PICO 10

Review information

Authors

the Danish Health Authority[1]

[1][Empty affiliation]

Citation example: tDHA. Standard. Cochrane Database of Systematic Reviews [Year], Issue [Issue].

Characteristics of studies

Characteristics of included studies

Aalto 2011

Methods	**Study design:** Randomized controlled trial **Study grouping:** Parallel group
Participants	**Baseline Characteristics** intervention control Overall **Included criteria:** The inclusion criteria were: (1)presence of back, buttock, and/or lower extremity pain, withradiographic evidence (computed tomography, magneticresonance imaging (MRI), rhizography) of compressionof the cauda equina and/or exiting nerve roots due todegenerative changes (ligamentum flavum, facet joints,osteophytes and/or disc material). (2) The surgeon's judgement that the patient had clinically significantdegenerative LSS as the main diagnosis indicative foroperative treatment. A previous spine operation orco-existing disc herniation was permitted. **Excluded criteria:** The exclusioncriteria included emergency or urgent spinal operationprecluding recruitment and protocol investigations; cogni-tive impairment prohibiting completion of the question-naires or other failures in co-operation; the presenceof metallic particles in the body contra-indicating theMRI-investigation. **Pretreatment:** Non in the primary groups
Interventions	**Intervention Characteristics** intervention ● *description*: Three months postoperatively supervised exercise training sessions. At the first and second visit, a phys-iotherapist supervised the stretching and strengtheningexercises. Exercising continued at home and at the nexttraining sessions. maximum six members of A-group per one physiotherapist enabling individually estimated exercises. On the 6th and 12th visits, the volume and/or type ofexercises, if needed, were progressively increased ● *dose*: Three months postoperatively, once a week supervised exercise training sessions (90 mineach, lasting 12 weeks. This 12-week intervention was repeated at the one-year follow-up in order to check the appropriateness of the home exercises and to motivate patients to keep training. ● *standard treatment*: All the patients received routine (not-study-related) preoperative information at the hospital aboutimmediate postoperative mobilisation. They were advised''to stay active'' with no restrictions in normal daily living.Patients had routine operation-related control in theorthopaedic or neurosurgical clinic at 2–3 months postop-eratively. At this time point, the surgeon also confirmedthat there were no restrictions prohibiting rehabilitation.Since there were no restrictions with other postoperativetreatment by the study protocol, the surgeons and also GPcould prescribe other possible treatments postoperatively ifneeded (analgetics, physiotherapy etc.). control ● *description*: No treatment orself-management represented the only ''standard treat-ment'' for patients in B-group. ● *dose*: not described ● *standard treatment*: All the patients received routine (not-study-related) preoperative information at the hospital aboutimmediate postoperative mobilisation. They were advised''to stay active'' with no restrictions in normal daily living.Patients had routine operation-related control in theorthopaedic or neurosurgical clinic at 2–3 months postop-eratively. At this time point, the surgeon also confirmedthat there were no restrictions prohibiting rehabilitation.Since there were no restrictions with other postoperativetreatment by the study protocol, the surgeons and also GPcould prescribe other possible treatments postoperatively ifneeded (analgetics, physiotherapy etc.).
Outcomes	*ODI* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Scale**: ODI ● **Range**: 0-100 ● **Direction**: Lower is better *VAS (Back Pain)* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Scale**: VAS ● **Range**: 0-10 ● **Direction**: Lower is better ● **Data value**: Endpoint *VAS (leg pain)* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Scale**: VAS ● **Range**: 0-10 ● **Direction**: Lower is better ● **Data value**: Endpoint *Treadmill (gangtest)*

	● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Range**: 0-1000 ● **Unit of measure**: m ● **Direction**: Higher is better ● **Data value**: Endpoint *Behov for smertestillende* ● **Outcome type**: DichotomousOutcome ● **Range**: ja-nej ● **Direction**: Lower is better ● **Data value**: Endpoint *Livskvalitet* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Scale**: EQ5D ● **Range**: 0-1 ● **Direction**: Higher is better ● **Data value**: Endpoint *Antal fald* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Range**: 0-? ● **Unit of measure**: antal ● **Direction**: Lower is better ● **Data value**: Endpoint
Identification	**Sponsorship source:** TJ Aalto was supported for this study a EVO grant by a Kuopio University Hospital, and a research grant from the Finnish Cultural Foundation (Hulda Tossavainen found. 2003; Ailiand Leo Davidsson found. 2009; St. Michel Central Hospital 200-yearFund 2010) **Country:** Finland **Setting:** patients with clinically and radiologically defined LSS, Selection for surgery (secondary level care) was made by the orthopaedist or neurosurgeon between October 2001 and October 2004 in the University Hospital. **Comments:** . **Authors name:** Timo J. Aalto **Institution:** Kyyhkyla¨Rehabilitation Center and Hospital/Hallinto,Kyyhkyla¨ntie 9, 50700 Mikkeli, Finland **Email:** imo.aalto@kyyhkyla.fi **Address:** Kyyhkyläntie 9, 50700 Mikkeli, Finland
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	n
Allocation concealment (selection bias)	Unclear risk	n
Blinding of participants and personnel (performance bias)	High risk	
Blinding of outcome assessment (detection bias)	Unclear risk	n
Incomplete outcome data (attrition bias)	Low risk	
Selective reporting (reporting bias)	Low risk	
Other bias	Low risk	

McGregor 2011

Methods	**Study design:** Randomized controlled trial **Study grouping:** Parallel group
Participants	**Baseline Characteristics** intervention, rehabilitation only control, booklet only rehabilitation and booklet control, usual care Overall **Included criteria:** Patients awaiting spinal surgery with either (a) signs symptoms ans radiological evidence of lateral nerve root compression, that is patients presenting with radicular pain with an associated neurological deficit or with neurogenic claudication, or (b) lumbar disc prolapse that is patients with root symptoms and signs ans MRI confirmation of lumbar disc herniation **Excluded criteria:** Any condition where either the intervention or the rehabilitation may have en adverse effect on the individual, previous spinal surgery, spinal surgery where a fusion procedure was planned because of the unknown hazards of the activity program for this type of surgery, pregnant women, inadequate ability to complete the trial assessment forms, unable to attend or unsuitable for rehabilitation classes **Pretreatment:** no significant differences
Interventions	**Intervention Characteristics** intervention, rehabilitation only ● *description*: stretching, stablity exercises, strenghtening and endurance training for the back, abdominal and leg muscles, ergonomic training, advice on lifting and setting targets and selfmotivation and discussion along with and open group discussion a the end of each class ● *dose*: 1 time 2 gange om ugen i 12 uger 6-8 uger efter operationen control, booklet only ● *description*: Received a copy of "Your Back Operation" on discharge from hospital ● *dose*: .

	rehabilitation and booklet ● *description*: stretching, stablity exercises, strenghtening and endurance training for the back, abdominal and leg muscles, ergonomic training, advice on lifting and setting targets and selfmotivation and discussion along with and open group discussion a the end of each class + a copy of your back operation ● *dose*: . control, usual care ● *description*: Patients receiving usual care were managed according to the relevant surgeons usual practice ● *dose*: .
Outcomes	*ODI* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Scale**: ODI ● **Range**: 0-100 ● **Direction**: Lower is better ● **Data value**: Change from baseline *VAS (Back Pain)* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Scale**: VAS ● **Range**: 0-100 ● **Direction**: Lower is better ● **Data value**: Change from baseline *VAS (leg pain)* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Scale**: VAS ● **Range**: 0-100 ● **Direction**: Lower is better ● **Data value**: Change from baseline *Treadmill (gangtest)* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Range**: 0-? ● **Unit of measure**: m ● **Data value**: Endpoint *Behov for smertestillende* ● **Outcome type**: DichotomousOutcome ● **Reporting**: Fully reported ● **Range**: 0-1 ● **Direction**: Lower is better ● **Data value**: Endpoint *VAS health summary* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Scale**: VAS ● **Range**: 0-100 ● **Direction**: Higher is better ● **Data value**: Change from baseline *Antal fald* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Scale**: antal ● **Range**: 0-? ● **Direction**: Lower is better ● **Data value**: Endpoint
Identification	**Sponsorship source:** Arthritis Research UK funds supported the work **Country:** England **Setting:** Post operative rehabilitation **Comments:** . **Authors name:** Alison McGregor **Institution:** From the surgery & Cancer Faculty of medicine, Imperial College London, Charing Cross Hospital , London **Email:** a.mcgregor@imperial.ac.uk **Address:** Charing Cross Hospital Campus, London W6 8RP, England
Notes	*NKR 51 Stenose* on 28/02/2017 22:33 **Outcomes** Det er ikke beskrevet hvor mange der falder bort i de forskellige grupper.Data er sendt fra forfatteren

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	
Allocation concealment (selection bias)	Low risk	
Blinding of participants and personnel (performance bias)	High risk	
Blinding of outcome assessment (detection bias)	High risk	

Incomplete outcome data (attrition bias)	Low risk	
Selective reporting (reporting bias)	Low risk	
Other bias	Low risk	

Footnotes

References to studies

Included studies

Aalto 2011

Aalto, T. J.; Leinonen, V.; Herno, A.; Alen, M.; Kroger, H.; Turunen, V.; Savolainen, S.; Saari, T.; Airaksinen, O.. Postoperative rehabilitation does not improve functional outcome in lumbar spinal stenosis: a prospective study with 2-year postoperative follow-up. European Spine Journal 2011;20(8):1331-1340. [DOI:]

McGregor 2011

McGregor, Alison H.; Dore, Caroline J.; Morris, Tim P.; Morris, Steve; Jamrozik, Konrad. ISSLS prize winner: Function After Spinal Treatment, Exercise, and Rehabilitation (FASTER): a factorial randomized trial to determine whether the functional outcome of spinal surgery can be improved.. Spine 2011;36(21):1711-1720. [DOI: http://dx.doi.org/10.1097/BRS.0b013e318214e3e6]

Excluded studies

Ilves 2016

Ilves, Outi; Hakkinen, Arja; Dekker, Joost; Pekkanen, Liisa; Piitulainen, Kirsi; Jarvenpaa, Salme; Marttinen, Ilkka; Vihtonen, Kimmo; Neva, Marko H.. Quality of life and disability: can they be improved by active postoperative rehabilitation after spinal fusion surgery in patients with spondylolisthesis? A randomised controlled trial with 12-month follow-up.. European Spine Journal 2016;(Journal Article). [DOI: http://dx.doi.org/10.1007/s00586-016-4789-5]

Marchand 2015

Marchand, Andree-Anne; Suitner, Margaux; O'Shaughnessy, Julie; Chatillon, Claude-Edouard; Cantin, Vincent; Descarreaux, Martin. Effects of a prehabilitation program on patients' recovery following spinal stenosis surgery: study protocol for a randomized controlled trial.. Trials [Electronic Resource] 2015;16(Journal Article):483. [DOI: http://dx.doi.org/10.1186/s13063-015-1009-2]

McGregor 2010

McGregor, A. H.; Dore, C. J.; Morris, T. P.; Morris, S.; Jamrozik, K.. Function after spinal treatment, exercise and rehabilitation (FASTER): improving the functional outcome of spinal surgery.. BMC Musculoskeletal Disorders 2010;11(Journal Article):17. [DOI: http://dx.doi.org/10.1186/1471-2474-11-17]

Traistaru 2013

Traistaru M.R.; Rogoveanu O.; Popescu, R.. Benefits of rehabilitation program in patients with l5-s1 degenerative foraminal stenosis.. Annals of the Rheumatic Diseases 2013;72 (no pagination(Journal Article). [DOI: http://dx.doi.org/10.1136/annrheumdis-2013-eular.2147]

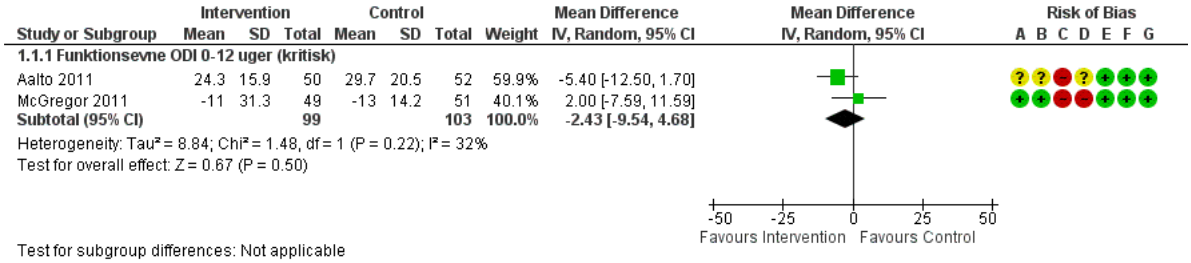
Data and analyses

1 Intervention (post.op. supervised training) vs Control (post.op.training)

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
1.1 Funktionsevne 0-12 uger (kritisk)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1.1 Funktionsevne ODI 0-12 uger (kritisk)	2	202	Mean Difference (IV, Random, 95% CI)	-2.43 [-9.54, 4.68]
1.3 Gangdistance 0-12 uger (kritisk)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
1.3.1 Gangdistance 0-12 uger (kritisk)	1	102	Mean Difference (IV, Fixed, 95% CI)	44.00 [-109.73, 197.73]
1.4 Smerte 0-12 uger (kritisk)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
1.4.1 Smerte, VAS leg pain, 0-12 uger (kritisk)	2	202	Mean Difference (IV, Random, 95% CI)	3.62 [-15.79, 23.04]
1.6 Behov for smertestillende medicin 0-12 uger (vigtigt)	0		Risk Ratio (IV, Fixed, 95% CI)	No totals
1.7 Livskvalitet 0-12 uger (vigtigt)	1		Mean Difference (IV, Random, 95% CI)	Subtotals only
1.7.1 Livskvalitet, 0-12 uger, (Vigtigt)	1	100	Mean Difference (IV, Random, 95% CI)	2.00 [-11.49, 15.49]
1.8 Antal fald 0-12 uger (vigtigt)	0	0	Odds Ratio (M-H, Fixed, 95% CI)	Not estimable
1.9 Funktionsevne 6-18 måneder (vigtigt)	0	0	Mean Difference (IV, Fixed, 95% CI)	Not estimable
1.10 Gangdistance 6-18 måneder (vigtigt)	0	0	Mean Difference (IV, Fixed, 95% CI)	Not estimable
1.11 Smerte 6-18 måneder (vigtigt)	0		Mean Difference (IV, Fixed, 95% CI)	Subtotals only

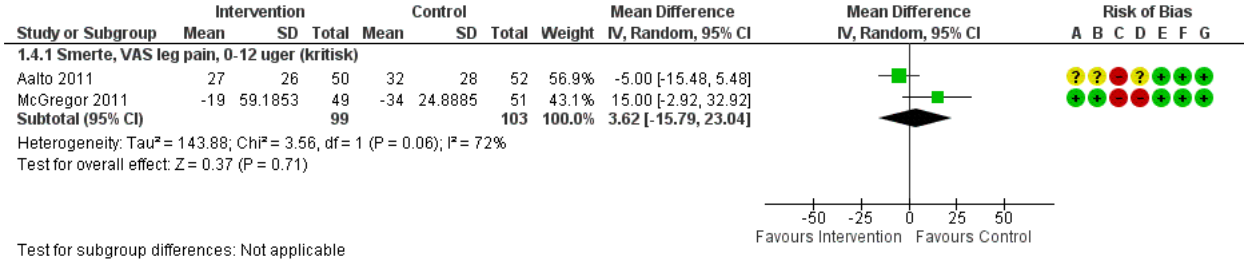
Figures

Figure 1 (Analysis 1.1)



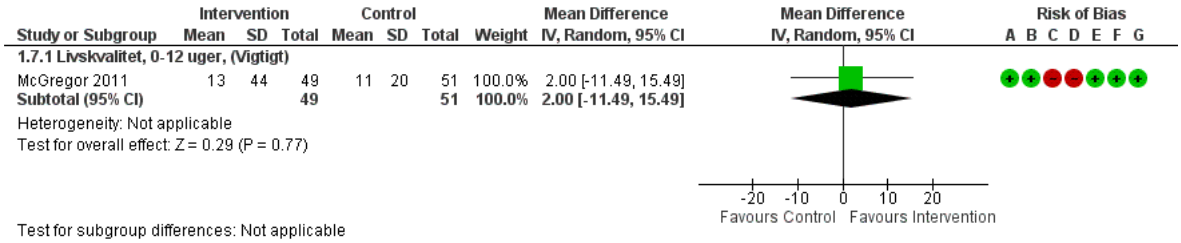
Forest plot of comparison: 1 Intervention (post.op. supervised training) vs Control (post.op.training), outcome: 1.1 Funktionsevne 0-12 uger (kritisk).

Figure 2 (Analysis 1.4)



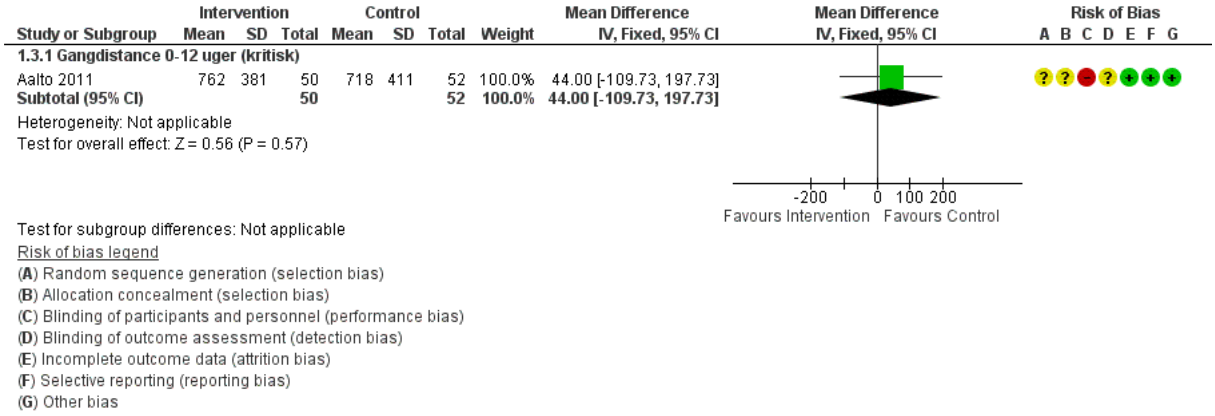
Forest plot of comparison: 1 Intervention (post.op. supervised training) vs Control (post.op.training), outcome: 1.4 Smerte 0-12 uger (kritisk).

Figure 3 (Analysis 1.7)



Forest plot of comparison: 1 Intervention (post.op. supervised training) vs Control (post.op.training), outcome: 1.7 Livskvalitet 0-12 uger (vigtigt).

Figure 4 (Analysis 1.3)



Forest plot of comparison: 1 Intervention (post.op. supervised training) vs Control (post.op.training), outcome: 1.3 Gangdistance 0-12 uger (kritisk).