

ONLINE RESOURCE 4

Table 2: Risk of bias assessment

Title: Clinical course of pain and disability following primary lumbar discectomy: systematic review and meta-analysis

Journal: European Spine Journal

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Study	Study participation (QUIPS) Representative sample (Pengel et al, 2003)	Defined sample (Pengel et al, 2003)	Study attrition / complete follow up (QUIPS)	Outcome measurement (QUIPS)	Study confounding (QUIPS)	Statistical analysis and reporting (QUIPS)	Provision of data (Pengel et al, 2003)	Blinded outcome (Pengel et al, 2003)	Overall statement of risk of bias
	Data related to outcome may be different for participants and eligible non-participants / Participants selected by random selection or as consecutive cases	Description of source of participants and inclusion and exclusion criteria.	Data related to outcome may be different for completing and non-completing participants	Measurement of the outcome may be different related to the baseline level	Outcome may be distorted by another factor related to outcome	Reported results may be spurious or biased related to analysis or reporting	Studies must provide raw data, percentages or continuous outcomes	Assessor unaware of other measures at time outcome was measured.	No of low, moderate and high ratings
Abou-Zeid, 2014	High ROB Eligibility criteria - suitability for day case, unilateral (62.5% of discectomies) Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Moderate ROB Losses / numbers not reported	Moderate ROB VAS Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported	Moderate ROB Sufficient presentation of data Variable time point post-surgery for follow up.	Moderate ROB Mean reported	Moderate ROB Independent assessment unclear	Low 1 Moderate 6 High 1

Alo, 2004 (6 months) Alo, 2005 (12 months)	Moderate ROB Some eligibility criteria e.g. prolapse <6mm may contribute to potential participants being excluded Suggests consecutive patients were considered	Moderate ROB Diagnosis established followed detailed physical examination and imaging but not clear by whom Clear eligibility criteria	Moderate ROB No losses to follow up at 6 months 8 (16%) patients lost to follow up at 12 months	Low ROB VASLP Established measurement properties Measure standardised by independent assessor	Moderate ROB Possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Low ROB Raw data, mean and SD reported	Low ROB Independent assessment clear	Low 4 Moderate 4 High 0
Amoretti, 2013	Moderate ROB Eligibility criteria VAS >6 Unclear if consecutive patients were considered to know of eligible non- participants	Low ROB Clear eligibility criteria	Low ROB No losses to follow up	Moderate ROB VAS Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Moderate ROB Mean, SD and range reported for 2 groups separately	High ROB Surgeon and radiologist collected their own data	Low 3 Moderate 4 High 1
Andrade, 2016	High ROB Eligibility criteria – sequestered discs and cases where annulus fibrosus and nucleus pulposus from the obtained IVD samples could be clearly differentiated in the laboratory Unclear if consecutive patients were considered to know of eligible non- participants	Low ROB Clear eligibility criteria	Low ROB No losses to follow up	Moderate ROB VAS Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported	Low ROB Clear presentation of data	Low ROB Mean and SD could be calculated from raw data reported	Moderate ROB Independent assessment unclear	Low 4 Moderate 3 High 1
Arpino, 2004	Low ROB Consecutive patients recruited	Low ROB	Low ROB No losses to follow up	Moderate ROB VAS	Moderate ROB	Low ROB	Moderate ROB	Moderate ROB	Low 4 Moderate 4 High 0

		Clear eligibility criteria		Established measurement properties Consistency of measurements unclear	Possible interventions within 12 month post-operative period: unclear	Sufficient presentation of data No selective reporting of results	Mean and range reported No SD reported	Independent assessment unclear	
Asch, 2002	Low ROB Consecutive patients recruited	Low ROB Clear eligibility criteria	High ROB Loss to follow up 2% Losses at final follow up 27% so previous data used Missing data high for ODI at final follow up. Missing data for ODI (74% at baseline, 61% at 6 weeks, 59% at 6 months, 18% at >1 year)	Moderate ROB VAS and ODI Established measurement properties Consistency of measurements unclear	High ROB Other possible interventions not reported 24 patients had further surgery	Moderate ROB Selective reporting of results	Low ROB Mean and SD reported	Low ROB Independent assessment clear	Low 4 Moderate 2 High 2
Atlas, 1996 (1 year) Atlas, 2001 (5 years) Atlas, 2005 (10 years) Keller, 1999	Low ROB Patients elected to undertake surgery were included But - similar baseline and 2 year follow up to a survey of randomly selected surgical patients not enrolled	Low ROB Diagnosis established by physician Clear eligibility criteria	Moderate ROB Loss to follow up 20% at year 2, 19.4% at 5 year follow up Slightly higher at 10 years but data unclear and variable	Low ROB Modified RMDQ Established measurement properties Consistent measurement	Moderate ROB Possible interventions not reported 19.4% had ≥1 reoperation	Low ROB Sufficient presentation of data No selective reporting of results	Moderate ROB Mean, SD missing at 3,6,9, 12 months	Low ROB Independent assessment clear	Low 5 Moderate 3 High 0

(Maine study)			across outcomes						
Bono, 2017	High ROB Unclear if consecutive patients were considered to know of eligible non-participants n=3 patients withdrew immediately and n=4 were excluded for other reasons after consent (not reported), N=4 withdrew before post op randomisation.	Low ROB Clear eligibility criteria	High ROB 9% losses at 2 weeks, 24% at 6 weeks, 25% at 3 months, 37% at 1 year, 46% at 2 years	Moderate ROB VAS and ODI Established measurement properties Consistency of measurements unclear	Low ROB Reported patients randomised post-surgery to short and long periods of post op restrictions No formal rehabilitation but referred on an individual basis	Moderate ROB ODI results reported differently at 1 year between text and tables	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 3 Moderate 3 High 2
Casal-Moro, 2011	Moderate ROB All surgical patients recruited. 2 not able to be followed up and so not included.	Low ROB Clear eligibility criteria	Low ROB Losses 4% at 2 months, 3% at 1 year, and 9% at 5 years	Low ROB VAS & ODI Established measurement properties Consistent measurement	Moderate ROB Other possible interventions not reported 9 patients underwent further surgery	Low ROB Sufficient presentation of data No selective reporting of results	Low ROB Mean and SD reported	Low ROB Independent assessment clear	Low 6 Moderate 2 High 0
Casimiro, 2017	Moderate ROB Consecutive patients recruited Only L5S1 levels included	Low ROB Clear eligibility criteria	Low ROB FEIA 7% losses MMST no losses to follow up	Moderate ROB NRS Established measurement properties Consistency of measurements unclear	Moderate ROB Post-operative care e.g. pharmacology and activity were standardised Other interventions not reported	Low ROB Clear presentation of data	Moderate ROB Means only reported	Moderate ROB Independent assessment unclear	Low 3 Moderate 5 High 0
Chaichana, 2011	Moderate ROB Unclear if consecutive patients were considered	Low ROB	Low ROB	Low ROB VAS and ODI	Moderate ROB	Moderate ROB	Low ROB Mean and SD reported	Low ROB Independent assessment	Low 5 Moderate 3 High 0

	to know of eligible non-participants	Clear eligibility criteria	No loss to follow up at 12 months	Established measurement properties Consistency of measurements	Possible interventions not reported	Sufficient presentation of data			
Chen, 2011	Moderate ROB Eligibility criteria L5S1 only Consecutive patients recruited	Low ROB Clear eligibility criteria	Moderate ROB Losses / numbers not reported	Moderate ROB VAS and ODI Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported 4 patients had recurrent disc herniation (3.2%) within 1 month after surgery. All re-operated.	Moderate ROB Sufficient presentation of data	Moderate ROB Mean and range reported	Moderate ROB Independent assessment unclear	Low 1 Moderate 7 High 0
Chen, 2018	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Moderate ROB 10.5% losses at 1 year	Low ROB VAS and ODI Established measurement properties Consistency of measurements clear	Low ROB Physiotherapy was offered for patients with stiffness Reoperation n=5 PTED and n=3 MD	Low ROB Clear presentation of data	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 4 Moderate 4 High 0
Chin, 2008	Low ROB Consecutive patients recruited	Low ROB Clear eligibility criteria	High ROB VAS - No losses at 1 month, 7% at 3 months, 7% at 6 months ODI – 37% loss to follow up at pre op and 6 months – retrospective	High ROB VAS LP, VAS BP & ODI Established measurement properties Consistent measurement for VAS. Retrospective telephone for	Moderate ROB Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Moderate ROB Means reported only	Low ROB Independent assessment clear	Low 4 Moderate 2 High 2

			collection at 6 months	ODI pre op and 6 months data					
Choi, 2013	Low ROB Consecutive patients recruited	Low ROB Clear eligibility criteria	Low ROB No losses to follow up	Moderate ROB VAS & ODI Established measurement properties Consistency of measurement varied at follow up - telephonic interview, mailed questionnaire, or hospital follow-up	Moderate ROB 8 patients required further surgery Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Moderate ROB Means reported only	Moderate ROB Independent assessment unclear	Low 4 Moderate 4 High 0
D'Angelo, 2010	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Moderate ROB 19% excluded owing to lack of adherence to psychometric evaluation.	Moderate ROB VAS Established measurement properties Consistency of measurements unclear	Moderate ROB Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Moderate ROB Median and IQR reported	Moderate ROB Independent assessment unclear	Low 2 Moderate 6 High 0
De Bonis, 2017	High ROB Consecutive patients were not recruited to know of eligible non-participants. Recruited patients represented 92% of total eligible patients	Moderate ROB Clear eligibility criteria but foraminal lumbar disc herniations were recruited	Low ROB No losses to follow up	Moderate ROB NRS Established measurement properties Consistency of measurements unclear	Low ROB Complications and drug management following surgery reported. No recurrence and no reoperation.	Low ROB Clear presentation of data	Low ROB Mean and SD calculated from reported raw data	Moderate ROB Independent assessment unclear	Low 4 Moderate 3 High 1

Dedering, 2012 Dedering, 2006	Low ROB Consecutive patients recruited	Low ROB Clear eligibility criteria	Moderate ROB Loss to follow up Men 7% Women 14% 16% losses at 2 years	Moderate ROB RMDQ & ODI Established measurement properties Consistency of measurements unclear	Moderate ROB No re-operation Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Low ROB Mean, SD and range reported	Moderate ROB Not independent assessment	Low 4 Moderate 4 High 0
den Boer, 2006a and b	Moderate ROB All patients approached for recruitment Eligibility criterion of working population of above cohort only may contribute to potential participants being excluded (2006b) – but data not reported	Low ROB Clear eligibility criteria	Moderate ROB Loss to follow up 18%	Moderate ROB VAS & RMDQ Dutch version Established measurement properties Consistency of measurement unclear and varied	Moderate ROB Other possible interventions not reported	Moderate ROB insufficient presentation of data 3 days assessment point (not RMDQ and not reported VAS)	Low ROB Mean, SD and range reported	Moderate ROB Not independent assessment	Low 2 Moderate 6 High 0
Dewing, 2008	Moderate ROB Consecutive patients recruited Active military duty personnel	Low ROB Clear eligibility criteria	Low ROB Loss to follow up 7%	Low ROB VAS LP & BP & ODI Established measurement properties Consistency of measurement	Low ROB Patients all had other interventions including limited duty, physical therapy, anti-inflammatories, opioid analgesics, or epidural /transforamina l injections for at least 4 months	Moderate ROB Sufficient presentation of data 6 months results not reported	Moderate ROB Mean and range reported No SD reported	Low ROB Independent assessment clear	Low 5 Moderate 3 High 0
Dubourg, 2002	Moderate ROB	Low ROB	Low ROB	Moderate ROB VAS	Moderate ROB	Moderate ROB	Low ROB	Moderate ROB	Low 3 Moderate 5

	Sciatica with paresis < 1 month and rated < 3 on the Daniels and Worthingham muscle testing scale	Clear eligibility criteria	Loss to follow up at 6 months 10%	Established measurement properties Standardised assessment but 17 centres	Other possible interventions not reported	Sufficient presentation of data 1 and 3 months results not reported	Mean and SD reported	Assessment by treating physician	High 0
Eguchi, 2016	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Low ROB 7.7% loss to follow up at 6 months	Moderate ROB VAS and RMDQ Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported	Low ROB Clear presentation of data	Low ROB Mean reported and SD could be calculated from raw data reported	Moderate ROB Independent assessment unclear	Low 4 Moderate 4 High 0
Eicker, 2013	High ROB Eligibility criteria extraforaminal lesions only Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Moderate ROB Losses / numbers not reported	Moderate ROB VAS and ODI Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported 2 patients had recurrent disc herniation. Both re-operated.	Moderate ROB Sufficient presentation of data	Moderate ROB Mean and range reported	Moderate ROB Independent assessment unclear	Low 1 Moderate 6 High 1
Elkan, 2016	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Low ROB 9.5% loss to follow up	Moderate ROB VAS and ODI Established measurement properties Consistency of measurements unclear	Moderate ROB Heparin prescribed for non-elective patients (n = 43) Other possible interventions not reported	Low ROB Clear presentation of data	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 4 Moderate 4 High 0

Fakouri, 2015	High ROB Eligibility criteria obese patients and then next non-obese patient recruited. Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Low ROB reported=5 (13.6%)	Moderate ROB VAS Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported. Some patients required regular long term analgesia.	Moderate ROB Sufficient presentation of data Wide range of follow up timepoint 20-60 months? 18mth-5 yrs	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 3 Moderate 4 High 1
Gadjradj, 2016	Low ROB Consecutive patients recruited	Low ROB Clear eligibility criteria	Low ROB 4.8% losses at 52 weeks and reasons provided	Moderate ROB VAS and QBPDS Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported. 12 patients (7.2%) underwent additional surgery within 1 year; 11 (6.6%) for recurrence, and 1 patient developed a de novo LDH at another level.	Low ROB Sufficient presentation of data	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 5 Moderate 3 High 0
Gibson, 2017	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Moderate ROB Clear eligibility criteria but upper disc disease excluded	Moderate ROB 14% loss to follow up at 3 months 19% losses at 1 year 12% losses at 2 years	Moderate ROB VAS and ODI Established measurement properties Consistency of measurements unclear	Low ROB Physiotherapy was offered for patients with stiffness. Reoperation n=5 PTED and n=2 MD	Low ROB Clear presentation of data	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 3 Moderate 5 High 0

Graver, 1999	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants (n=14 two-level discectomy)	Low ROB Clear eligibility criteria	High ROB 21.3% loss to follow up at 7 years	Moderate ROB VAS Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported. 6% (n=7) underwent repeat surgery n=1 underwent a second repeat operation.	Low ROB Sufficient presentation of data	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 3 Moderate 4 High 1
Guilfoyle, 2007	Low ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	High ROB Loss to follow up 8% at 3 months and 38% at 12-60 months	Moderate ROB VAS & RMDS Established measurement properties Consistency of measurement unclear and varied	Moderate ROB 11 patients underwent revision surgery Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Low ROB Median, mean and SE mean reported SD calculated	Moderate ROB Independent assessment unclear	Low 4 Moderate 3 High 1
Hakkinen, 2003 Hakkinen, 2005	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Moderate ROB Loss to follow up 16% at 14 months	Moderate ROB VAS & ODI Established measurement properties Consistency of measurement unclear	Moderate ROB Other possible interventions not reported. 3 patients had multilevel surgery	Moderate ROB No ODI baseline	Moderate ROB Median and IQR reported. No mean and SD reported	Moderate ROB Independent assessment unclear	Low 1 Moderate 7 High 0
Hussein, 2016	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Low ROB 8.7% loss to follow up at 2 years	High ROB VAS and ODI Established measurement properties but varied means of data	Moderate ROB MED n=3 required Open procedure (iatrogenic dural tear,	Low ROB Clear presentation of data	Low ROB Mean and SD reported	Low ROB Independent assessment	Low 5 Moderate 2 High 1

				collection (telephone/clinic) Sex question removed from ODI as unacceptable culturally.	recurrence) Open - dural tears n=2. Overall, a total of 10 patients (13.7%) in both groups required revision Surgery. Possible interventions not reported				
Kahanovitz, 1989	Low ROB Consecutive patients recruited for 2 surgeons (1 surgeon microdiscectomy, 1 surgeon discectomy)	Low ROB Clear eligibility criteria	Moderate ROB Not reported	Moderate ROB Established measurement properties Consistency of measurements clear (unbiased observer) Variation of follow up timepoints	Moderate ROB Other possible interventions not reported D – n=1 underwent second surgical procedure	Low ROB Sufficient presentation of data	Low ROB Mean and SD reported	Low ROB Independent assessment clear (non-treating unbiased observer)	Low 5 Moderate 3 High 0
Kerr, 2015 (8 years) Pearson, 2012a Pearson, 2012b Lurie, 2014 (8 year FU) Weinstein,	High ROB Patients who declined randomisation entered the observational cohort group based on treatment preference. Of those initially choosing surgery, 95% received surgery by 1 year; at 8 years 12 additional patients had undergone primary surgery.	Low ROB Clear eligibility criteria	Moderate ROB Loss to follow up 37% at 8 years 12% at 6 weeks	Moderate ROB ODI Established measurement properties Consistency of measurements unclear	Low ROB Additional treatments were individualised to the patient by the treating provider(s) and tracked prospectively	Low ROB Adjusted mean and CI reported	Low ROB Mean (SD) calculated from raw data; check final values with authors	Moderate ROB Independent assessment unclear	Low 4 Moderate 3 High 1

2008									
SPORT study									
Kim, 2009	High ROB Unclear if consecutive patients were considered to know of eligible non-participants Transforaminal suprapedicular approach to high grade inferior-migrated lumbar disc herniations (zone 4)	Low ROB Clear eligibility criteria	Moderate ROB Losses / numbers not reported	Moderate ROB VAS and ODI Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported.	High ROB Sufficient presentation of data Variable follow up period (mean 9,84 months) and selective reporting of data at time points (1 week)	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 3 Moderate 4 High 2
Kleinstueck, 2011	High ROB Unclear if consecutive patients were considered to know of eligible non-participants Only patents with 12-month data included Baseline questionnaire data were available for n = 267 (87%)	Low ROB Clear eligibility criteria	Low ROB 8% lost to follow up at 12 months	Low ROB VAS and COMI Established measurement properties Consistency of measurements clear	Moderate ROB Possible interventions not reported.	Low ROB Sufficient presentation of data	Low ROB Mean and SD reported	Low ROB Independent assessment clear (postal questionnaire)	Low 6 Moderate 1 High 1
Koen, 2017	Low ROB Consecutive patients recruited to know of eligible non- participants	Low ROB Clear eligibility criteria	Low ROB 9.8% loss to follow up	Moderate ROB VAS Established measurement properties but unclear consistency of data collection	Moderate ROB Other possible interventions not reported	Low ROB Clear presentation of data	Low ROB Mean and SD reported	Low ROB Independent research team	Low 6 Moderate 2 High 0

Kong, 2016	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Low ROB 3.2% loss to follow up at 12 months	Moderate ROB VAS and RMDQ Established measurement properties but varied means of data collection (telephone interviews or outpatient review)	Low ROB Rehabilitation content reported. N=2 required open surgery.	Low ROB Clear presentation of data	Low ROB Mean and SD reported pre-operatively and at 12 months	Moderate ROB Independent assessment unclear	Low 5 Moderate 3 High 0
Kovacevic, 2017	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Moderate ROB Clear eligibility criteria but body mass index >35 and history of psychiatric, addiction, mental disorders excluded	Moderate ROB Losses to follow up not reported	Moderate ROB VAS and ODI Established measurement properties Consistency of measurements unclear	Moderate ROB Reoperation at 12 months Discectomy 5.4% Microdiscectomy 3.2% Other interventions not reported	Low ROB Clear presentation of data	Moderate ROB Mean and SD reported Except VAS BP at 12 months reports median	Moderate ROB Independent assessment unclear	Low 1 Moderate 7 High 0
Kuiper, 2002	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	High ROB 13% loss to follow up at 3 days 25% losses at 6 weeks	Moderate ROB VAS & RDQ Established measurement properties Consistency of measurements unclear	Moderate ROB Other possible interventions not reported. Physiotherapy provided post op for exercise therapy	Low ROB Sufficient presentation of data No selective reporting of results	Moderate ROB Mean and +/- 1SEM obtained from Figures.	Moderate ROB Independent assessment unclear	Low 2 Moderate 5 High 1

Lagerbäck, 2015	Moderate ROB SweSpine Register has included patients since 1993. During the last decade, the number of departments participating in the registry has varied between 35-39 of the 42 to 45 departments in Sweden	Low ROB Clear eligibility criteria Patients operated on for disc herniation through to March 2011	High ROB Losses 74-80% across groups at 1 year	Moderate ROB VAS and ODI Established measurement properties Consistency of measurements unclear : patient self-assessment pre op Postal questionnaires at FU	Moderate ROB Other possible interventions not reported	Moderate ROB Sufficient presentation of data. No selective reporting. Where 2 year data not available used data from 1 year.	Low ROB Means and SD provided by author	Moderate ROB Patient self-assessment pre op but no detail re independent assessment. Postal questionnaires at FU	Low 2 Moderate 5 High 1
Lebow, 2011	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	High ROB 7% Loss to FU 1 year 30% loss FU 2 years	Moderate ROB VAS & ODI Established measurement properties Consistency of measurements unclear	Moderate ROB Other possible interventions not reported	Moderate ROB Selective reporting of results. No data reported for pre surgery, 6/52 and 2 years	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 2 Moderate 5 High 1
Lebow, 2012	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Low ROB No losses to follow up to 1 year stated	Moderate ROB VAS & ODI Established measurement properties Consistency of measurements unclear	Moderate ROB Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Low ROB Mean and SD reported	Low ROB Independent assessment clear	Low 5 Moderate 3 High 0
Leinonen, 2003	Moderate ROB Unclear if consecutive patients were considered	Low ROB Clear eligibility criteria	Moderate ROB 20% loss to follow up	Moderate ROB VAS & ODI	Moderate ROB	Low ROB Sufficient presentation of data	Low ROB Mean and, SD reported	Moderate ROB	Low 3 Moderate 5 High 0

	to know of eligible non-participants			Established measurement properties Consistency of measurements unclear	Other possible interventions not reported	No selective reporting of results		Independent assessment unclear	
Li, 2015	High ROB Unclear if consecutive patients were considered to know of eligible non-participants Intracanalicular non-contained disc herniations at L5/S1 level	Low ROB Clear eligibility criteria	Low ROB No losses to follow up	Moderate ROB VAS and ODI Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported. 1 case recurrence.	Low ROB Sufficient presentation of data	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 4 Moderate 4 High 1
Li, 2017	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Low ROB 9.5% loss to follow up	Moderate ROB VAS and ODI Established measurement properties Consistency of measurements unclear	Low ROB rehabilitation intervention reported	Low ROB Clear presentation of data	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 5 Moderate 3 High 0
Liao, 2014	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants Far lateral lumbar intervertebral disk herniation	Low ROB Clear eligibility criteria	Low ROB No losses to follow up	Moderate ROB VAS Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported. N=1 complication, a case of leg numbness caused by ganglion injury, treated with betamethasone 4 mg injection	Moderate ROB Sufficient presentation of data Final follow up (1-12 months)	Moderate ROB Mean reported	Moderate ROB Independent assessment unclear	Low 4 Moderate 3 High 1

Lima-Ramirez, 2016	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Low ROB Non loss to follow up not reported	Moderate ROB NRS and ODI Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported	Moderate ROB Clear presentation of data with missing values for ODI at 4 days	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 3 Moderate 5 High 0
Madsbu 2018 p.581	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	High ROB Losses to follow up 30.8% at 1 year	Low ROB NRS and ODI Established measurement properties Consistency of measurements clear	Moderate ROB Complications reported Reoperation n=39 (1%) non-smokers and 26 (1.6%) smokers within 90 days Other interventions not reported	Low ROB Clear presentation of data	Moderate ROB Means only reported	Moderate ROB Independent assessment unclear	Low 3 Moderate 4 High 1
Madsbu 2018 p.1004	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	High ROB Losses to follow up 31.3% at 1 year	Low ROB NRS and ODI Established measurement properties Consistency of measurements clear	Moderate ROB Complications reported Reoperation n=43 (1.1%) non-obese and 9 (1.0%) obese within 90 days Other interventions not reported	Low ROB Clear presentation of data	Moderate ROB Means only reported	Moderate ROB Independent assessment unclear	Low 3 Moderate 4 High 1
Mannion, 2005	High ROB Unclear if consecutive patients were considered	Low ROB Clear eligibility criteria	Moderate ROB 10.8% lost to follow up	Low ROB VAS	Moderate ROB	Low ROB Sufficient presentation of data	Low ROB Mean and SD reported	Low ROB Independent assessment	Low 5 Moderate 2 High 1

	to know of eligible non-participants Previous spinal surgery except fusion Aged >45 years			Established measurement properties Consistency of measurements	Possible interventions not reported. N=1 re-operation with spinal fixation within the first 2 months			clear (postal)	
McCormick, 2016	Moderate ROB Consecutive patients recruited to know of eligible non- participants. Patients with less than 50% preservation of disc height at the site of disc herniation, a herniation >6mm or sequestered disc fragments were excluded	Low ROB Clear eligibility criteria	High ROB 43% loss to follow up at 1 year 64% loss to follow up at 8 years	Low ROB NRS and ODI Established measurement properties Consistency of measurements clear	Moderate ROB Possible interventions not reported	Low ROB Clear presentation of data	Low ROB Mean and SD reported	Low ROB Independent assessment clear	Low 5 Moderate 2 High 1
Millisdotter, 2003	High ROB Unclear if consecutive patients were considered to know of eligible non-participants Aged 15 to 50 years	Low ROB Clear eligibility criteria	Moderate ROB Loss to follow up 18.3%	Moderate ROB VAS &RMDQ Established measurement properties Consistency of measurements unclear Self-administered questionnaires	Low ROB All patients participated in physiotherapy training after surgery, beginning 2 to 6 weeks after surgery	Low ROB Sufficient presentation of data No selective reporting of results	Low ROB Mean and range reported Also all raw data reported	Moderate ROB Independent assessment unclear	Low 4 Moderate 3 High 1
Ng, 2004	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Low ROB 9% loss to follow up at 1 year	Moderate ROB VAS &ODI Established measurement properties Consistency of measurements unclear	Moderate ROB Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 4 Moderate 4 High 0

Nie, 2016	High ROB Unclear if consecutive patients were considered to know of eligible non-participants L5S1 level only	Low ROB Clear eligibility criteria	Moderate ROB Loss to follow up not reported	Moderate ROB NRS and ODI Established measurement properties Inconsistency of measurements (telephone calls or clinical Visits)	Moderate ROB Possible interventions not reported	Low ROB Clear presentation of data	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 3 Moderate 4 High 1
Ohtori, 2010	High ROB Unclear if consecutive patients were considered to know of eligible non-participants Symptoms > 3 months Modic types 2 and 3 excluded	Low ROB Clear eligibility criteria	Low ROB No reported losses to follow up	Moderate ROB VAS & ODI Established measurement properties Consistency of measurements unclear	Moderate ROB Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Low ROB Means and SD available and from graph for 1 year	Moderate ROB Independent assessment unclear	Low 4 Moderate 3 High 1
Okoro, 2010	Moderate ROB Not consecutive patients (only included patients with complete outcome data at each assessment (140/165))	Low ROB Clear eligibility criteria	High ROB 37% loss to follow up at 1 year	Moderate ROB VAS and ODI Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported 3.8% re-operation rate	High ROB Variability in time point for follow up and selective reporting Follow up of up to 56 months post surgery, reported as after 6 months follow up	Moderate ROB Means reported	Moderate ROB Independent assessment unclear	Low 1 Moderate 5 High 2
Overdevest, 2017	Moderate ROB	Low ROB	High ROB	Low ROB	Moderate ROB	Moderate ROB	High ROB	Low ROB	Low 3 Moderate 3

	Unclear if consecutive patients were considered to know of eligible non-participants	Clear eligibility criteria	Losses to follow up 29% at 12 months in tubular group and 33% in conventional group	VAS and RMDQ Established measurement properties Consistency of measurements clear	Complications reported Reoperation Reoperation at 5 years was 18% tubular group and 13% conventional group Other interventions not reported	Clear presentation of data except for baseline values from figures	Means only reported Data at 2, 4, 6, 12, 26, 38, and 78 Weeks not reported	Independent assessment clear	High 2
Parker, 2015	Moderate ROB Consecutive patients recruited All patients undergoing discectomy between October 2010 and March 2013 were enrolled into prospective spine registry. Only patients with 1 year or more of clinical outcomes postoperatively were included	Low ROB Clear eligibility criteria	Moderate ROB 9.2% loss to follow up at 1 year 14.3% losses at 2 years	Low ROB VAS & ODI Established measurement properties Consistency of measurements clear-telephone	Moderate ROB Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Low ROB Means and SD reported	Low ROB Independent assessment clear - telephone interview by an independent technician not involved with clinical care	Low 5 Moderate 3 High 0
Peng, 2010	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants New surgery offered to patients	Low ROB Clear eligibility criteria	Low ROB No reported losses to follow up	Moderate ROB VAS & NASS Established measurement properties Consistency of measurements unclear	Low ROB 2 patients open discectomy 1 prolapse managed conservatively 3 patients fusion 1 patient washout	Low ROB Sufficient presentation of data No selective reporting of results	Moderate ROB Means reported	Low ROB Independent assessment clear – all patients evaluated by an independent observer who was not involved in the surgical procedure	Low 5 Moderate 3 High 0

Porchet, 2009	Moderate ROB Patients included from the Tango Spine Registry if 1 year post op from the 6 surgeons	Low ROB Clear eligibility criteria	Moderate ROB Data missing for 12% at baseline, 5% at 3 months, and unclear re data missing at 12 months	Low ROB VAS & COMI Established measurement properties Consistency of measurements clear– Tango Spine Registry	Moderate ROB Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Low ROB Means and SD reported	Low ROB Independent assessment clear – patients invited to complete data through Tango Spine Registry	Low 5 Moderate 3 High 0
Ramberg, 2001	Moderate ROB Consecutive patients recruited. <3mm migration of disc material included.	Low ROB Clear eligibility criteria	Moderate ROB No reported losses for short term follow up Loss to 2-5 year follow up 15%	Moderate ROB VAS & ODI Established measurement properties Consistency of measurements unclear	High ROB 10 patients (38%) required open revision surgery Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Moderate ROB Median and IQR reported on figures	Moderate ROB Independent assessment unclear except for 2-5 year follow up by independent observer	Low 2 Moderate 5 High 1
Ren, 2017	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Moderate ROB Clear eligibility criteria but bilateral symptoms only High upward migrated herniation at L5eS1 also were excluded	Low ROB No losses to follow up	Moderate ROB VAS and ODI Established measurement properties Consistency of measurements unclear	Moderate ROB Further surgery n=1 Other interventions not reported	Low ROB Clear presentation of data	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 3 Moderate 5 High 0
Righesso, 2012	Moderate ROB Unclear if consecutive patients were considered	Low ROB Clear eligibility criteria	Low ROB <1% loss to follow up from	Moderate ROB VAS & ODI	Moderate ROB	Low ROB Sufficient presentation of data	Moderate ROB	Moderate ROB	Low 3 Moderate 5 High 0

	to know of eligible non-participants		6 months onwards	Established measurement properties Consistency of measurements unclear	Other possible interventions not reported	No selective reporting of results	Median and IQR reported	Independent assessment unclear	
Ruetten, 2008	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Low ROB Loss to follow up 3.5% at 3 months, 5.5% at 6 months, 7.5% at 12 months and 11% at 24 months	Low ROB VAS & ODI Established measurement properties Consistency of measurements clear	Moderate ROB Revision surgery reported for 11% patients Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Moderate ROB Means reported	Low ROB Independent assessment clear	Low 5 Moderate 3 High 0
Sahlstrand, 1999	Moderate ROB Consecutive patients recruited. Disc herniation with a migration ≤ 3 mm from vertebral endplates and maximal protrusion of ≤ 50 mm of midsagittal diameter of the spinal canal	Low ROB Clear eligibility criteria	Moderate ROB No reported losses to follow up. Article suggests loss to follow up 30% (7 patients having further surgery)	Moderate ROB VAS Established measurement properties Consistency of measurements unclear	Moderate ROB 7 patients required further surgery Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Moderate ROB Median and IQR reported on figures	Moderate ROB Independent assessment unclear	Low 2 Moderate 6 High 0
Sasani, 2007	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Low ROB No reported losses to follow up	Moderate ROB VAS & ODI Established measurement properties Consistency of measurements unclear	Moderate ROB Physical therapy for 4 patients and 5 further operations	Low ROB Sufficient presentation of data No selective reporting of results	Moderate ROB Mean and range reported	Moderate ROB Independent assessment unclear	Low 3 Moderate 5 High 0

Schick, 2009	Low ROB Consecutive patients recruited	Low ROB Clear eligibility criteria	High ROB 55% loss to FU	Moderate ROB VAS & ODI Established measurement properties Consistency of measurements unclear	Moderate ROB 2 required re-operation on day 3 Other possible interventions not reported	Moderate ROB No ODI at baseline	High ROB Mean reported Post op follow up median 35.4 months No SD data available	Moderate ROB Independent assessment unclear	Low 2 Moderate 4 High 2
Schizas, 2005	Low ROB Consecutive patients recruited. Surgeon was not aware of the type of procedure that would be available at the time of admission.	Low ROB Clear eligibility criteria	Moderate ROB Not reported	Moderate ROB ODI Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported	Moderate ROB Sufficient presentation of data Post surgery follow up for an average of 12 (range 11–29) months	Moderate ROB Means reported	Low ROB Independent assessment clear	Low 3 Moderate 5 High 0
Sharma, 2013	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Low ROB No loss to follow up	Moderate ROB VAS & mODI Established measurement properties Consistency of measurements unclear	Moderate ROB Other possible interventions not reported	Moderate ROB Sufficient presentation of data for pain mODI provided; selected subscales used	Low ROB Means and SD reported for pain	Moderate ROB Independent assessment unclear	Low 3 Moderate 5 High 0
Shawky Abdelgawaa d, 2017	Moderate ROB Unclear if consecutive patients were considered	Low ROB Clear eligibility criteria	Moderate ROB	Moderate ROB VAS and ODI	Moderate ROB Complications reported.	Moderate ROB	Moderate ROB Means only reported	Moderate ROB	Low 1 Moderate 7 High 0

	to know of eligible non-participants		Losses to follow up not reported	Established measurement properties Consistency of measurements unclear	13.8% reoperation rate for recurrence Other interventions not reported	Clear presentation of data Final follow up period ranged from 12 months to 54 months, with a mean of 38 months		Independent assessment unclear	
Silverplats, 2010	Low ROB Consecutive patients recruited	Low ROB Clear eligibility criteria	Low ROB 18% losses at 2 years 20% at long term follow up (acknowledging length of follow up)	Moderate ROB ODI Established measurement properties VAS Using mean for not established Consistency of measurements unclear Long term follow up by post	Moderate ROB 16 patients underwent further surgery Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Low ROB Means and SD reported	Moderate ROB Independent assessment unclear Independent assessment at 2 years using independent examiner	Low 5 Moderate 3 High 0
Solberg, 2005	Low ROB Consecutive patients recruited	Low ROB Clear eligibility criteria	High ROB Loss to follow up at 12 months 21%	Moderate ROB VAS & ODI Established measurement properties Consistency of measurements unclear. Assessment inconsistent	Moderate ROB Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Low ROB Means and SD reported	Moderate ROB Independent assessment unclear at baseline Follow up data collected by independent observer	Low 4 Moderate 3 High 1
Solberg, 2013	Low ROB Consecutive patients recruited	Low ROB	High ROB 894 patients eligible but	Moderate ROB NRS & ODI	Moderate ROB	Low ROB	Low ROB Means and SD reported	Moderate ROB	Low 4 Moderate 3 High 1

		Clear eligibility criteria	the n=692 who returned the 12 month questionnaire were included Losses of 23%	Established measurement properties Consistency of measurements unclear Baseline in hospital and follow up by post	Other possible interventions not reported 13 (2%) had laminectomy and 139 (20%) op at same level as previously	Sufficient presentation of data No selective reporting of results		Independent assessment unclear at baseline Norwegian Registry for Spine Surgery for records	
Sorlie, 2012	High ROB Consecutive patients recruited, but then 41.9% of initial cohort excluded as no MRI	Low ROB Clear eligibility criteria	High ROB 26% loss to FU at 1 year	Moderate ROB VAS & ODI Established measurement properties Consistency of measurements unclear. Assessment inconsistent	Moderate ROB Other possible interventions not reported Some re-operated	Low ROB Sufficient presentation of data No selective reporting of results	Moderate ROB Unclear if mean (SD) or median (IQR) data included	Moderate ROB Independent assessment unclear at baseline Independent checking of questionnaires at follow up	Low 2 Moderate 4 High 2
Sun, 2014	High ROB Consecutive patients recruited Age range for inclusion 20-40	Low ROB Clear eligibility criteria	Low ROB No losses to FU reported	Low ROB VAS & ODI Established measurement properties Consistency of measurements clear	Moderate ROB Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Moderate ROB Means and SD reported. Assume ODI reported on as 50 scale	Low ROB Independent assessment clear – independent investigator	Low 5 Moderate 2 High 1
Thaler, 2012	Moderate ROB Consecutive patients recruited. Only included those with valid driving licence	Low ROB Clear eligibility criteria	Low ROB No losses to FU reported	Moderate ROB VAS LP & VAS BP Established measurement properties	Moderate ROB Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Moderate ROB Median and IQR reported	Moderate ROB Independent assessment unclear	Low 3 Moderate 5 High 0

				Consistency of measurements unclear					
Than, 2016	Low ROB Consecutive patients recruited to know of eligible non- participants	Low ROB Clear eligibility criteria	Moderate ROB 83.3% loss to follow up at 1 year. N=4 did not complete any PROMs N=1 died. 20 % loss to follow up.	Moderate ROB VAS and ODI Established measurement properties Inconsistency of measurements (face to face and postal)	Moderate ROB Possible interventions not reported	Low ROB Clear presentation of data	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 4 Moderate 4 High 0
Toyone, 2004	Low ROB Consecutive patients recruited	Low ROB Clear eligibility criteria	Low ROB No losses to FU reported	Low ROB VAS & NASS Established measurement properties Consistency of measurements clear	Moderate ROB Drug management and surgical intervention reported Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Low ROB Mean and SD reported No NASS data Full data set online	Low ROB Independent assessment clear – independent observers	Low 7 Moderate 1 High 0
Tschugg, 2017	Low ROB Consecutive patients recruited to know of eligible non- participants	Low ROB Clear eligibility criteria	High ROB 1.9% loss to follow up at 6 months 3.8% loss to follow up at 12 months. NS recurrent disc herniation n=9 (23%) S recurrent disc herniation n=3 (11.5%)	Moderate ROB VAS and ODI Established measurement properties Consistency of measurements unclear	Low ROB All patients received post op rehab starting at 4 weeks x 8 sessions	Low ROB Clear presentation of data	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 5 Moderate 2 High 1

			Accidental durotomy n=1 in group NS. All excluded.						
Tullberg, 1994	Low ROB Consecutive patients recruited	Low ROB Clear eligibility criteria	Low ROB 10% loss to FU	Low ROB VAS Established measurement properties Consistency of measurements clear	Moderate ROB Other possible interventions not reported	Low ROB Sufficient presentation of data No selective reporting of results	Low ROB Raw data reported	Low ROB Independent assessment clear – independent surgeon	Low 7 Moderate 1 High 0
Veresciagina, 2010	Moderate ROB Unclear if consecutive patients were considered to know of eligible non-participants	Low ROB Clear eligibility criteria	Moderate ROB Losses to FU unclear	Moderate ROB VAS Established measurement properties Consistency of measurements unclear. Assessment inconsistent	Moderate ROB Other possible interventions not reported	Moderate ROB Insufficient presentation of data No reporting of back pain	Moderate ROB Mean and SE extracted from figures. SD calculated	Moderate ROB Independent assessment unclear	Low 1 Moderate 7 High 0
Wallbom, 2009	Low ROB Consecutive patients recruited	Low ROB Clear eligibility criteria	Low ROB No losses to follow up	Moderate ROB VAS and QBPDS Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported	Moderate ROB Sufficient presentation of data Variability of time point: baseline mean (SD) time before surgery 10.5 (3.9) days	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 4 Moderate 4 High 0

						Follow up at 30 days post surgery Mean (SD) time post surgery 4.7 (0.8) weeks			
Xu, 2014	Moderate ROB Consecutive patients recruited Surgery at L5S1 level only	Low ROB Clear eligibility criteria	Low ROB N=2 lost to follow up (5.5%)	Moderate ROB VAS Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported	Low ROB Sufficient presentation of data	Low ROB Mean and SD reported	Moderate ROB Independent assessment unclear	Low 4 Moderate 4 High 0
Yadav, 2013	Moderate ROB Consecutive patients recruited After initial n=50 widened eligibility criteria to include 2 level discs	Low ROB Clear eligibility criteria	Moderate ROB Losses to FU unclear	Moderate ROB VAS Established measurement properties Consistency of measurements unclear	Moderate ROB 2 patients underwent re-operation Other possible interventions not reported	High ROB Insufficient presentation of data No reporting of back pain and leg pain separately FU data incomplete	Moderate ROB Mean reported at 2 points	Moderate ROB Independent assessment unclear	Low 1 Moderate 6 High 1
Yeom, 2011	Moderate ROB Consecutive patients recruited Only inferiorly migrated disc herniations below midpedicle level included - study investigating new technique (12/353 patients)	Low ROB Clear eligibility criteria	Low ROB No losses to follow up	Moderate ROB VAS Established measurement properties Consistency of measurements unclear	Moderate ROB Possible interventions not reported	Low ROB Sufficient presentation of data	Moderate ROB Mean reported	Moderate ROB Independent assessment unclear	Low 3 Moderate 5 High 0
Ying, 2016	Low ROB	Low ROB	Low ROB	Moderate ROB VAS and ODI	Moderate ROB	Low ROB	Low ROB	Low ROB	Low 5 Moderate 3

	Consecutive patients recruited to know of eligible non- participants	Clear eligibility criteria	8.7% loss to follow up in group B	Established measurement properties Consistency of measurements unclear	Other possible interventions not reported	Clear presentation of data	Mean and SD reported	Independent assessment	High 0
Yoon, 2012	Moderate ROB Unclear if consecutive patients were considered to know of eligible non- participants	Low ROB Clear eligibility criteria	High ROB Losses to FU were 49-68% group I and 29-49% in group II (pre-operative to 3 months)	Moderate ROB VASBP, VASLP & ODI Established measurement properties Consistency of measurements unclear	Moderate ROB 1 patient revision surgery Other possible interventions not reported	Moderate ROB Sufficient presentation of data Unable to use combined data for 6 months onwards	Moderate ROB Mean reported to 3 months	Moderate ROB Independent assessment unclear	Low 1 Moderate 6 High 1