**Additional file 4: Descriptive table**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| First authorYear of publication Country  | Study design | Follow-up periods  | Baseline sample size and response rates at each point of FU | Setting and subjects | Description of LBP  | Type of treatment | Outcome measures  | Predictor variables (tests) | ResultsUnivariat [multivariate] |
| Albert et al(2012), Denmark25 | Prospective cohort studySecondary analysis of data from RCT | 8 w12 m | 176/181/?\*\*8 w: 165 (94%)12 m: ? | Consecutive ptt referred to specialist spine center | Radicular pain of dermatomal distribution≥ 3 on NRS2w-1y | Symptom-guided (MDT) or sham exercises for 8 w 4-8 treatments | P: Leg pain change scoreD: RMDQ change score | 9. centralizationa. centralizationb. perifeheralizationc. no effect | 9.[+] D c vs. a/b[+] P c vs. a/b |
| Amundsen et al(2000), Norway26 | RCT + longitudinal cohort | 6 m1 y4 y10 y | 68/? 6 m, 1 y: ?4 y: 64 (94%) 10 y: 48 (71%)  | Consecutive ptt referred to hospital department of neurology50 selected for conservative care18 randomized for conservative care | Leg pain +/- back pain + radiologic signs of stenosis and compression of the clinically afflicted nerve root(s)Not dics bulge or herniation | 20/68 surgery + orthosis + 1m in hospital rehabilitation48/68 1m in hospital orthosis + back school + instruction. Physical training after discharge | GI: Based on patient’s and clinician’s opinion – tool unknown | 6.SLR | 6. - |
| Bendix et al(1998), Denmark27 | RCT | 1 y | 816/816InterventionBL: 6211 y: 534 (86%)Control:BL: 1951 y: 157 (81) | Ptt referred to Copenhagen Back Center | Disabling back pain > 6 mThreatened job status  | Functional restorationprogram Control groups of no treatment or less intensive programs | P: Back pain, leg painD: Change in level of activities of daily living RTW: Ability to workDisability pension obtained or application pendingGI: Self rated overall assessment | 13.Muscle endurancea. Isometric abdominal muscle enduranceb. Isometric back muscle endurance15. Functional testsa. Mobility (time in sec. for entering and leaving a high bed) | 13.a. -b. [+] RTW (pension), [+] pain , [-] ability to work, [-] D, [-] GI15. - |
| Bergquist-Ullman et al(1977), Sweden28 | RCT | 1y | 217/?1 y: ? | Health-centers at Volvo factories | LBP ≤ 3mA pain-free y before onset of the current episode | 1. Back School2. Combined physiotherapy3.Placebo (shortwaves) | P: Duration of initial periodThe summarized duration of recurrences of pain RTW: Duration of sick-leave during the initial episodeTotal absence from work owing to recurrences | 2. Modified Schober3. ROMa. Extensionb. Lateral flexionc. Rotation6. SLR8. Neurological signs(sensibility, strength of great toe extension, patella and achillesreflexes)12. Muscle strengtha. Sit-upsb. Back muscle strength | 2. -3. -6. -8. -12. - |
| Burton et al(1991), England29 | Prospective cohort study | 1m3m1 y | 109/1131 m: 99 (91%)3 m: 87 (80%)1 y: 89 (82%) | Sequential ptt attending orthopaedic out-patient clinic and and office practice | LBP +/- leg painMixed duration  | Conservative care (manipulation, injection, advice, exercise, medication) | Composite outcome P+D: Symptom free, improving | 3.ROM spinea. Flexionb. Extensionc. Flexion+extension4.ROM hipa. Passive resisted hip flexion (prone)b. Passive flexion of both kneesc. Passive flexion/adduktion of hip (supine)6.SLR <50 degrees8.Neurological signsa. Sensory changesb. Motor changes in legc. Nerve root tension tests14.Non-organic signs(signs of inappropriate illness behavior)15.Functional testsa. Attempt to sit up from supine (+/- pain) | Symptom free/improving\*3.a. 1 m:[-]/[+], 3 m:[-]/[+], 1y: [-]/[-]b. 1 m:[+]/[-], 3 m:[-]/[-], 1 y: [-]/[+]c. 1 m:[-]/[-], 3 m:[-]/[-], 1 y: [-]/[-]4.a. 1 m:[-]/[-], 3 m:[-]/[-], 1 y: [+]/[-]b. 1 m:[-]/[-], 3 m:[-]/[-], 1 y: [-]/[-]c. 1 m:[-]/[-], 3 m:[-]/[-], 1 y: [+]/[-]6. 1 m:[-]/[-], 3 m:[+]/[-], 1 y: [+]/[+]8.a. 1 m:[-]/[-], 3 m:[-]/[-], 1 y: [-]/[-]b. 1 m:[-]/[-], 3 m:[-]/[-], 1 y: [-]/[-]c. 1 m:[+]/[-], 3 m:[-]/[-], 1 y: [+]/[-]14. 1 m:[-]/[+], 3 m:[-]/[+], 1 y: [-]/[-]15.a. 1 m:[-]/[+], 3 m:[-]/[-], 1 y: [+]/[-] |
| Burton et al(1995), England30 | Prospective cohort study | 1 y | 252/?1 y: 186 (74%) | Consecutive ptt consulting group practice of osteopaths  | New episode of LBP | Manipulative therapy + exercise and general advice when appropriate Average 6.6 treatments  | D: RMDQRecovered: RMDQ score of 0-2Not recovered: RMDQ score >2 | 3. ROM6. SLR8. Neurological signs:Root tension yes/no14. Non-organic signs:Overt pain behavior, 5 point scale15. Functional testsa. Sit-up test, 3 point scale | 3. [-]\*6. [+]\*8. [+]\*14. [-]\*15. [-]\* |
| Campello et al (2006), USA31 | Observational prospective cohort study | 2 y | 67/712 y: 100%  | Consecutive ptt referred to hospital-based outpatient clinic | NSLBP +/- leg pain to above knee level Off duty or on restricted duty for >8 w and had to be receiving compensation for a work-related back injury prior to programParticipants were excluded if they did not RTW after completion of the program | Multidisciplinary work-conditioning program, 4h/d , 5d/w for 4w | RTW: Number of d that the subject remained at work during the 2 y FU periodFailure = 3 d off in a row due to LBP or 5 d within a 12 m period. Information from insurance company | 3.ROM spinea. Flexionb. Extension4. ROM hipa. Flexionb. Extensionc. Abduction12.Muscle strenght (not neurological)a. Hip flexionb. Hip abductionc. Lower and upper abdominal13. Muscle endurance:Biering-Sorensen method15. Functional testsa. Lifting capacity | 3. -4. -12. -13. -15. - |
| Christiansen et al (2010), Denmark32 | Prospective cohort study nested in RCT | 1 y | 331/3511 y P+D: 235/331= 71% 1 y RTW: 330/331 (100%) | Ptt referred from GPs to outpatient Spine Center | LBP +/- sciatica Sick-listed 36,9% had nerve root pain50% > 3 m duration | Brief intervention versus multidisciplinary intervention | P: LBP rating scaleD: RMDQRTW: Register based; defined as receiving no social transfer payments other than unemployment payment in the 52nd week after inclusion | 9.a. Centralizationb. Peripheralizationc. No response | 9.a. -[-]b. -[-] |
| Coste et al(1994), France33 | Prospectivecohort study | Time to event1-7 d diary8 d visit15 d visit30 d visit60 d visit90 d visit | 103/?FU: 94 (89% )Ptt not followed after registration of recovery | Consecutive ptt self referring to GPs (39 practices) | Acute (< 72 h) localized NSBP (not below glut fold).  | Paracetamol Bed rest and/or sick leave at the discretion of GPs | Recovery: No P (VAS 0-10) or D (RMDQ)RTW: Not defined | 3. ROM spinea. Limited passive lumbar movement b. Aberrant movement (catch)6.SLR <75**°** | 3a. - recovery, - RTWb. - recovery, +[-] RTW 6. - recovery, - RTW |
| Dwornik et al (2007), Poland34 | Prospective cohort study | 3 w | 50/?3 w: 50 | ? | Conditions of the back of the trunk > 3w durationICD10 codes: M40-M54.9 + G50 – G59.8 | Non-specific physiotherapy (laser, cryo therapy, electrodes, massage, kinesiotherapy) | P: 4-point Likert (mild to very severe pain) | 2. Schober3. ROM spine6. SLRa. SLRb. Bragardc. Reversed Laseque 7.Cross SLR8.Neurological signsa. Reflexesb. Sensationc. Toe-heel test10.Palpation a. Tenderness 6 points low back + legsb. Paraspinal muscle tone | 2. ?3. ?6. ?7. +8. ?10. ? |
| Enthoven et al (2003), Sweden35 | Prospective descriptive study | 12 m | 5512 m: 44 (80%) | 2 primary health care centers (GPs and PTs) | LBP that could be provoked by combined side flexion, ipsilateral rotation and extension, or sustained maximal flexionMixed duration | No specific treatment (advice and medication) | P: VAS 0-100,Pain frequency on 5 point-scale,D: ODQGI: Somatic and depressive distress (Zung + Medicare secondary payer questionaire + combining) | 1. FFD3. ROM spineThoracolumbar rotation6.SLR13.Muscle endurancea. Isometric back flexorsb. Isometric back extensors | 1. -3. -6. -13. a. + P, - Db. - |
| Ferreira et al (2009), Australia36 | Prospective cohort study nested in RCT | 8 w | 191/240/?8 w: ? | 3 hospital based outpatient physiotherapy departments | NSLBP for ≤ 3 m | Spinal manipulative therapy, motor control exercise, or a general exercise program12 sessions in 8 w | P: 0-10, average 24 h D: Pt specific functional status, RMDQ. GI: Global perceived effect 11 point Likert | 10. PalpationSpinal stiffness of most symptomatic level | 10. [-] for all OM |
| Flynn et al (2002), USA37  | Prospective cohort study | 3rd treatment | 75/?3rd treatment:71 (95%) | Military medical centersPtt referred for physiotherapy  | NSLBP Pain or numbness in the lumbar spine +/- legsODQ ≥ 30%Mean duration 41.7 d | Manipulation + simple exercise + advice to keep active | D: Success = ≥ 50% reduction in ODQ score | 3.ROM lumbar spine4.Hip rotation5.SI-testsSI motion symmetry testsa. Standing flexionb. Seated flexionc. Long-sittingd. Prone knee bende. GilletSI provocation testsa. Gaenslenb. Posterior shearc. Compression/ distractiond. Patricke. Resisted hip abductionf. Sacral sulcus palpation testg. Sacral thrustPalpation of bony landmarks for asymmetry (6)6.SLR9.Centralization/perifeheralization with single movement testing10. Palpationa. Segmental hypomobilityb. Segmental pain provocation14.Non-organic signs | 3. -4. + left, -[+] right5.SI motion testsa. -b. -c. -d. -e. -SI provocationa. -b. –c. -d. -e. -f. -g. -- Palpation of bony landmarks for asymmetry6. -9. -10.a +[+]b. -14. - |
| Fritz et al (2004), USA40 | Prospective cohort studyBased on same cohort as Flynn (2002) | 3rd treatment  | 75/?3rd treatment:71 (95%) | Military medical centersPtt referred for physiotherapy  | NSLBP only Pain or numbness in the lumbar spine +/- legsODQ ≥ 30%Mean duration 41.7 d | Manipulation + simple exercise + advice keep active | D: Success = ≥ 50% reduction in ODQ score | 3. ROM lumbar spine4. Hip rotation5. SI-tests:SI motion symmetry testsa. Standing flexionb. Seated flexionc. Long-sittingd. Prone knee bende. GilletSI provocation testsa. Gaenslenb. Posterior shearc. Compression/distrationd. Patricke. Resisted hip abductionf. Sacral sulcus testg. Sacral thrustPalpation of bony landmarks for asymmetry (6)6. SLR9. Centralization/ perifeheralization with single movement testing10. a. Segmental hypomobilityb. Segmental pain provocation14. Non-organic signs | 3. -4. + left, -[+] right5. SI motion testsa. -b. -c. -d. -e: - SI provocationa. +[+]b. - c. -d. -e. -f. - g. -- Palpation of bony landmarks for asymmetry(+ for pubic tubercle asymmetry in supine)6. -9. -10a +[+]b. -14. - |
| Fritz et al (2007), USA38 | RCT | 2 w6 w | 64/? 2 + 6 w: 49 (77%) | Ptt at 4 outpatient physiotherapy clinics  | LPB + signs of nerve root compression in past 24 hODQ >30%Median duration 47,5 d | 6 w of extension-oriented intervention +/- mechanical traction during the first 2 w | D: ODQ | 3.ROM spine a. Flexionb. Extension6. SLR7. Cross SLR9.a. Centralizationb. Periferalization10. Palpationa. Segmental hypermobilityb. Segmental hypomobility  | 3. -6. -7. - 9.a. + b. – 10. - |
| Fritz et al (2005), USA39 | Prospective cohort from RCT | 4 w | 131/1574 w:125 (95%) | 2 academic medical centers; 6 outpatient practices Most facilities within the Air Force | LBP + ODQ ≥ 30%No clinical signs of nerve root compression Median duration 27 d | Manipulation/stabilization exercise or stabilization exercise alone | D: Modified ODQSuccess: ≥ 50% improvement | 10. Palpationa. PA segmental hypomobilityb. PA segmental hypermobility | 10. a. -b. -  |
| Gaines et al(1999), USA41 | Consecutive case series | FU every 7-10 d until RTW(Range: 2-219 d) | 55/55FU: 100% | Consecutive ptt visiting directly or referred to multispecialty clinic | Acute work-related LBP without radicular signsAcute defined as LBP for the first time in at least 1 year and now present for < 10 w  | Education, medication, modified RTW assignment, 4-6 physiotherapy visits | RTW:Time to return to regular work without restrictionsUHC:Medical resources used (8 different measures) | 14.Non-organic signs (≥ 1 of 8)a. Simulated axial loadingb. Simulated rotationc. General overreaction to examinationd. Superficial tendernesse. Reagional weaknessf. Widespread, nonanatomic paing. Regional sensory deficith. Distracted SLR | 14. +[?] RTW, +[?] UHC 2:8 measures, - UHC 6:8 measuresa. + RTW, ? UHC b. + RTW, ? UHC |
| Ghahreman et al (2011), Australia42 | Prospective study based on RCT | 1 m | 79/? 1 m: 71 (90%) | Consecutive ptt seen by neurosurgeon at hospital6 were inpatients of the hospital and 65 were outpatients  | Lumbar radicular pain caused by CT verifieddisc herniationSLR < 45 degrees65/71 > 6 w duration | Transforaminal injection of steroids | P: VAS Favorable response defined as a reduction of ≥50% in VAS lasting beyond the first m after treatment | 8. Neurological signsa. Sensory deficitb. Abnormality of reflexc. Motor deficit | 8. - |
| Grotle et al(2005), Norway44 | Inception cohort study | 4 w3 m | 123/?4 w, 3 m: 120 (98%) | Ptt consulting primary care for the first time: 43% GPs, 25% Chiropractors, 5% PTs, 27% recruited through advertisement | LBP +/- radiation Duration < 3 w | Treatment as usual in primary care | P: Average pain last week 0-10 on NRSD: RMDQ RTW: Sickness absence Recovery: Recovered if ≤ 4 on RMDQ at both 4 w and 3 m FU | 1.FFD3.ROM spine (sidebending)8.Neurological signs (2 or more)a. Ankle and patella reflexesb. Sensory lossc. Weakness in foot and/or thigh musclesd. SLR | 1.? P, ? D, -[-] recovery 3. ? P, ? D, ? recovery8. + P, + D, +[+] recovery |
| Grotle et al(2007), Norway43 | Inception cohort studyBased on same cohort as Grotle 2005 | 1 y | 123/?1 y: 112 (91%) | Ptt consulting primary care for the first time: 43% GPs, 25% Chiropractors, 5% PTs, 27% recruited through advertisement | LBP +/- radiation Duration < 3 w | Treatment as usual in primary care | P: Average pain last week 0-10 on NRSD: RMDQRTW: Sickness absenceSecondary outsomes:UHC + use of medicationNon-recovery:> 4 on RMDQ | 1. FFD3.ROM spine (FFD sidebending)8.Neurological signs (2 or more)a. Ankle and patella reflexesb. Sensory lossc. Weakness in foot and/or thigh musclesd. SLRe. Radiation into foot | 1. ? P, ? D, ? RTW, ? UHC, -[-] non-recovery3. ? P, ? D, ? RTW, ? UHC, ? non-recovery8: +[-] P, +[-] D, ? RTW, ? UHC, -[-]non-recovery |
| Gurcay et al(2009), Turkey45 | Prospectivestudy | 2 w12w | B: 99/?2+12 w: 91 (92%) | Consecutive ptt at hospital outpatient clinic (tertiary referral and training center)Blue- and white collar workerswith insurance  | Acute LBP < 3wNo neurological deficits | Medication on as-needed basisShort time bed rest | Combination outcome: Recovered if Pain = 0 (VAS 0-10 cm) and disability score < 4 (RMDQ) | 1. FFD6. SLR8. Neurological signs a. Impaired ankle/patella reflexb. Sensory lossc. Muscle weakness11.Paravertebral muscle spasm | 1. +[-]6. -[-]8. ?11. -[-] |
| Hicks et al(2005), USA46 | Prospective cohort study | 8 w | 57/?8 w: 57 (95%) | 3 outpatient PT clinics and 1 outpatient clinic at airforce base | LBP +/- leg painMaximum one neurological signMixed duration (mean 40.6 ± 44.2 d)  | Stabilization program twice weekly for 8 w + daily home exercises  | D: ODQ Success: ≥ 50% improvement Improvement: <50% but > 6 points on ODQFailure: < 6 points on ODQ | 3A. ROM lumbar 3B. Aberrant movementa. Instability catchb. Painful arc of motionc. Thigh climbingd. Reversal of lumbopelvic rhythm5.SI-test (posterior shear test)6. SLR 10. Palpationa. PA lumbar segmental mobility b. Ligamentous laxity on a 9-point scale (higher number indicating more laxity)12. Muscle strenght a. Active sit-up b. Active SLR 13. Muscle endurance a. Modified Biering-Sorensen b. Lateral flexors (side support test)18. Other (prone instability test) | 3A. - 3B. +[+] success, +[+] failure5. - 6. -[+] success, - failure10.a. - success, +[+] failureb. - 12. - 13. - 18.+[+] success, +[+] failure  |
| Hildebrandt et al (1997), Germany47 | Prospective cohort study | 8 w 6 m12 m | ?/?8 w: 90 (?%) 6 m: ?12 m: 82 (91%) | Hospital department81% received full compensation30% had prior back surgery68% showed signs of depression48% reported non-specific bodily painStandard treatment had failed | Chronic back painAt least 3 m off work during past y26% had radicular pain | Rehab. program: Multidisciplinary treatment of functional restoration | P: Pain reduction versus no pain RTW: back-to-work versus not working at discharge GI: Patients rating of success | 1. FFD3. ROM  | 8 w\*:1. ?[-] P, ?[-] RTW, ?[+] GI3. ?[-] P, ?[-] RTW, +[-] GI6+12 m\*: ? |
| Hurri et al(1989), ? 48 | RCT | 12 m | 204/?12 m: 177 (87%) | ? | LBP ≥ 1ySymptoms during month preceding initial exam | Treatment group: Education, exercise 6 times in 3 w + 2 review classes 6 m laterControl group: Handout. Free to use the health care services they were used to | D: ODQGood and poor respondersPoor responders = deterioration or no change in ODQ score | 3. ROM spinea. Flexionb. Lateral flexion10. Palpationa. Number of painful spots in the lumbar areab. Number of painful spots in the shoulder-neck area 12.Muscle strenght a. Dynamic trunk muscle strengthb. Static trunk muscle strengthc. Ability to do squats | 3\*. a. +b. +10\*.a. +b. +12\*.a. +b. +c. + |
| Indahl et al(1998), Norway49 | Prospective cohort One treatment arm from controlled trial, unclear if randomised | 5 y | 245/2455 y: 245 (100%) | All ptt referred to hospital spine clinic | LBP of 4-12 w duration | “Mini Back School” (pt education)  | RTW: Returners = ptt that returned back to workNonreturners = ptt that remained on sick-leave | 1. FFD12. Isokinetic muscle strength  | 1. +[-]12. ? |
| Infante-Rivard et al(1996), Canada50 | Prospective clinical trial | Returners: 4-1127dNon-returners: 293-1228dRetired, went into vocational training or education: 69-880d Lost to FU: 14-892 d | 305/402 (76%)FU: 270 (89%)  | Workers with first compensated episode of LBP referred to one of two rehabilitation centers approved by health insurance | LBPNo sick leave due to LBP for last 5 yDuration unclear | Conventional therapy (assage, heat, exercises, lumbar traction, etc.) Discharge decided by treating physician | RTW: RTW and duration of time off work between beginning of treatment and RTW | 3. ROM a. Flexionb. Limitation in amplitude of movement8.Neurological signs (reflexes, strength and sensibility. Present if any of them were positive) | 3.a. +[+]b. -8. -[-] |
| Jamison et al (1991), USA51 | Prospective cohort study | 2 w | 249/?2 w: 249 | Ptt referred to hospital-based pain centerRandomly selected by order of admissionFailed conservative treatmentNo psychiatric disorders | LBP + radicular symptomsDuration ≥ 3 m, mean 2.7 y  | Lumbar epidural steroid injection | P: VAS | 6.SLR8.Neurological signsa. Sensoryb. Motor | 6. -8. - |
| Karas et al(1997), Canada52 | Observational cohort study | 6 m | 126/1546 m: 126 (82%) | Consecutive ptt referred to Canadian Back Institute rehabilitation clinic Working population | LBP +/- leg pain without signs of neurological impairmentDuration 2 w-2 y | Active exercise regardless of centralization status or Waddell score1-3 h/d for 30 dHome exercises at discharge | RTW: Returned in any capacity. Based on blinded telephone interviews | 14. Non-organic signs (≥3 signs) | 14. +[+] |
| Kool et al (2002), Switzerland53 | Prospective cohort study | 12 m | 99/?12 m: 90 (91%) | Ptt referred from physicians to rehabilitation clinic Off work due to LBP > 6 w within previous 6 m  | CLBP | Rehabilitation (exercise, training, back school)Average stay in rehabilitation center 28 d | RTW: Improvement in actual work activity Non-return: Ptt without improvement and ptt on vocational measuresData obtained from treating physician | 14. Non-organic signs (≥ 3:5 signs) | 14. +[-] |
| Leboeuf-Yde et al(2004), Norway54 | Prospective cohort study | 4th visit3 m12 m | 875/?4th visit: 799 (91%)3 m: 598 (68%) 12 m: 875 (58%) | Consecutive ptt from 115 chiropractors each including about 10 pttNo treatment by a chiropractor during preceding 6 m | Pain T12 -lower gluteal foldsDuration ≥14 dPain ≥ 30 d in total during preceding 12 m | Choice of treatment up to each chiropractor (manipulation,information, massage, traction, exercise,advice) | P: LBP free = maximum ≤ 1 of 10 D: Absence of disability = maximum ODQ score ≤ 15 of 100 Measured at 4th visit, 3 and 12 m | 3.ROM (pain)a. Pain on flexionb. Pain on extensionc. Pain on lateral flexiond. Pain of rotatione. Number of painful movements10. Palpation(pain on palpation) | 3. -10. - |
| Long et al(1995), Canada55 | Prospective comparative cohort | Discharge (1-18 w)9 m(3-18 m)2 y (2-3 y)Pdischarge D: discharge + 2 y RTW: 9 m + 2 y | 223/243 (92%)Discharge: ?9 m: 166 (74%)2 y: 53% Unknown whether the response rate is based on BL or FU | Consecutive ptt atprivately owned interdisciplinary rehabilitation facility All ptt were receiving compensation | CLBP +/- leg symptoms | Work-hardening program (physiotherapy, exercise conditioning, work simulation, education, psychological intervention)Average duration 5 d/w for 11 w | P: NRS 0-100 Minimum, maximum, average pain)D: ODQ: Lifting capacityRTW: Working or not | 9. Centralization/non-centralization | 9.Discharge: + P, - D9m:- D, + RTW 12m:- D, - RTW  |
| Lonnberg (2010), Denmark56 | Prospective cohort study  | 22 y | 78/?22 y: 47 (60%) | Consecutive ptt in GP practice seeking care for the first time because of LBP61% >3 prior episodes | LBP +/- leg painPain from L3 to S1/iliac creast, between lateral borders of quadratus lumborum musclesMixed duration (19% > 4 w) | Usual GP care. | P: Tool not describedD: Limitations to daily livingUHC: Use of provider | 3. ROM spine (pain-related restriction of mobility)6. SLR | 3. -6. - |
| Luoto et al(1998), Finland57 | Prospective cohort study | 6 m | 68/?6 m: 65 (96%) | Consecutive pttat rehabilitation center | Moderate CLBP that caused trouble in work and everyday life | Back rehabilitation program of active functional restoration, 3 w in-patient, 2x3 d pre- and post- course | D: Good outcome = decreased disabilityBad outcome = no change or increased disability | 13. Muscle endurancea. Static back enduranceb. Squatting (repetitions) | 13.a. -b. - |
| McIntosh et al (2000), Canada58 | Prospective cohort study | 1 year | 20071 y: 1752 (87%) | Ambulatory rehabilitation facilitiesClaimants with acute or subacute LBP who received lost-time benefits for a work injury | Acute or subacute LBP  | ≤ 30 d of exercise 1-3 h/d | RTW:Cumulative number of d a claimant received benefits for 1 y from the date of the accident | 6.SLR8. Neurological signs (L4, L5, S1) 14. Nonorganic signs18. Femoral nerve stretch | 6. - 8. + S1, - L4, L5, [-] L4, L5, S114. +[-]18. -  |
| Michaelson et al (2004), Sweden59 | Prospective cohort study | 4 w12 m | 315 Neck pain ptt and LBP ptt4 w: 303 (96%)LBP: 4 w: 167 (?%)12 m: 129 (?%) | Consecutive ptt at inpatient rehabilitation center | LBP > 6 mPain ≥ 25 mm/100mm VAS | Multimodal treatment (physical + cognitive-behavioral) 6 h/d, 5 d/w, 4 w | P: VAS | 13. Muscle endurance (index based on sit-ups, back extensions, hip extensions) | 13: -  |
| Milhous et al (1989)USA60 | Prospective cohort study | 6 m | 87/? | Ptt admitted to an orthopedic back clinicAll unemployed at time of study28 had had surgery | LBPMixed duration | No treatment | RTW: Returned to work or not | 6. SLR8. Neurological signs (leg strength, sensation and reflexes) | 6. -8. - |
| Pedersen (1980), Denmark61 | Prospective observational cohort study | 1 m3 m6 m1 y | 78/83 1 m: 95% 3 m: 95% 6 m: 95% 1 y: 92% Unknown whether response rate based on BL or FU | All ptt consulting GP clinic for the first time due to first episode of LPB within a year. | NSLPBPain from L3 to S1/iliac creast, between lateral borders of quadratus lumborum muscles50% + leg pain, 20% distal to the kneeMixed duration | Usual care | D. Bed restUHC: MedicationCombination outcome:*Complicated* versus *light* course*Complicated* defined as being on sick leave for > 30 d or use of pain medication > 99 d or being bedridden for > 10 d | 6.SLR8.Neurological signsa. Paresisb. Reflexes18. a. Trouble moving (during examination)b. Leg length discrepancy | 6. + D, ? UHC, ? C8. ? 18. a. ? D, + UHC, + C,b. ?  |
| Polatin et al(1989), USA62 | Prospective cohort study | 1 y | 326/?1 y: 246 (75%) | A medical center and a rehabilitation institute | CLBP ptt considered candidates for functional restoration program | Functional restoration program | RTW:*Success group* (125): Completed program and back to work at 1 y*Failure group* (121): Completed program but not back to work*Drop-out group* (40): Dropped out of the program before completing*Failed to enter group* (40): Did not enter after initial evaluation | 3. ROMa. True lumbar flexion and extensionb. True flexionc. True extension4. ROM hipa. Hip flexion15. Functional testsa. PILE lifting (Progressive Isoinertial Lifting Evaluation) | 3.a. - b. +[?] c. - 4. a. +[?]15. a. - |
| Roland (1983), England63 | Prospective cohort study | 1 w 1 m(P, D, RTW)1 y Recurrence | 215/?(215 ptt, 230 episodes)1 m: 181 episodes (79%)1 y: 201 ptt (94%) | GP group practice | LPB +/- leg painNo consultation for LBP in preceding 28 days | Usual GP care (in 94% only prescription of simple analgesics) | P: 6 point scaleRecurrence of painD: 0-24 scaleHigh score= 14/24RTW: Days absent  | 3. ROM spine (pain or limitation)a. Flexionb. Extension.c. Lat. Flexion4. ROM hip (rotation)5. SI-test (pain on straining anterior and posterior SI-ligaments6. SLRa. SLR > 60 degreesb. Back pain on dorsi-flexion of foot at maximum SLR7. Cross SLR8. Neurological signsa. Knee+ankle reflexesb. Muscle strengthc. Abnormal neurological signs | 3. ?4. ?5. ? 6. a. ? P ,+ D, ? RTWb. ? P, + D, + RTW, 7. ? 8.a. ? P, ? D, ? RTWb. ? P, ? D, ? RTWc. ? P, ? D, + RTW, 1 y (recurrence of pain):3., 4., 5., 6., 7. -8a. +  |
| Sandström et al (1986), Sweden64 | Prospective cohort study | 1 y2 y | 52/521 y: 50 (96%)2 y: 100%? | Consecutive ptt referred to department of orthopaedic surgery | CLBP for ≥ 3mSick-listedNo neurological disturbances | Individually adjusted rehabilitation | RTW: 1 y: Working and non-working2 y: Sickness absence from registries | 3. ROM spine6. SLR8. Neurological signsa. Sensationb. Reflexesc. Weakness of leg ml.d. Atrophy of leg ml.e. Babinski´s reflex10. Muscle spasma. Increased tonus of paraspinal muscles18. Other (leg length) | 1 y:3. - 6. -8. - 10. -18. - 2y: ? for all |
| Schiottz-Christensen et al (1999), Denmark65 | Prospective cohort study | 1 m6 m1 y | 524/?1 m: 509 (97%)6+12m:503 (96%) | 75 GPs | LBP < 14 d durationNo episodes in previous 6 m | Usual care | Poor outcome: On sick leave or not able to manage ordinary activityRTW: Number of sick leave days since last questionnaire | 3. ROM spine(restriction yes/no)6. SLR (radiating pain on SLR <60 degrees)8. Neurological signsa. Missing reflexes in the leg (yes/no)b. Muscular paresis in the leg (yes/no)16. Percussion test | Poor outcome 6 and 12 m 3. - 6. -8.a. -b. -16. -RTW 1 m: 6. +[-] 3., 8., 16. ? |
| Seferlis et al (2000), Sweden66 | Prospective cohort study nested in RCT | 12 m | 180/?12 m: D: 123 (68%)RTW: 174 (97%) | Ptt referred from GPs, occupational therapists or emergency department | Acute LBP +/- leg painSick leave for < 2 w EmployedNo treatment within last month | Manual therapy orintensive trainingor usual GP care (= control group)  | D: ODQ (>10)RTW: a. Number of new sick leave periodsb. Chronicity ≥ 25% of d on sick leave during 1 y (from social insurance office) | 3. ROM (sagittal mobility)6. SLR | 3. -6. - |
| Skytte et al(2005), Denmark67 | Prospective cohort study  | 1 m 2 m3 m6 m12 m | 60/601 m: 90%2 m: 88%3 m: 93%6 m: 95%12 m: 92%Unknown whether the response rate is based on BL or FU  | Consecutive ptt referred from primary care to rheumatology department at university hospital for suspected disc herniation | Back pain + leg pain and sciatica Duration < 14 w | Routine structure including advice, exercise and analgesics  | P : LBPRSBack pain and leg pain.D: Perceived disabilityRTW: Days on sick leaveUHC: Surgery, medication | 9.Centralization/non-centralization | 9.1 m: - P, + D, - RTW2 m: + P(leg), - P(back), + D, - RTW3 m: + P, + D, - RTW6 m: - P, - D, - RTW12 m: - P, - D, - RTW+ UHC (surgery)All FU: - UHC(medication)  |
| Sweetman et al (1996), England68 | Prospective study nested in RCT | Short term? | 301/?FU: 301 (?%) | ? | LBP | 4 treatment groups:Shortwave diathermy, traction, exercise and control (sub-thermal diathermy) | GI: Patients subjective opinion of efficacy (EFFS) | 1. FFDa. FFDb. FFD mobile (able to reach floor)3.ROM spinea. Limited sagittal mobilityb. Pain on standing extensionc. Pain on supine extensiond. Pain on flexione. Painfull end point on flexionf. Pain on lateral flexion 4.ROM hip (rotation)6.SLRa. Limited SLRb. Pain on SLR8.Neurological signsa. Hypoaesthesiab. Knee/ankel reflexesc. Weakness in L5 or S1 nerve root distributiond. Pain on femoral stretch10. Palpationa. Spinous process springing painb. Ilio lumbar angle tenderness on pressing18. Other (unequal leg length) | 1. a. +b. +3. a. -b. -c. +d. -e. +f. -4. -6. a. +b. +8. a. +b. +c. +d. -10. a. -b. -18. - |
| Valls et al (2001), France69 | Prospective study | 11-24 mmean FU 18 m | 140/140FU: 134 (96%) | Consecutive ptt admittet to hospital rheumatology department for conservative care  | Disc-related LBP + sciaticaMixed duration>3/6 criteria of Saporta and/or confirmatory imaging  | Complete bedrest, intravenous ketoprofen infusions for six days + if needed epidural bethamethasone injection on alternate days. Relative rest and use of lumbar support for 1 m recommended at discharge | UHC: Radical treatment (nucleolysis or discectomy) if inadequate response to at least 2 m of conservative care. | 2. Schober3. ROM spine6. SLRa. SLR painb. SLR degrees7. Cross SLRa. Cross SLR painb. Cross SLR degrees8. Neurological signsa. Strengthb. Sensationc. Reflexes10.Palpationa. Finger pressure on paraspinal area elicited the radicular pain | 2. -3. +[-]6.a. +[+]b. -7. a. ?b -8. -10. - |
| Van den Hoogen et al (1997), Netherlands70 | Prospective cohort study | 1 y | 443/605 (73%)1 y: 269 (61%) | Consecutive ptt in 11 general practices (15 GPs) | LBP or radiation from the backNonspecific and suspected specific LBPMixed duration | Usual careGP + PT for some  | P: Time to recovery from the index episode of LBP The episode was considered to have lasted until the start of the first 4-w pain-free period.Occurrence of relapse: Pain in 1 or more of the w of the FU period, lasting up till next 4-w pain-free period | 2. Modified Schober6. SLRa. Limited SLR (< 80 degrees)b. Laseque´s sign (radiating pain in leg beyond the knee) | 2. +[-]6.a. -[-]b. -[-] |
| Vendrig et al (1999), Netherlands71 | Prospective study | 6 m | 143/147 (98%) 6 m: 137 (96%) | Consecutive ptt referred to multidisciplinary assessment and intervention center  | LBP ≥ 3 m durationNo structural pathology | 4-week daily multimodal program with aim of restoring normal pattern of daily functioning | RTW:Complete (100%)Incomplete (<100%) | 14.Non-organic signs | 14. - |
| Vroomen et al (2002), Netherlands72 | Prospective study nested in RCT | 2 w3 m | 183/227 (81%)2 w: 181 (99%)3 m: 169 (92%)  | 50 GPs offices First consultation for sciatica  | First time episode of sciatica + signs of nerve root involvementMixed duration (median duration 16 d)No previous surgeryNo worker´s compensation claim | Bedrest or “watchful waiting” | GI: Worsened, unchanged, improved, improved greatlyMajor improvement after 2 w as reported by the ptPoor outcome after 3 m defined as absence of improvement or eventual surgery. | 1.FFD6.SLR8.Neurological signsa. Paresisb. Light touch (hypaesthesia)c. Pain sensation (hypalgesia)d. Reflexes10. Palpation (Valleix points)18.Othera. Reversed SLR (femoral nerve stretch test)b. Kempf sign presentc. Naffziger sign present | 1. + 2 w, - 3 m6. - 2 w, + 3 m 8.a. -b. + 2 w, - 3 mc. -d. -10. -18.a. - 2 w, + 3m b. -c. - |
| Werneke et al (1993), USA73 | Prospective cohort study | 3 m | 183/?3 m: 170 (93%) | 2 orthopedic outpatient clinics Ptt referred from a wide variety of specialtiesAverage 8.7 m disability16 had prior back surgery | CLBPNonworking or partially disabled | Physical reconditioning training and work simulation activities | RTW: Success = RTW or work status improvement | 14. Non-organic signs (behavioral signs scored as number of positive signs out of 8 tests | 14. +  |

\*Discriminant analysis. \*\*Baseline sample size and response rates at each point of follow up: xx/xx/xx refers to included/agreed to participate/number of patients invited to participate. Xx/xx refers to included/invited. Many authors include consecutive patients but fail to report whether any patients refused to participate. Follow up rates are calculated on the basis of included patients as many of the studies fail to report on how many patients were invited to participate. Non-report of source population is dealt with in the quality assessment.

+ = statistical significant association, - = no association, ? = no result of investigated association was reported.

Abbreviations: BL: base line, h: hours, d: days, w: weeks, y: years, ptt: patients, GPs: general practitioners, PTs: physiotherapists, LBP: Low back pain, CLBP: Chronic low back pain, NSLBP: nonspecific low back pain, FU: follow up, P: pain, D: disability, RTW: Return to work, SL: Sick Leave, UHC: use of health care services, GI: Global perceived Improvement, RMDQ: Roland Morris Disability Questionaire, ODQ: Oswestry Disability Questionaire, LBPRS: low back pain rating scale, FFD: finger-floor-distance, ROM: range of motion,, SI: sacroiliac, SLR: straight leg raiser test,