therapy recommendation for NPO: sensitivity of 50% (95% CI, 27-73%), a specificity of 94% (95% CI, 79-98%), and an AUC of 0.72	Q1: + Q2: + Q3: + Q4: - Q5: + Q6: not applicable Q7: not applicable Q8: not applicable Q9: + Q10: + Q11: + Q12: + Q13: not mentioned Q14: +	0 Low relevance for rehabilitation in Germany 3-WST is hardly used, certainly not in ICU and rehabilitation	GRADE : moderate quality

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes. 3. Reporting of side effects and acceptability. 4. Adequate follow-up assessment (long-term effects). 5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias). 8. Comparability of experimental and control groups at baseline (selection bias). 9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias). 13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

Author, year, study type, evidence level	Intervention	Control intervention	Population	Outcome measures, follow-up period	Main results	Validity rating	Relevance for clinical practise (2, 1, 0, -1)	Conclusion / Comment
3. Turra, G. S., Schwartz, I. V. D., Almeida, S. T., Martinez, C. C., Bridi, M., & Barreto, S. S. M. (2021). Efficacy of speech therapy in post-intubation patients with oropharyngeal dysphagia: A randomized controlled trial. Codas, 33: e20190246. RCT **OCEBM 2**	Treatment group 17/32 (53%): 10 days of 30min instruction, therapeutic techniques, airway protection and manoeuvres, orofacial myofunctional and vocal exercises and dietary education; primary outcomes: progression of oral intake, severity of dysphagia, and duration of tube feeding	Control group usual care	32 patients, (17/15) Inclusion criteria: orotracheal intubation >48h, age≥18 years, clinical stability and dysphagia; exclusion criteria: tracheotomy, Functional Oral Intake Scale (FOIS 4-7), neurological disorders	Therapy favours early oralization after intubation for dysphagia No follow-up	Tube feeding duration was statistically significantly shorter in the treated group (median of 3 days, Cohen's d=1.21); showed improvements in FOIS scores (p=0.005); severity in dysphagia protocol improved from moderate to mild	Q1: + Q2: + Q3: - Q4: - Q5: + Q6: + Q7: - Q8: - Q9: + Q10: + Q11: - Q12: - Q13: + Q14: +	1 No objective, instrumental assessments for dysphagia were used. Clinical examination only Two Deaths (n 11.8%) in the experimental group are not discussed ; no diet standardization. (Consistency pudding = mashed bananas)	GRADE : moderate quality

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes. 3. Reporting of side effects and acceptability. 4. Adequate follow-up assessment (long-term effects). 5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias). 8. Comparability of experimental and control groups at baseline (selection bias). 9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias). 13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

Author, year, study type, evidence level	Intervention	Control intervention	Population	Outcome measures, follow-up period	Main results	Validity rating	Relevance for clinical practise (2, 1, 0, -1)	Conclusion / Comment
4. Hernández Martínez, G., Rodriguez, M. L., Vaquero, M. C., Ortiz, R., Masclans, J. R., Roca, O, . . . Cuena-Boy, R. (2020). High-flow oxygen with capping or suctioning for tracheostomy decannulation. The New England Journal of Medicine, 383: 1009-1017. RCT **OECBM 2**	Continuous O2 high-flow, decannulation depending on the suction rate; patients were decannulated if no more than 2 aspirations per 8h were necessary over 24h according to defined indications	24h tracheostoma capping plus intermittent O2 high-flow; if capping had to be discontinued, no new attempt was made for at least 12h; plus, change of tracheostomy tube to smaller size Patients in whom capping repeatedly failed to result in decannulation were successfully decannulated outside the protocol if indicated by the treating physician (n=12)	Fully conscious, weaned patients with tracheostoma in intensive care units; n=330	Time to decannulation was shorter in the intervention group (95% CI 5-9). Decannulation rate was higher in the intervention group (95% CI 3.4-17.4), pneumonia (95% CI 0.2-11.8) and tracheobronchitis (95% CI 1.0-19.3) rates were lower, and length of hospitalization was shorter (95% CI 9-33); aspiration was evaluated with 50ml water swallow test, swallow frequency was apparently not evaluated - this may explain the comparatively high pneumonia rates (4% in intervention, 10% in control group); follow-up time until discharge	Intervention clearly superior	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: + Q9: - Q10: detection bias cannot be excluded according to the authors Q11: + Q12: + Q13: + Q14: +	1 Both study protocols do not correspond to the common practice in Germany, in which the results of swallowing therapy/swallowing frequency are included in the decannulation decision; the inferiority of the capping strategy appears valid, but in the control group the tracheostomy tubes were changed to a smaller size, i.e., the control patients received less oxygen than the experimental group	GRADE : high quality Relevant study with limitations, questionable study design

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes. 3. Reporting of side effects and acceptability. 4. Adequate follow-up assessment (long-term effects). 5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias). 8. Comparability of experimental and control groups at baseline (selection bias). 9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias). 13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

Author, year, level of evidence	Study type, number of studies, number of participants	Search date, searched databases, search algorithm	Population	Intervention and control intervention	Outcome measures, follow-up period	Main results, risk of bias	Validity rating	Relevance for clinical practice (2, 1, 0, -1)	Conclusion
5. Rose, L., Adhikari, N. K. J., Leasa, D., Fergusson, D. A., & McKim, D. (2017). Cough augmentation techniques for extubation or weaning critically ill patients from mechanical ventilation. Cochrane Database of Systematic Reviews, 1: CD011833. **OCEBM 1**	Inclusion of two studies (n=95) and one cohort study (n=17), one RCT had unclear risk of bias, another had high risk of bias, one non-randomized study had high risk of bias	Search in Cochrane Central Register of Controlled Trials, MEDLINE (1946 - April 2016), Embase (1980 - April 2016), CINAHL (1982 - April 2016), ISI Web of Science and Conference Proceedings, PROSPERO, Joanna Briggs Institute databases, conference-abstracts (2011-2015), unpublished studies International Clinical Trial Registry Platform	Critically ill adults and children with acute respiratory failure	Main objective: to compare extubation success with and without cough support systems; secondary objective: to assess the effects of cough support systems on reintubation rate, weaning success, ventilation time. time of necessary bedrest, rate of pneumonia, decannulation, mortality, and adverse events	Meta-analysis not possible due to too small number of studies; no clinical recommendations can be derived due to small sample size	Overall, very low evidence for the effectiveness of cough support systems in critically ill patients, risk of distortion unclear	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: na Q9: + Q10: + Q11: + Q12: - Q 13: +	0	GRADE : high quality

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?

	12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

Author, year, level of evidence	Study type, number of studies, number of participants	Search date, searched databases, search algorithm	Population	Intervention and control intervention	Outcome measures, follow-up period	Main results, risk of bias	Validity rating	Relevance for clinical practice (2, 1, 0, -1)	Conclusion
6. Pandian, V., Boisen, S., Mathews, S., & Brenner, M. J. (2019). Speech and safety in tracheotomy patients receiving mechanical ventilation: A systematic review. American Journal of Critical Care, 28: 441-450. **OCEBM 1**	Systematic review, 6 clinical trials (n=104), 6 case reports (n=13), one telephone clinical survey	Search date not given; Databases: PubMed, CINAHL, Scopus, Cochrane, Web of Science. Purpose: Are fenestrated tracheostomy tubes a safe and effective option to allow early phonation in patients with tracheostoma? Keywords: fenestrated, speech, talking, voice, trachea, tracheostomy	Patients with fenestrated tracheostomy tube	Use of fenestrated tracheal cannula to facilitate phonation	Indications for the use of fenestrated tracheostomy tubes were inaudible phonation and poor voice intelligibility; patients with fenestrated tubes had "robust" vocal results. Complications included granular tissue, malpositioning, decreased oxygen saturation, increased ventilatory pressures, increased blood pressure, leaks, subcutaneous emphysema, dyspnea, anxiety, and chest discomfort	Fenestrated cannulas offer advantages for spreading and decannulation, with risks of granulation and other complications; they must be carefully positioned and monitored.	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: not applicable Q9: + Q10: - Q11: + Q12: + Q 13: +	2	GRADE : high quality Important study

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed?

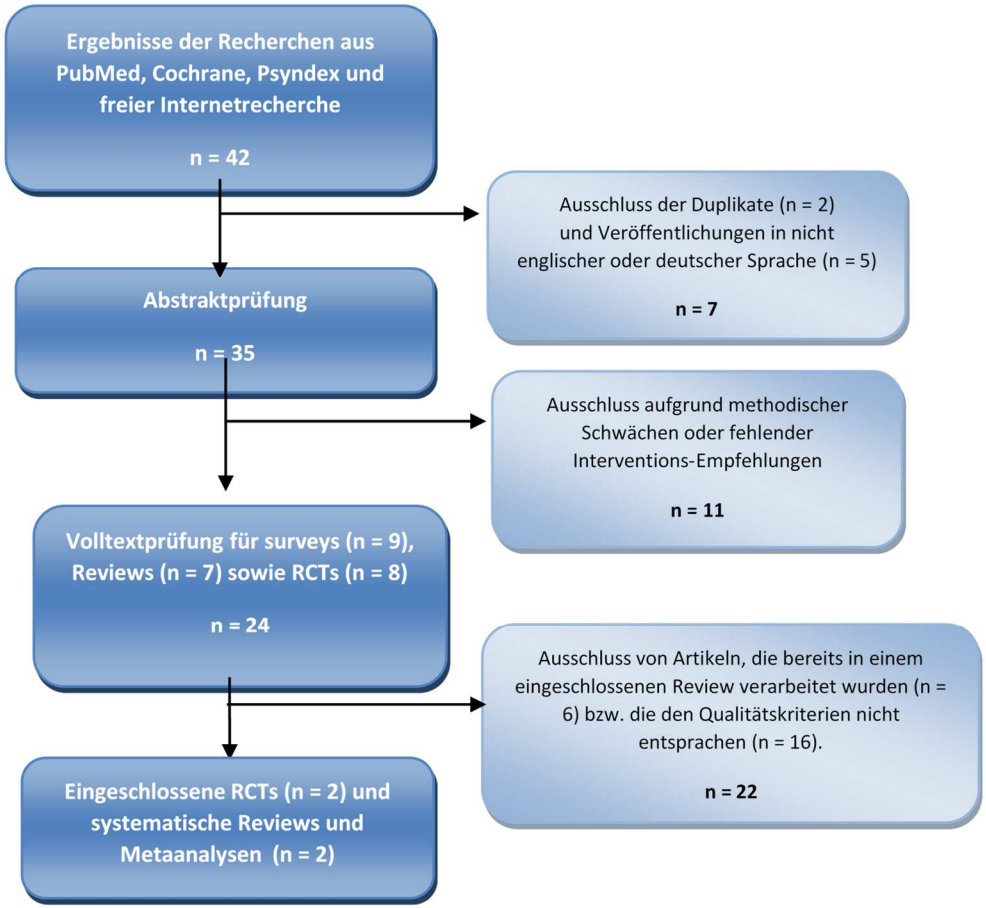
	10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

Author, year, study type, evidence level	**Intervention**	**Control intervention**	**Population**	**Outcome measures, follow-up period**	**Main results**	**Validity rating**	**Relevance for clinical practise (2, 1, 0, -1)**	**Conclusion / Comment**
7. Hwang, C. H., Choi, K. H., Ko, Y. S., & Leem, C. M. (2007). Pre-emptive swallowing stimulation in long-term intubated patients. Clinical Rehabilitation, 21: 41-46. RCT **OECBM 2**	Various maneuvers to trigger the swallowing reflex, 2x15min daily.	Usual care	33 patients in the ICU who were intubated for at least 48h due to respiratory distress	Oral transit time of the intervention group was significantly shorter compared to controls and swallowing efficiency was significantly higher. Videofluoroscopic examination after extubation	No significant differences in aspiration rate and swallowed volume	Q1: - Q2: - Q3: - Q4: - Q5: - Q6: + Q7: + Q8: + Q9: examiner blinded Q10: + Q11: ? Q12: ? Q13: - Q14: +	0	GRADE : moderate quality Relevant target variables do not differ

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes. 3. Reporting of side effects and acceptability. 4. Adequate follow-up assessment (long-term effects). 5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias). 8. Comparability of experimental and control groups at baseline (selection bias). 9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias). 13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

6. Kognitive Therapie

Recherche



Author, year, level of evidence	Study type, number of studies, number of participants	Search date, searched databases, search algorithm	Population	Intervention and control intervention	Outcome measures, follow-up period	Main results, risk of bias	Validity rating	Relevance for clinical practice (2, 1, 0, -1)	Conclusion
Geense et al., 2019 Nonpharmacologic Interventions to Prevent or Mitigate Adverse Long-Term Outcomes Among ICU Survivors: A Systematic Review and Meta-Analysis. **OCEBM 1 und 2**	34 RCTs and 2 NRCTs, 5.165 participants.	July 2018, Pubmed, CINAHL, PsycINFO, Embase, Cochrane Library, algorithm is stated	Adult patients admitted to IVU for at least 12 hours. Studies that included patients in post-amaesthesia care unit or coronaly care unit werde excluded. Pharmacological and nutritional interventions were excluded.	Interventions were subdivided into 6 categories: 1) exercise and physical rehabilitation programs, 2) follow-up services, 3) psychosocial programs, 4) diaries, 5) information and education, and 6) other interventions. Interventions performed before, durcing or after ICU admission and aimed to prevent or mitigate long-term adverse outcomes.	There is thin evidence that diaries and exercise programs have a positive effect on mental outcome. Outcomes were measured after hospital discharge	Significant differences were only found for for diaries in reducing depression and anxiety and exercise programs in improving the Short Form Health Survey 36 Mental Componen Score. A high porportion had an „unclear risk“ for blinding of participants and incomplete data and a „high rist“ for other sources of bias.	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: + Q9: + Q10: + Q11: + Q12: + Q 13: +	1	GRADE B: moderate

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

Author, year, level of evidence	Study type, number of studies, number of participants	Search date, searched databases, search algorithm	Population	Intervention and control intervention	Outcome measures, follow-up period	Main results, risk of bias	Validity rating	Relevance for clinical practice (2, 1, 0, -1)	Conclusion
Muradov et al.,, 2021 Effectiveness of cognitive interventions on cognitive outcomes of adult intensive care unit survivors: A scoping review. **OECBM 1**	systematic review of 5 Studies with 1084 participants, 3 RCTs, 2 quasi-experimental studies (pretest-posttest)	December 2019; CINAHL, Embase, Medline, Pubmed, Scopus, Cochrane library, Google Scholar, algorithm is described	Adult ICU patients 18 years and older, who were discharged from the ICU.	Interventions specific to the cognitive domain after ICU discharge. Interventions included variations of goal management training and an integrated multidisciplinary model.	Significant heterogeneity in the type of interventions, outcome measures, and assessment tools was noted. Overall, the evidence on the effects of cognitive interventions, as compared with routine care, in improving global cognitive function is inconclusive. More evidence support exists with respect to improving executive function.	Although various cognitive intervention approaches have shown some positive effects on outcomes of ICU survivors after hopsital discharge, the high risk of bias and high heterogeneity across studies preclude conclusions about the most appropriate post-ICH care to rehabilitate cognitive deficits in critical care survivors.	Q1: + Q2: + Q3: + Q4: + Q5: + Q6: + Q7: + Q8: entfällt Q9: + Q10: + Q11: + Q12: + Q 13: +	1	GRADE B: moderate

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

Author, year, study type, evidence level	Intervention	Control intervention	Population	Outcome measures, follow-up period	Main results	Validity rating	Relevance for clinical practise (2, 1, 0, -1)	Conclusion / Comment
Brummel 2014, Feasibility of an early physical and cognitive rehabilitation protocol for critically ill patients: the activity and cognitive therapy in the ICU (ACT-ICU) trial. RCT **OECBM 2**	Once-daily physical therapy plus twice daily cognitive therapy (orientation, memory, attention and problem solving exercises)	Once daily physical therapy Or Vs usual care	87 medical and surgical ICU patients with respiratory failure and/ or shock	Cognitive, functional and health-related quality of life outcomes did not differ between groups at 3-month follow-up (Tower of London, measures of executive function, functional mobility, ADL status, IADL stats, HRQOL status).	Results demonstrate that administration of a combined interdisciplinary cognitive and physical therapy intervention beginning during the early stages of a critical illness is feasible and safe. The study was not powered to detect meaningful changes in follow-up outcomes.	Q1: + Q2:+ Q3: + Q4:+ Q5: + Q6: + Q7: + Q8: + Q9: - Q10: + Q11: + Q12: - Q13: + Q 14: +	0	GRADE B: moderate

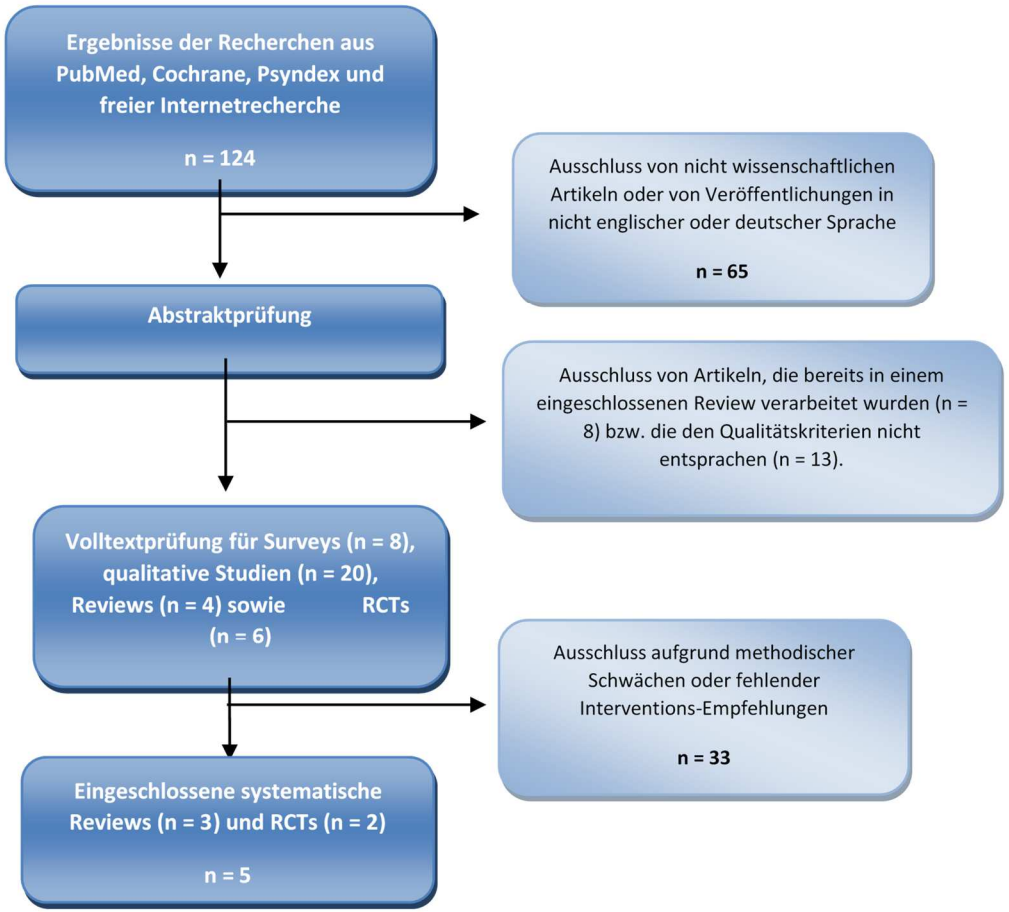
Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes. 3. Reporting of side effects and acceptability. 4. Adequate follow-up assessment (long-term effects). 5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias). 8. Comparability of experimental and control groups at baseline (selection bias). 9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias). 13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

Author, year, study type, evidence level	Intervention	Control intervention	Population	Outcome measures, follow-up period	Main results	Validity rating	Relevance for clinical practise (2, 1, 0, -1)	Conclusion / Comment
Jackson et al. 2012 Cognitive and physical rehabilitation of intensive care unit survivors: results of the RETURN randomized controlled pilot investigation. Pilot RCT **OCEBM 2**	Combination of in-home cognitive, physical and functional rehabilitation over a 3-month period via a social worker or master's level psychology technician utilizing telemedicine including 6 in-person visits for cognitive rehabilitation and 6 televisits for physical/ functional rehabilitation	versus Usual care (sporadic rehabilitation)	21 general medical/ surgical ICU survivors (8 controls, 13 intervention patients) with either cognitive or functional at hospital discharge	At 3-month follow-up, intervention group was significantly improved compared to controls in Tower-of-London (executive functions) and Functional Activities Questionnaire)	A multi-component rehabilitation program for ICU survivors appears feasible and possibly effective in improving cognitive performance and functional outcomes in just 3 months.	Q1: + Q2: + Q3: + Q4: - Q5: + Q6: + Q7: + Q8: + Q9: - Q10:+ Q11: + Q12: - Q13: - Q 14: +	1	GRADE B: moderate

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes. 3. Reporting of side effects and acceptability. 4. Adequate follow-up assessment (long-term effects). 5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias). 8. Comparability of experimental and control groups at baseline (selection bias). 9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias). 13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

7. Psychologische Therapie

Recherche



Author, year, level of evidence	Study type, number of studies, number of participants	Search date, searched databases, search algorithm	Population	Intervention and control intervention	Outcome measures, follow-up period	Main results, risk of bias	Validity rating (++ + - --) (Q1-Q13)	Relevance for clinical practice (2,1,0,-1)	Conclusion
Wade D.M.. et al. (2016): Non-pharmacological interventions to reduce psychological distress in ICU patients: A systematic review.. Minerva Anestesiologica, 2016 82 (4):465-78 **OCEBM 1**	23 studies with a very heterogeneous study design were included, 15 RCT, 1 CCT, 2 randomised crossed-over design, 1CCT, 1Time series, 2 Pre-post-studies Studies with <20 participants were excluded, Keywords: Critical care, intensive care, critical illness, stress disorder, post-traumatic, anxiety, depression, psychological stress, post-traumatic stress disorder, distress, Psychotherapy, cognitive therapy, complementary therapy, music therapy, relaxation therapy, massage, diary, progressive muscle relaxation	Search in March 2015 in 5 electronic databases (MEDLINE, Embase, PsycInfo, Cinahl, Web of Science) additional l search in reference lists of the included studies Included studies evaluated the effect of non-pharmacological interventions to reduce ICU stress. Studies published before 2000 were excluded	Adults who had been admitted o mixed or general ICUs, male 34-79%, average age 44-71, average length of stay 2,5-27,3 days	Any kind of non-pharmacologic intervention (1. music listening, nature sound listening, 2. mind-body (massage, acupressure); 3. psychological intervention (ICU diary, clinical psychology, rehab manual, nurse-delivered)) compared to usual care	Studies were stratified by intervention 1.Music intervention (11 studies): heterogenous outcomes: blood pressure, State Trait Anxiety Inventory, urinary cortisol, respiratory rate, faces anxiety scale, sleep scale 2. Mind-body intervention (5 studies): heterogenous outcomes: blood pressure, heart rate, faces anxiety scale, sleep hours 3. Psychological interventions (7 studies): heterogenous outcomes: Post Traumatic Stress Diagnostic Scale, HADS, Impact of Event Scale-revised, heart rate Follow-Up: Music intervention: during intervention -60 minutes after the intervention Mind-body intervention. Immediately after – 5 days after intervention Psychological interventions: 2 - 12 months (only 5 studies)	No meta-analysis due to heterogeneity of trials Very different evidence in the individual studies due to heterogeneity in study design, bias, and outcome parameters: 1. Music intervention 6 out of 11 Studies showed a significant effect (esp. nature sounds), reduced stress , (4,5 higher anxiety scores in control group) 2. Mind-body intervention: 4 out of 5 studies showed showed a significant effect (i.e. massage by family member), decrease in Systolic BP 3. Psychological interventions: 3 out of 7 Studies showed a significant effect (i.e. diary)with lower PTSD(5% vs13%, p<0.05)	Q1: - Q2: + Q3: - Q4: + Q5: - Q6:+ Q7:+ Q8: was not perfomed Q9:- Q10: + Q11: + Q12:+ Q13: +	**2**	**moderate quality,** **Important review**

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful?

Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

Author, year, level of evidence	**Study type, number of studies, number of participants**	**Search date, searched databases, search algorithm**	**Population** *(e.g. age, gender distribution, disease duration, severity)*	**Intervention and Control intervention**	**Outcome measures** *(including ICF levels)* **Follow-up period**	**Main results** **Risk of bias**	**Validity rating (++ + - --) (Q1-Q13)**	**Relevance for clinical practice** **(2,1,0, -1)**	**Conclusion** *(*
Mehlhorn et al. 2014 Rehabilitation Interventions for Postintensive Care Syndrome: A Systematic Review. **OCEBM 1** Level of Evidence (2011) 1 (SR of RCTs)	18 Studies: (4RCT 5 CCT , 9non-randomized study (NRCT)), analysis on intervention effectiveness on only 8 studies	Published January 1991 to June 2012 5 Databases Cochrane CENTRAL, MEDLINE, Embase CINAHL, PsycInfo Keywords: critical illness (e.g., critical llness, sepsis, respiratory distress syndrome), state after intensive care (e.g., after/postintensive care, discharge from intensive care), aftercare and rehabilitation (e.g., rehabilitation, follow-up, and aftercare), interventions in general (e.g., therapy, management, intervention), and postacute setting (e.g., postacute, outpatient, and after hospital).	a total of 2510 participants after critical Illness or acute lung injury or with CIPNM, mechanically ventilated (24-96 hrs) and/or stay on the ICU (24-96 Hrs) with a range of illness severities and conditions, sample sizes ranging from 7 to 499, age in one study only young men, in one study≥75 yrears old, no follow-up service or standard care. Excluded interventions beginning at the ICU and disease specific rehabilitation (i.e. myocardial infarction)	assessed effectiveness of an rehabilitation *intervention* in adult post-ICU patients: stratified according to setting 1. inpatient intervention (acute care hospital or neuro-rehabilitation center) 2.outpatient intervention (ICU follow-up clinic or complex aftercare programs) 3.mixed health care setting (Disease management support service or handing out ICU-diary after ICU-discharge) Compared with (*control)* usual care (only 8 controlled studies were included)controll intervention was not described	8 studies assessed physical symptoms and 10 examined mental health symptoms. Studies did not differentiate between primary und secondary outcomes, Only 8 controlled studies were included in the analysis stratified according to intervention: 1. inpatient intervention: Barthel Index and return to home 2. outpatient intervention: HRQOL, SF-36 or SF-36 PF recovery, HADS depression, EQ-5D, Depression (CES-D) 3. mixed health care setting: Readmission patterns, HRQOL, HADS depression and anxiety, SF-8 PCS/MCS, new cases PTSD (PDS), PTSD (IES-R) **Follow-up.** T1: Varying 7 days after hospital discharge to 3 months after ICU discharge T2: 6-12 months after ICU discharge	No meta-analysis due to heterogeneity of trials 1. inpatient intervention: After ICU discharge, treatment in a specifically designed geriatric ward was not more effective than treatment in a general ward (change in autonomy (BI) 2. outpatient intervention: Aftercare by ICU follow-up clinic reduced Impact of Event Scale for women (20 vs 31; $p < 0.01$). 3. mixed health care setting: Handing an ICU diary to patients after ICU discharge leads to less new cases of PTSD. ICU diaries reduced new-onset posttraumatic stress disorder (5% vs 13%, $p = 0.02$) after 3 months and showed a lower mean Impact of Event Scale-Revised score (21.0 vs 32.1, $p = 0.03$) after 12 months. a self-help manual led to fewer patients scoring high in the Impact of Event Scale after 8 weeks ($p = 0.026$) but not after 6 months. **Risk of bias:** Population of post-ICU patients and the interventions were complex	Q1: + Q2: + Q3: - Q4: + Q5: + Q6:+ Q7:+ Q8: was not perfomed Q9:+ Q10: + Q11: + Q12:+ Q13: +	**1**	**moderate quality,** **Important review**

						Wide range of outcomes and measures made comparisons impossible. Generalizability of the studies was reduced by selection bias (patients needed a certain degree of mobility and cognitive Functioning for the interventions)			

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

Author, year, level of evidence	**Study type, number of studies, number of participants**	**Search date, searched databases, search algorithm**	**Population (e.g. age, gender distribution, disease duration, severity)**	**Intervention and Control intervention**	**Outcome measures** (including ICF levels) **Follow-up period**	**Main results** **Risk of bias**	**Validity rating (++ + - --) (Q1-Q13)**	**Relevance for clinical practice** **(2,1,0, -1)**	**Conclusion**
Schofield-Robinson et al., 2018 Follow-up services for improving long-term outcomes in intensive care unit (ICU) survivors (Cochrane Review) **OCEBM 1 Level** **1 (SR of RCTs)**	5 Studies: (4RCT 1 non-randomized study (NRCT))	7.Nov.2017 4 Databases CENTRAL, MEDLINE, Embase and CINAHL Keywords: After care, long-term care, patient discharge, disease management, case management, intensive care unit, multiple trauma, shock, sepsis, critical care, critical illness, Health-related quality of life (HRQoL) all cause mortality, depression and anxiety, post-traumatic stress disorder (PTSD), physical function, cognitive function, ability to return to	a total of 1707 participants who were ICU (= level 3 care= artificial support of at least 2 organs) survivors with a range of illness severities and conditions included studies that compared an ICU follow-up service using a structured programme and co-ordinated by a healthcare professional versus no follow-up service or standard care. Excluded participants who were in any existing rehabilitation programme, i.e. associated with traumatic brain injury, spinal cord injury, military trauma and cancer or cardiac care.	assessed a follow-up service (intervention) attended by ICU survivors on at least one occasion compared to either no follow-up service or standard care (control) Defined follow-up service as any consultation delivered by a healthcare professional, (face-to-face or remotely Control also included general practitioner visits and care related to ongoing known medical conditions	Studies were stratified according to outcomes: 1. Health-related quality of life (HRQoL) after 12 months 2. All cause mortality after 2 months (1 study), 12 months (3 RCT) 3. Depression and anxiety (after 12 months in 2RCT, 14 months NRCT) 4. Post-traumatic stress disorder (PTSD) after 12 months in 2RCT, 14 months NRCT) 5. Physical function after 12 months in 3RCT, 2 months in 1RCT 6. Cognitive function after 12 months in 2RCT, 6 months in 1RCT and 2 months 1RCT	Follow-up services for improving longterm outcomes in ICU survivors may make little or no difference to HRQoL at 12 months (standardised mean difference (SMD) -0.0, 95%nconfidence interval (CI) -0.1 to 0.1; 1 study; 286 participants; low-certainty evidence). - moderate-certainty evidence from 5 studies that they probably make little or no difference to all-cause mortality up to 12 months after ICU discharge (RR 0.96, 95% CI 0.76 to 1.22; 4 studies; 1289 participants; and in one non-randomised study 79/259 deaths in the intervention group, and 46/151 in the control group) - low-certainty evidence from 4 studies that they may make little or no diference to PTSD (SMD -0.05, 95% CI -0.19 to 0.10, 703 participants, 3 studies; and one non-	Q1: - Q2: + Q3: + Q4: + Q5: + Q6:+ Q7:+ Q8: was not perfomed Q9:+ Q10: + Q11: + Q12:+ Q13: +	1	moderate quality

		work or education, adverse effects			7. Ability to return to work after 12 Months in 1RCT 8. Adverse effects: not measured	randomised study reported less chance of PTSD when a follow-up service was used) No studies measured adverse effects. BIAS:baseline differences (2 studies), and services included additional resources (2 studies), which may have influenced results, and one non-randomised study had high risk of selection bias.			

Evidence level according to OCEBM 2011	**Validity rating**
Evidence level 1: Systematic review of randomized controlled studies Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	1. Were review methods established prior to the conduct of the review (written protocol)? 2. Were research questions clearly phrased, e.g. did selection criteria for the review include the components of PICO, and clinically meaningful? 3. Was the study design selection of included trials adequate for the research question? 4. Did the review authors use a comprehensive literature search strategy (data bases, key words, justify search restrictions [e.g. language])? 5. Were all processes (screening, selection, assessment risk of bias, data extraction) performed in duplicate? 6. Did the review authors describe the included studies in adequate detail (compare PICO)? 7. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? 8. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results, and was it meaningful to combine the studies selected for meta-analyses? 9. Have all clinically relevant effects of the intervention(s) of interest (benefit, including long-term effects; harm; acceptability) been addressed? 10. Did the review authors assess the potential impact of RoB in individual studies and of publication bias on the results of the meta-analysis or other evidence synthesis and discuss the implications of the findings of their assessment on the estimates of therapeutic effects as reported? 11. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? 12. Did the review authors report any potential sources of conflict of interest (CoI), including any funding they or the authors of included studies received for conducting the review or their studies? If a risk that CoI might have influenced the review's result is not unlikely, was its management described (for the review or the trials included) and adequate? 13. Do the results sufficiently support the conclusions drawn?

Author, year, study type, evidence level	Intervention	Control intervention	Population	Outcome measures, follow-up period	Main results	Validity rating	Relevance for clinical practise (2,1,0,-1)	Conclusion / Comment
Vranceanu, A.-M., et al. (2020). Feasibility and Efficacy of a Resiliency Intervention for the Prevention of Chronic Emotional Distress Among Survivor-Caregiver Dyads Admitted to the Neuroscience Intensive Care Unit: A Randomized Clinical Trial. *JAMA Netw Open. 2020 Oct 1;3(10):e2020807.* RCT **OCEBM 2**	Intervention group 29 dyads (patient+caregiver) received resiliency intervention Recovering Together (RT): 6 sessions: 2 at bedside (standard, taught concrete skills) and 4 via live video after discharge (tailored to dyads based on specific challenges, sequelae, or concerns identified collaboratively by the therapist and dyad), both survivor and caregiver participated together, based on strategies drawn systematically from mindfulness, cognitive-behavioral, and positive psychology principles	Control group 29 dyads (patient+caregiver) received Health Education Control 6 sessions (2 at bedside and 4 via live video after discharge), and both survivor and caregiver participated together. education regarding the stress of the acute neurologic injury on the patient and caregiver the importance of self-care, the stress associated with discharge and home importance of following up with medical recommendations, interpersonal stress and self-care	58 dyads (patient+caregiver) (29/29) single-site, in the neuroscience ICU at Massachusetts General Hospital from September 2019 to March 2020. Inclusion criteria: aged ≥18 years; cleared medically and cognitively for participation; (3) Mini-Mental State Examination score ≥24; access to a smartphone, laptop, or computer; informal caregiver willing to participate; English fluency. Exclusion criteria: GCS score of <10, premorbid cognitive impairment, aphasia, judged to have permanent impairment.	primary outcomes: feasibility of recruitment and intervention delivery, credibility, satisfaction. Secondary outcomes: included depression and anxiety (measured by HADS), PTS (measured by the PTSD Checklist–Civilian Version), and intervention targets (mindfulness, measured by the Cognitive and Affective Mindfulness Scale–Revised; coping, measured by the Measure of Current Status–Part A; and dyadic interpersonal interactions, measured by the Dyadic Relationship Scale). Main outcomes and targets were assessed at baseline, 6 weeks, and 12 weeks. No follow-up	Feasibility (recruitment [76%],randomization [100%], and data collection [83%-100%]), adherence (86%), fidelity (100%; κ = 0.98), satisfaction (RT: 57 of 58 [98%] with scores >6; control: 58 of 58 [100%] with scores >6), RT vs control was associated with statistically significant improvement from baseline to postintervention in depression (among survivors: −4.0 vs −0.6; difference, −3.4; P = .002; and anxiety (among survivors: −6.0 vs 0.3; difference, −6.3; P < .001; and PTS (among survivors: −11.3 vs 1.0; difference, −12.3; P < .001	Q1: + Q2: + Q3: + Q4: - Q5: + Q6: + Q7: + Q8: - Q9: + Q10: + Q11: + Q12: + Q13: - Q 14:+	1 -neuroscience ICU -Infomal caregivers are not always present -within each dyad, at least 1 participantneeded to endorse emotional distress to participate individuals who do not endorse emotional distress athospitalization may develop it later. -risk of bias: patients had to good MMSE at the time of the study→ excludes patients with delirium	**moderate quality**

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies	1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes. 3. Reporting of side effects and acceptability.

Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	4. Adequate follow-up assessment (long-term effects). 5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias). 8. Comparability of experimental and control groups at baseline (selection bias). 9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias). 13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

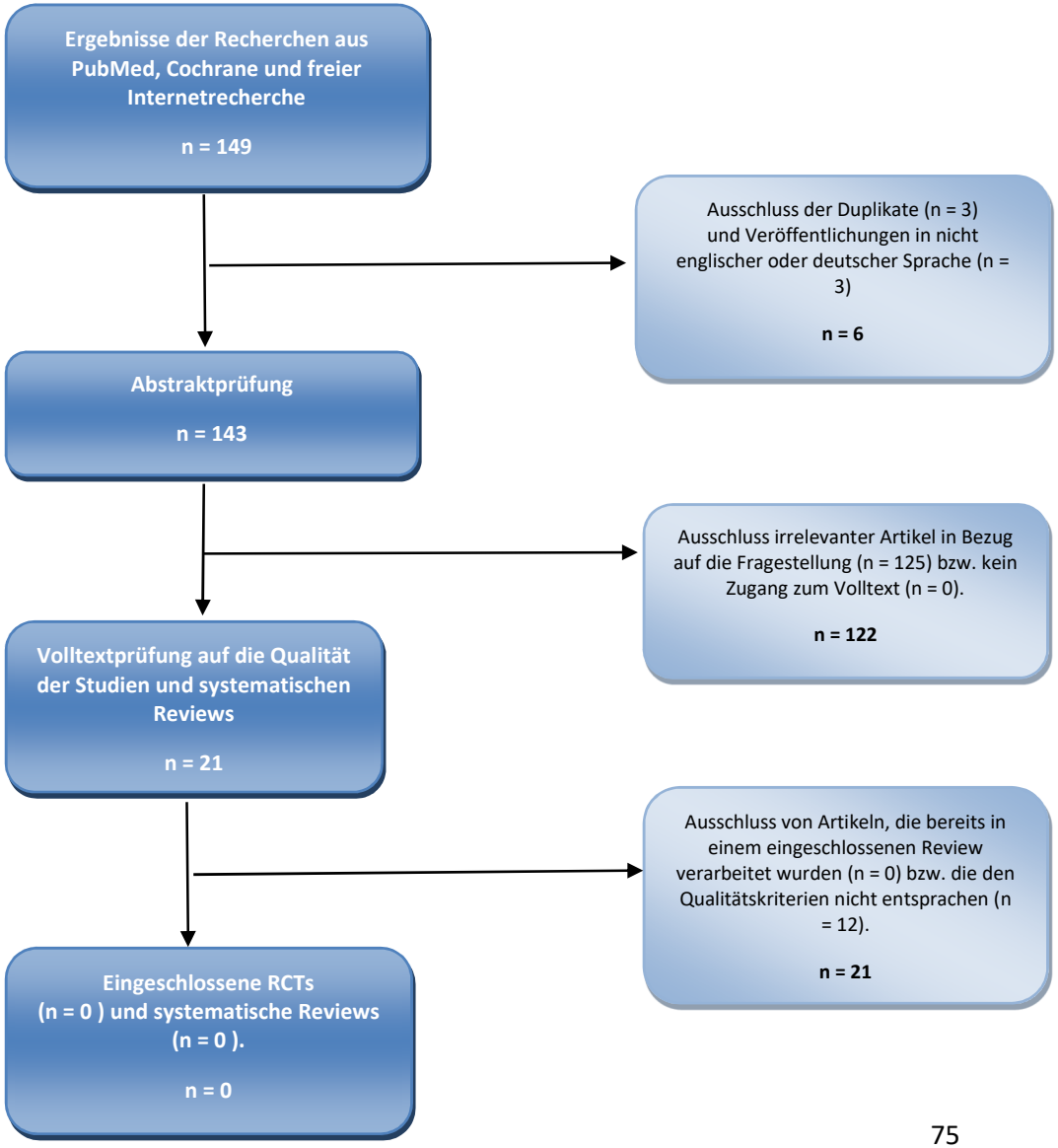
Author, year, study type, evidence level	Intervention	Control intervention	Population	Outcome measures, follow-up period	Main results	Validity rating	Relevance for clinical practise (2,1,0,-1)	Conclusion / Comment
Peris, A.,. et al. (2011). Early intra-intensive care unit psychological intervention promotes recovery from posttraumatic stress disorders, anxiety and depression symptoms in critically ill patients. *Critical Care, 15(1),* 41-49. Observational study **OCEBM 3**	Intervention group trauma patients followed by clinical psychologists (April 2007 to August 2009): 123 patients: were involved in a clinical psychologist program: after recovery of consciousness, on average, patients receive five or six interventions from clinical psychologists during their ICU stay, including educational interventions, counseling, stress management, psychological support and coping strategies designed to ease the management of anxiety, depression, fear, hopelessness and helplessness. Stress management intervention consists of cognitive and emotional restructuring.	Control group: trauma patients admitted before the start of clinical psychologist intervention (January 2005 to March 2007): 86 patients	All patients consecutively admitted to the ICU for major trauma from January 2005 to August 2009 were considered for the study. Inclusion criteria: age 18 - 75 years at admission, severe and/or critical injuries (ISS >15) ICU LOS >72 hours, need for mechanical ventilation, ability to be interviewed during the ICU stay, completion of a followup examination at 12 months, absence of pre-existing psychiatric illness, absence of previous critical illness and absence of psychiatric medication use and/or any drug abuse or addiction in the patient's medical history.	Hospital Anxiety and Depression Scale (HADS) and Impact of Event Scale-Revised questionnaires were used to assess the level of posttraumatic stress, anxiety and depression symptoms. follow-up: after 12 months from ICU discharge	-Patients in the intervention group showed lower rates of anxiety (8.9% vs. 17.4%) and depression (6.5% vs. 12.8%) than the control group on the basis of HADS scores, but were not statistically significant. -High risk for PTSD was significantly lower in patients receiving early clinical psychologist support than in the control group (21.1% vs. 57%; $P < 0.0001$). -The percentage of patients who needed psychiatric medications at 12 months was significantly higher in the control group than in the patient group (41.7% vs. 8.1%; $P < 0.0001$).	Q_1: + Q_2: + Q_3: - Q_4: + Q_5: - Q_6: - Q_7: - Q_8: + Q_9: - Q_{10}: - Q_{11}: - Q_{12}: - Q_{13}: - Q_{14}: -	2 Important study, but high risk of bias,	Low quality

Evidence level according to OCEBM 2011	Validity rating
Evidence level 1: Systematic review of randomized controlled studies	1. Clear definition of eligibility criteria. 2. Clear definition and adequate assessment of study outcomes. 3. Reporting of side effects and acceptability.

Evidence level 2: Randomized controlled study or observational study with dramatic effect Evidence level 3: non-randomized controlled cohort study Evidence level 4: case series, case-control studies, or historically controlled studies Evidence level 5: pathophysiological-mechanistic arguments	4. Adequate follow-up assessment (long-term effects). 5. Clear definition and description of experimental and control condition. 6. Were participants randomly allocated (selection bias)? 7. Allocation concealment (selection bias). 8. Comparability of experimental and control groups at baseline (selection bias). 9. Blinded staff and patients during intervention and comparable treatment of randomized groups aside from investigated effects (performance bias). 10. Blinded outcome assessment (detection bias). 11. No selective reporting (reporting bias). 12. (Almost) Complete outcome data (attrition bias). 13. Intention-to-treat analysis reported. 14. Do the results sufficiently support the conclusions reported?

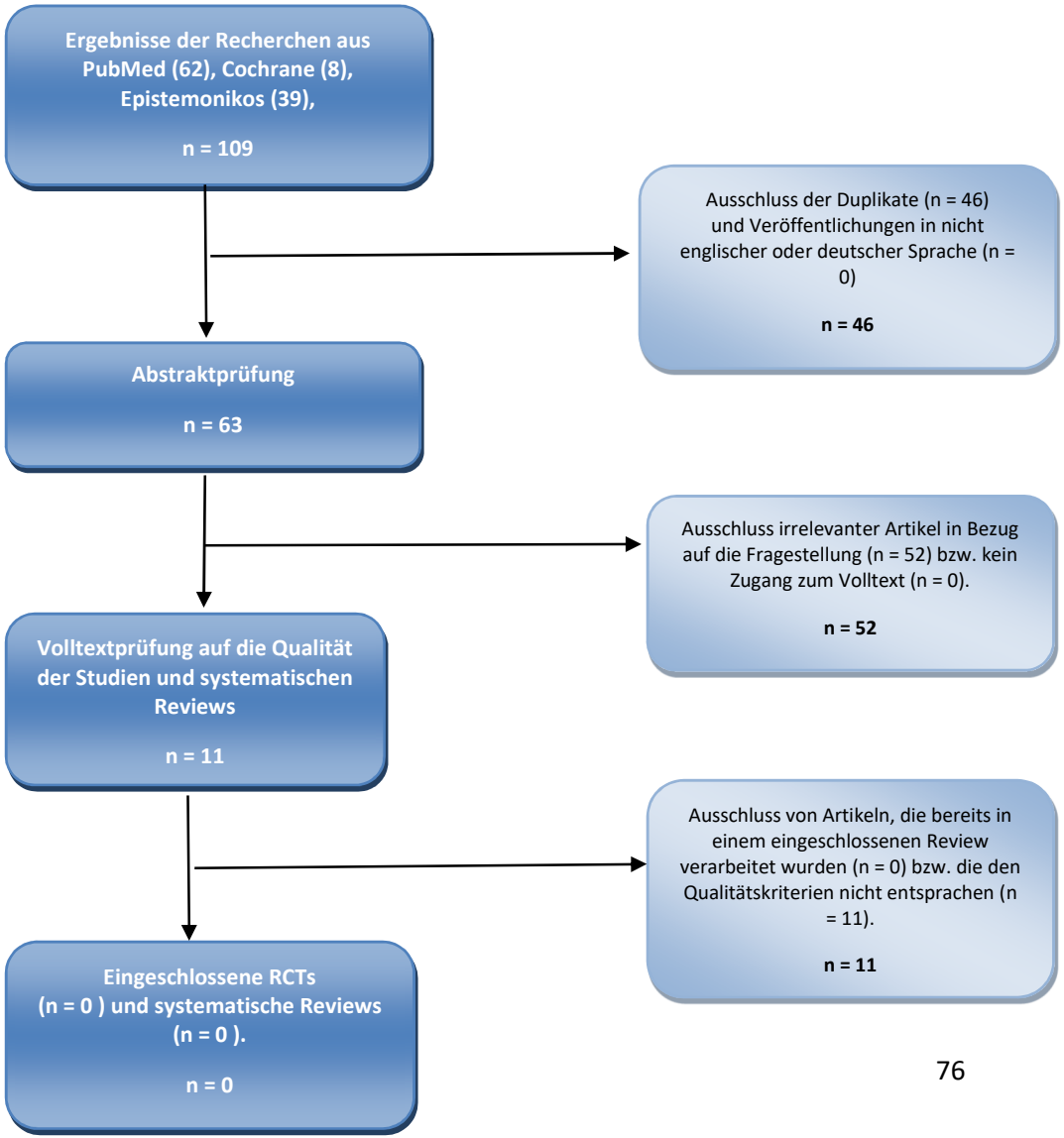
8. Therapien zur Verminderung der Fatigue

Recherche



9. Therapie zur Verbesserung der Teilhabe /Return to work und Lebensqualität

Recherche



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