

Advice to rest in bed versus advice to stay active for acute low-back pain and sciatica (2010)

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Overview of the study

Objectives

- To determine the effects of advice to rest in bed or stay active for patients with acute low-back pain or sciatica

Methods

- Evidence current up to 30 May 2009
- Participants: Age between 16 and 80, who had acute LBP or exacerbations of chronic pain lasting less than six weeks
- Intervention: advice to rest in bed/ to stay active
- Outcomes measured: pain, back-specific functional status, overall disability (e.g. length of sick leave, return to work), quality of life, adverse events

Results & Conclusion

- 10 studies (1923 participants) included.

Intervention	Evidence	Quality of evidence
Advice to rest in bed/to stay active	Little or no difference between groups with exercises, advice to rest in bed or stay active for patients with acute low back pain	Low
	Little or no difference between physiotherapy, advice to rest in bed or stay active for patients with sciatica	Low
Advice to stay active	Small benefits in pain relief and functional improvement for patients with acute LBP compared to advice to rest in bed	Moderate

⇒ Advice to stay active is probably slightly more effective than bed rest for people with acute LBP, whereas for patients with sciatica, little or no difference is seen between advice to rest in bed and advice to stay active.

Antidepressants for non-specific low back pain (2008)

Donna M Urquhart, Jan L Hoving, Willem JJ Assendelft, Martin Roland, Maurits W van Tulder



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Overview of the study

Objectives

- To determine whether antidepressants are more effective than placebo for the treatment of non-specific low-back pain.

Methods

- Evidence current up to 11 November 2008
- Participants: Adult subjects with non-specific low-back pain
- Intervention: Any type of antidepressant *
- Outcomes measured
 - Primary outcomes: pain intensity, overall improvement, functional status, return-to-work
 - Secondary outcomes: physiological outcomes generic functional status

* i.e. tricyclic and heterocyclic antidepressants, selective serotonin reuptake inhibitors, mono-amine oxidase inhibitors and 'atypical' antidepressant

Results & Conclusion

- Ten trials included

Intervention	Evidence/ Quality of evidence*
Antidepressants	No clear evidence in reducing depression compared to placebo
	Conflicting evidence in reducing pain intensity compared to placebo

⇒ There is no clear evidence that antidepressants are more effective than placebo in the management of patients with chronic low-back pain

* The GRADE approach was not used to assess quality of evidence.

Arthroplasty versus fusion in single-level cervical degenerative disc disease (2012)

Toon FM Boselie, Paul C Willems, Henk van Mameren, Rob de Bie, Edward C Benzel, Henk van Santbrink



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Overview of the study

Objectives

- To assess the effects of arthroplasty versus fusion for radiculopathy or myelopathy, or both due to single level cervical degenerative disc disease

Methods

- Evidence current up to 25 May 2011
- Participants: Adults (≥ 18 years of age) with symptomatic single level cervical degenerative disc disease
- Intervention: Single level anterior cervical discectomy with fusion vs. Anterior cervical discectomy with the placement of an artificial cervical disc
- Outcomes measured:
 - Primary outcomes: arm and neck pain, neck-related functional status, patient satisfaction, neurological outcomes, global health status
 - Secondary outcomes: radiological signs of fusion, revision surgery, mobility on flexion-extension x-rays, work disability

Results & Conclusion

- 9 studies (2400 participants) included

Intervention	Evidence	Quality of evidence
Arthroplasty	Small but significant difference in effectiveness for alleviation of arm pain at one to two years	Low
	- Small difference in effectiveness for neck-related functional status at one to two years - Small difference in neurological outcomes	Moderate
Arthroplasty, fusion	Statistically significant difference in segmental mobility at the treatment level	High

⇒ There is a tendency for clinical results to be in favour of arthroplasty, but effect size was small and clinically irrelevant for all primary outcomes

⇒ Both treatments can be seen as valid options with respect to results at a maximum of one to two years

Behavioural treatment for chronic low-back pain (2010)

Nicholas Henschke, Raymond WJG Ostelo, Maurits W van Tulder, Johan WS Vlaeyen, Stephen Morley, Willem JJ Assendelft, Chris J. Main



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Overview of the study

Objectives

- To determine the effects of behavioural therapy for chronic low-back pain and the most effective behavioural approach

Methods

- Evidence current up to 1 February 2009
- Participants: Adults (aged 18 to 65 years old) with non specific chronic low-back pain
- Intervention: behavioural treatments (only the interventions that were explicitly stated to follow the behavioural principles)
- Outcomes measured: Overall improvement, back-pain specific functional status, generic functional status, return-to-work, pain intensity, and any types of behavioural outcomes (e.g. Observed pain behaviours, cognitive errors, perceived or observed levels of tension, anxiety, and depression)

Results & Conclusion

- 30 RCTs (3438 participants) included.

Intervention	Evidence	Quality of evidence
Operant therapy	More effective than waiting list for short-term pain relief	Moderate
	Little or no difference exists between operant, cognitive, or combined behavioural therapy for short to intermediate-term pain relief	
Behavioral treatment	<ul style="list-style-type: none"> - More effective than usual care for short-term pain relief - Little or no difference between behavioral treatment and group exercise for pain relief or depressive symptoms over the intermediate to long-term 	

⇒ Moderate quality evidence shows that operant therapy is more effective than waiting list and behavioural therapy is more effective than usual care for pain relief, but no specific type of behavioural therapy is more effective than another

Botulinum toxin injections for low-back pain and sciatica (2011)

Zeeshan Waseem, Chris Boulias, Allan Gordon, Farooq Ismail, Geoffrey Shean, Andrea D Furlan



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Overview of the study

Objectives

- To determine the effects of botulinum toxin injections in adults with low back pain (LBP)

Methods

- Evidence current up to 1 February 2010
- Participants: Adults (age ≥ 18) with non specific LBP and/or sciatica (acute, subacute, or chronic)
- Intervention: All BoNT serotypes injected intramuscularly
- Outcomes measured
 - Primary outcomes: symptoms, disability, overall improvement or proportion of patients recovered, back-specific functional status, well-being
 - Secondary outcomes: physiological outcomes, satisfaction with care, adverse events, outcomes reported for different follow-up periods

Results & Conclusion

- 3 trials (123 participants) included:

Intervention	Evidence	Quality of evidence
BoNT injections	The treatment improved pain and function better than saline injections	Low
	The treatment was significantly effective for pain and function compared to traditional acupuncture or steroid injections	Very low

⇒ There is a lack of evidence to confirm effectiveness of BoNT injections for patients with LBP

Botulinum toxin for subacute/chronic neck pain (2011)

Pierre Langevin, Paul Michael J Peloso, Janet Lowcock, May Nolan, Jeff Weber, Anita Gross, John Roberts, Charles H Goldsmith, Nadine Graham, Stephen J Burnie, Ted Haines



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Overview of the study

Objectives

- To systematically evaluate the literature on the treatment effectiveness of botulinum toxin (BoNT) for neck pain

Methods

- Evidence current up to 20 September 2010
- Participants: Adults with subacute or chronic neck pain*
- Intervention: BoNT intra-muscular injections
- Outcomes measured
 - Primary outcomes: pain relief, disability and function
 - Secondary outcomes: patient satisfaction, global perceived effect, quality of life

*neck pain without radicular findings, including non-specific neck pain of unknown etiology; mechanical neck pain, neck pain associated with myofascial pain syndrome, neck pain with degenerative change, and cervicogenic headache

Results & Conclusion

- 9 trials (530 participants) included:

Intervention	Evidence	Quality of evidence
BoNT type A	Little or no difference in pain between the treatment and saline injections for patients with chronic neck pain	High
	Little or no difference between the treatment and placebo for chronic cervicogenic headache	Very low
BoNT-A combined with physiotherapeutic exercise and analgesics	Little or no difference in pain between the treatment and saline injection with physiotherapeutic exercise and analgesics for patients with chronic neck pain	Very low

⇒ No evidence confirms either a clinically important or a strategically significant benefit of BoNT-A injection for chronic back pain associated with or without cervicogenic headache

Chinese herbal medicine for chronic neck pain due to cervical degenerative disc disease (2010)

Xuejun Cui, Kien Trinh, Yong-Jun Wang



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Overview of the study

Objectives

- To assess the efficacy of Chinese herbal medicines in treating chronic neck pain with radicular signs or symptoms

Methods

- Evidence current up to 1 October 2009
- Participants: Adults (aged 18 to 65 years old) with a duration of symptoms of longer than six months, with a clinical diagnosis of cervical degenerative disc disease or cervical radiculopathy, or myelopathy
- Intervention: Any Chinese herbal medicine/formula, integrative medicinal treatment
- Outcomes measured
 - Primary outcomes: pain, functional status, patient satisfaction
 - Secondary outcomes: neurologic outcomes, adverse events

Results & Conclusion

- Four trials (total 1100 participants) included.

Intervention	Evidence	Quality of evidence
Compound Qishe Tablets	Relieved pain better in the short-term than either placebo or Jingfukang	Low
Huangqi	Relieved pain better than Mobicox or Methycobal	Low
Compound extractum Nucis Vomicae	Relieved pain better than Diclofenac Diethylamine Emugel	Low

⇒ Low quality evidence shows that certain herbal medications reduce pain more than placebo or other medications , but it is not clinically relevant.

Combined chiropractic interventions for low-back pain (2010)

Bruce F Walker, Simon D French, William Grant, Sally Green



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Overview of the study

Objectives

- To determine the effects of combined chiropractic interventions on low-back pain

Methods

- Evidence current up to 31 May 2009
- Participants: Adults (age ≥ 18) with non-specific low-back pain
- Intervention: a combination of therapies*; excluded studies of spinal manipulative therapy only
- Outcomes measured: Pain, disability, back-related function, overall improvement, patient satisfaction, adverse effects

* Therapies such as spinal manipulative therapy or adjustment, massage, thermotherapies, electrotherapies, the use of mechanical devices, exercise programs, nutritional advice, orthotics, lifestyle modification and patient education

Results & Conclusion

- 12 studies (2887 participants) included

Intervention	Evidence	Risk of bias
Combined chiropractic interventions	- The treatment improved short- and medium-term pain compared to other treatments	High
	- Short-term improvement in disability was greater in the treatment group compared to the other therapy group	High

⇒ No evidence supported or refuted that combined chiropractic interventions have a clinically meaningful effect for pain and disability in people with low-back pain

Electrotherapy for neck pain (2013)

Peter Kroeling, Anita Gross, Nadine Graham, Stephen J Burnie, Grace Szeto, Charles H Goldsmith, Ted Haines, Mario Forget



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Overview of the study

Objectives

- To assess the short, intermediate, and long-term effects of electrotherapy on neck pain with and without radiculopathy or cervicogenic headache.

Methods

- Evidence current up to 15 August 2012
- Participants: Adults (aged 18 or older) who suffered from acute, sub-acute, or chronic neck pain*
- Intervention: Electrotherapy
- Outcomes measured
 - Primary outcomes: pain relief, disability, function including work-related outcomes
 - Secondary outcomes: patient satisfaction, global perceived effect and quality of life

*Categorized as non-specific mechanical neck pain including WAD category I, II, and myofascial neck pain, and degenerative changes including osteoarthritis and cervical spondylosis; cervicogenic headache; and neck disorders with radicular findings

Results & Conclusion

- 20 trials (1239 participants) included.

Intervention	Evidence	Quality of evidence
Pulsed electromagnetic field therapy (PEMF), Repetitive magnetic stimulation(rMS), Transcutaneous electrical nerve stimulation (TENS)	More effective than placebo	Very low
Modulated galvanic current, Iontophoresis, Electric muscle stimulation (EMS)	No more effective than placebo	Very low
Permanent magnets (necklace)	No more effective than placebo	Low

⇒ Current evidence for PEMF, rMS, and TENS shows that these modalities might be more effective than placebo, but the estimate of effect is uncertain due to low quality of evidence

Exercises for Adolescent Idiopathic Scoliosis (2012)

Michele Romano, Silvia Minozzi, Josette Bettany-Saltikov, Fabio Zaina, Nachiappan Chockalingam, Tomasz Kotwicki, Axel Maier-Hennes, Stefano Negrini



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Overview of the study

Objectives

- To evaluate the efficacy of scoliosis-specific exercises (SSE) for adolescent idiopathic scoliosis (AIS)

Methods

- Evidence current up to 30 March 2011
- Population: Patients having AIS with at least a 10° Cobb angle, and between the ages of 10 years and the end of bone growth
- Interventions: all types of SSEs excluding sports, active recreational activities and generalized physiotherapy
- Outcomes measured
 - Primary outcomes: progression of scoliosis, cosmetic issues, quality of life, disability, back pain, psychological effects
 - Secondary outcomes: adverse effects

Results & Conclusion

- Two studies (154 participants) included.

Intervention	Evidence	Quality of evidence
Exercises as an adjunctive to other conservative treatments	increase the efficacy of these treatments	Low
SSE structured within an exercise programme	can reduce brace prescription as compared to usual physiotherapy	Very low

⇒ SSEs added to other treatments may be more effective than electrical stimulation, traction and posture training for avoiding curve progression but better quality research is needed to recommend SSE in clinical practice.

Exercises for prevention of recurrences of low-back pain (2010)

Brian KL Choi, Jos H Verbeek, Wilson Wai-San Tam, Johnny Y Jiang



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Overview of the study

Objectives

- To investigate the effectiveness of exercises for preventing new episodes of low-back pain or low-back pain-associated disability

Methods

- Evidence current up to 24 July 2009
- Participants: Adults (aged 18 or older) who currently had, or had ever had at least one prior episode of non-specific low-back pain (LBP)
- Intervention: Exercises*
- Outcomes measured: Recurrences of LBP (defined as an episode of pain, sickness absence or disability resulting from the pain)

* Defined as physical activity that is planned or structured and may be done to improve or maintain one or more components of physical fitness

Results & Conclusion

- 13 studies (1520 participants) included.

Intervention	Evidence	Quality of evidence
Post-treatment exercises	Post-treatment exercises more effective than no intervention for reducing the rate of recurrences at one year	Moderate
	Number of recurrences was significantly reduced at one-half to two years follow-up.	
	The days on sick leave were reduced at one-half to two years follow-up	Low

⇒ There is moderate quality evidence that post-treatment exercise programmes can prevent recurrences of back pain but conflicting evidence was found for exercise treatment in reducing the number of recurrences or the recurrence rate

Exercises for mechanical neck disorders (2012)

Theresa M Kay, Anita Gross, Charles H Goldsmith, Sherrill Rutherford, Sandra Voth, Jan L Hoving, Gert Brønfort, Pasqualina L Santaguida



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Overview of the study

Objectives

- To improve pain, disability, function, patient satisfaction, quality of life and global perceived effect in adults with neck pain

Methods

- Evidence current up to 18 February 2012
- Participants: Adults (≥ 18 years of age) with acute, sub-acute or chronic neck disorders*
- Intervention: Exercise therapy prescribed or performed in the treatment of neck pain**
- Outcomes measured
 - Primary outcomes: pain, measures of function, patient satisfaction, global perceived effect and quality of life
 - Secondary outcomes: adverse events and costs of care

*Mechanical neck disorders (MND) including whiplash associated disorders (WAD) category I and II, myofascial neck pain, osteoarthritis, cervical spondylosis, cervicogenic headache (CGH), neck disorders with radicular findings (NDR)

** Excluded: multidisciplinary/multimodal treatment, exercises requiring manual therapy techniques by a trained individual

Results & Conclusion

- 21 trials (2159 participants) included

Intervention	Evidence	Quality of evidence
Combined cervical, scapulothoracic stretching and strengthening	- Beneficial for neck pain relief immediately post treatment - Improved function short and intermediate term for chronic neck pain	Moderate
Exercise	Beneficial for pain in the short term and for function up to long-term follow up for chronic neck pain	Low
Upper extremity stretching and strengthening, or general exercise program	No benefit for chronic neck pain	Low to moderate

⇒ There is low to moderate quality evidence for the short and intermediate term efficacy of certain types of exercises on chronic neck pain

Individual patient education for low back pain (2008)

Arno J Engers, Petra Jellema, Michel Wensing, Daniëlle AWM van der Windt, Richard Grol, Maurits W van Tulder



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Overview of the study

Objectives

- To determine whether individual patient education is effective in the treatment of non-specific low-back pain and which type is most effective

Methods

- Evidence current up to 17 September 2007
- Participants: Adults (≥ 16 years) suffering from acute, sub-acute or chronic non-specific LBP
- Intervention: Individual patient education
- Outcomes measured: Pain intensity, global measure, back pain specific functional status, return-to-work, generic functional status

Results & Conclusion

- 24 trials included

Intervention	Evidence	Quality of evidence*
Patient education	An individual 2.5 hour oral educational session is more effective on short-term and long-term return-to-work than no intervention	Strong
	Individual education for patients with (sub)acute LBP is as effective as non-educational interventions on long-term pain and global improvement	
	Individual education is less effective for back pain-specific function when compared to more intensive interventions for patients with chronic LBP	

⇒ For patients with acute or subacute LBP, intensive patient education seems to be effective.

⇒ For patients with chronic LBP, the effectiveness of individual education is still unclear.

* The GRADE approach was not used to assess quality of evidence.

Injection therapy for subacute and chronic low-back pain (2008)

J Bart Staal, Rob de Bie, Henrica CW de Vet, Jan Hildebrandt, Patty Nelemans



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Overview of the study

Objectives

- To determine if injection therapy is more effective than placebo or other treatments for patients with subacute or chronic low-back pain

Methods

- Evidence current up to 30 March 2007
- Participants: Adults (18 to 70 years) with LBP symptoms persisting for at least one month
- Intervention: Injection therapy
- Outcomes measured: Pain, a global measure of improvement, back-specific disability, generic health status or well-being , disability for work, patient satisfaction

Results & Conclusion

- 18 trials (1179 participants) included

Intervention	Evidence	Quality of evidence
Epidural injections	No significant difference in effects between epidural corticosteroid injections and placebo injections, and other treatments	Low to High
	No significant difference in effects between epidural injections with local anaesthetics and other treatments	
Facet joint injections	No significant difference in effects between facet joint injections with corticosteroids and placebo injections, and other treatments	Low to High
Local injections	No significant difference in effects between local injections with corticosteroids and placebo injections; between local injections with anaesthetics and placebo injections	Low to High

⇒ There is insufficient evidence to support or refute the use of injection therapy for patients with subacute and chronic LBP

Low level laser therapy for nonspecific low-back pain (2008)

Reza Yousefi-Nooraie, Eva Schonstein, Kazem Heidari, Arash Rashidian, Victoria Pennick, Marjan Akbari-Kamrani, Shirin Irani, Behnam Shakiba, Sara Mortaz Hejri, Ahmad-Reza Jonaidi, Soroush Mortaz-Hedjri



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Overview of the study

Objectives

- To assess the effects of low level laser therapy in patients with non-specific LBP

Methods

- Evidence current up to 14 November 2007
- Participants: Adult (≥ 18 years) with acute, sub-acute or chronic low-back pain
- Intervention: Low level laser therapy (LLLT)
- Outcomes measured
 - Primary outcomes: low back pain, low-back-related disability
 - Secondary outcomes: overall improvement or satisfaction with treatment, QOL, return-to-work, days of absenteeism, days of reduced activities, range of motion, spinal flexibility, muscle strength, adverse effects

Results & Conclusion

- Seven trials (384 participants) included

Intervention	Evidence	Quality of evidence
LLLT	Statistically significant but clinically unimportant pain relief compared to sham for LLLT for sub-acute and chronic LBP at short-term and intermediate term follow up	High
	More effective than sham at reducing disability in short term	Moderate
	No more effective than exercise, with/without sham in the short-term in reducing pain or disability	Moderate
	LLLT plus exercise is not more effective than exercise, with/without sham in the short-term	

⇒ There are insufficient data to draw firm conclusions on the clinical effect of LLLT for low-back pain

Lumbar supports for prevention and treatment of low back pain (2008)

Ingrid van Duijvenbode, Petra Jellema, Mireille van Poppel, Maurits W van Tulder



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Overview of the study

Objectives

- To assess the effects of lumbar supports for prevention and treatment of non-specific low-back pain

Methods

- Evidence current up to 30 December 2006
- Participants: Adult workers (aged 18 to 65 years) with non-specific low-back pain
- Intervention: Any type of lumbar support
- Outcomes measured: Proportion of patients who recovered; had improvement of pain and function; return-to-work, measures of objective physical impairment (e.g. Spinal flexion, improvement in straight leg raise, alteration in muscle power, change in neurological signs), adverse effects

Results & Conclusion

- 15 trials (15,798 participants) included

Intervention	Evidence	Quality of evidence
Lumbar supports	No more effective than no intervention or training in preventing low-back pain	Moderate

⇒ It remains unclear whether lumbar supports are more effective than no or other interventions for treating low-back pain

Manipulation or mobilisation for neck pain (2010)

Anita Gross, Jordan Miller, Jonathan D'Sylva, Stephen J Burnie, Charles H Goldsmith, Nadine Graham, Ted Haines, Gert Brønfort, Jan L Hoving



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Overview of the study

Objectives

- To assess if manipulation or mobilisation improves pain, function/disability, patient satisfaction, quality of life, and global perceived effect in adults with acute/subacute/chronic neck pain with or without cervicogenic headache or radicular findings compared to a control group or to another treatment.

Methods

- Evidence current up to 8 July 2009
- Participants: Adults (> 18 years old) with neck pain or cervicogenic headache, or neck disorders
- Intervention: Manipulation or mobilisation techniques
- Outcomes measured: Pain relief, disability including work related outcomes, patient satisfaction, global perceived effect, QoL

Results & Conclusion

- 51 trials (2992 participants) included

Intervention	Evidence	Quality of evidence
Cervical manipulation	Manipulation and mobilisation produced similar effects on pain, function and patient satisfaction at intermediate-term follow-up for subacute/chronic neck pain	Moderate
	Manipulation alone compared to a control may provide short-term relief for pain and disability in cervicogenic headache	Low
Thoracic manipulation	Thoracic manipulation as an additional therapy may be beneficial for pain reduction and increased function in acute pain; and for immediate pain reduction compared to placebo for chronic neck pain	Low
Mobilisation	A combination of Maitland mobilisation techniques was similar to acupuncture for immediate pain relief and increased function; but as additional treatments, no difference found between mobilisation and acupuncture	Low

⇒ Cervical manipulation and mobilisation may provide immediate or short term change

Manual material handling advice and assistive devices for preventing and treating back pain in workers (2011)

Jos H Verbeek, Kari-Pekka Martimo, Jaro Karppinen, P Paul FM Kuijer, Eira Viikari-Juntura, Esa-Pekka Takala



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Overview of the study

Objectives

- To determine the effectiveness of manual material handling (MMH) advice and training and the provision of assistive devices in preventing and treating back pain

Methods

- Evidence current up to 29 November 2010
- Participants: Working adults (16 to 70 years) who were engaged in jobs with MMH to the extent that their risk for back pain was increased
- Intervention: MMH techniques, and the use of assistive devices to decrease the mechanical load of MMH on the back
- Outcomes measured
 - Primary outcomes: non-specific back pain, time to return-to-work
 - Secondary outcomes: number of days on sick leave due to back pain, recurrences of back pain, intensity of symptoms, functional status, QoL, psychological/psychosocial outcomes

Main Results & Conclusion

- 18 studies (42,391 participants) included

Intervention	Evidence	Quality of evidence
MMH training with or without assistive devices	Level of back pain is similar to those who received no intervention or minor advice (video)	Moderate

⇒ No evidence shows that MMH advice and training are useful in the prevention or treatment of back pain when compared to no intervention or alternative interventions.

Massage for Mechanical Neck Disorders (2012)

**Kinjal C Patel, Anita Gross, Nadine Graham, Charles H Goldsmith,
Jeanette Ezzo, Annie Morien, Paul Michael J Peloso**



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Overview of the study

Objectives

- To assess the effects of massage on pain, function, patient satisfaction, global perceived effect, adverse effects and cost of care in adults with neck pain versus any comparison at immediate post-treatment to long-term follow-up

Methods

- Evidence current up to 4 February 2012
- Participants: Adults suffering from acute, sub-acute, or chronic neck disorders*
- Intervention: Massage (subtle energy manipulation based techniques excluded)
- Outcomes measured
 - Primary outcomes: pain relief, neck-related disability and function
 - Secondary outcomes: patient satisfaction, QoL, global perceived effect, adverse events, cost

*neck pain with/without radiculopathy, including non-specific neck pain of unidentified etiology, whiplash associated disorders, neck pain associated with myofascial pain syndrome, neck pain with degenerative change, and cervicogenic headache

Results & Conclusion

- 15 trials (810 participants) included

Treatment	Evidence	Quality of evidence
Massage	Certain massage techniques (traditional Chinese massage, classical and modified strain/counterstrain technique) may have been more effective than control group in improving function and tenderness	Very low
	More beneficial than education in the short term for pain bothersomeness	Very low
Ischaemic compression and passive stretch	More effective in combination rather than individually for pain reduction	Low

⇒ The effectiveness of massage for neck pain remains uncertain and no recommendations for practice can be made.

Mechanical traction for neck pain with or without radiculopathy (2008)

Nadine Graham, Anita Gross, Charles H Goldsmith, Jennifer Klaber Moffett, Ted Haines, Stephen J Burnie, Paul Michael J Peloso



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Overview of the study

Objectives

- To assess the effects of mechanical traction for neck disorders

Methods

- Evidence current up to 30 March 2008
- Participants: Adult (≥ 18 years) with acute, sub-acute or chronic neck disorders*
- Intervention: Mechanical traction techniques, alone or combined with other therapies
- Outcomes measured: Pain relief, functional or disability measures (including work-related disability), return-to-work, patient satisfaction, global perceived effect, QOL

* Categorized as neck disorders with radicular symptoms including WAD Grade 3; neck disorders with headache; neck disorders including WAD Grades 1 and 2

Results & Conclusion

- Seven RCTs (958 participants) included.

Intervention	Evidence	Quality of evidence
Continuous traction	No statistically significant difference between continuous traction and placebo traction in reducing pain or improving function	Low
Intermittent traction	More effective than exercise, heat and patient education for reducing pain	Low

⇒ There is no evidence that supports or refutes the efficacy or effectiveness of either continuous or intermittent traction for neck pain

Non-steroidal anti-inflammatory drugs for low back pain (2008)

Pepijn DDM Roelofs, Rick A Deyo, Bart W Koes, Rob JPM Scholten, Maurits W van Tulder



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Overview of the study

Objectives

- To assess the effects of NSAIDs and COX-2 inhibitors in the treatment of non-specific low-back pain and to assess which type of NSAID is most effective

Methods

- Evidence current up to 30 June 2007
- Intervention: One or more types of NSAIDs
- Participants: Adults (≥ 18 years) treated for non-specific low-back pain with or without sciatica
- Outcomes measured
 - Primary outcomes: pain intensity, global measure, back pain-specific functional status, return-to-work, side effects
 - Secondary outcomes: physiological outcomes, functional status

Results & Conclusion

- 65 trials (11,237 participants) included.

Intervention	Evidence	Quality of evidence
NSAID	NSAIDs are not more effective for pain relief and global improvement compared to paracetamol for acute LBP	Moderate
	NSAIDs are not more effective than other drugs for acute LBP	Moderate
	Various types of NSAIDs including COX-2 NSAIDs equally effective for acute LBP	High

⇒ Evidence suggests that NSAIDs are effective for short-term symptomatic relief in patients with acute and chronic low-back pain without sciatica, yet no specific type of NSAID is clearly more effective than others.

Opioids compared to placebo or other treatments for chronic low-back pain (2013)

Luis Enrique Chaparro, Andrea D Furlan, Amol Deshpande, Angela Mailis-Gagnon, Steven Atlas, Dennis C Turk



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Overview of the study

Objectives

- To determine the efficacy of opioids in adults with chronic low-back pain (CLBP)

Methods

- Evidence current up to 31 October 2012
- Participants: Adults (≥ 18 years of age) with a duration of low back pain at least 12 weeks
- Intervention: Use of opioids administered alone or in combination with other interventions
- Outcomes measured:
 - Primary outcomes: pain, function, patient satisfaction or QOL improvements, proportion of patients reporting 30% or 50% pain relief
 - Secondary outcomes: work-related disability, treatment-related adverse effects

Results & Conclusion

- 15 trials (5540 participants) included

Intervention	Evidence	Quality of evidence
Tramadol	Better than placebo for pain and function	Low
	Little difference for pain compared to celecoxib	Very low
Transdermal buprenorphine	-Little difference for pain -No difference for function compared to placebo	Low
Strong opioids *	Better than placebo for pain and function	Moderate
Opioids	No difference between opioids and antidepressants for either pain or function	Very low

⇒ There is some evidence for short-term efficacy of opioids to treat CLBP compared to placebo

* Morphine, Hydromorphone, Oxycodone, Oxymorphone, Tapentadol

Patient education for neck pain (2012)

Anita Gross, Mario Forget, Kerry St George, Michelle MH Fraser, Nadine Graham, Lenora Perry, Stephen J Burnie, Charles H Goldsmith, Ted Haines, David Brunarski



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Overview of the study

Objectives

- To assess the short- to long-term effects of therapeutic patient education (TPE) strategies on neck pain

Methods

- Evidence current up to 11 July 2010
- Participants: Adults (> 18 years old) with neck disorders
- Intervention: Therapeutic patient educational techniques
- Outcomes measured:
 - Primary: Pain intensity, function, disability, knowledge transfer, behaviour change
 - Secondary: QoL, global perceived effect, patient satisfaction

Results & Conclusion

- 15 trials (2187 participants) included.

Intervention	Evidence	Quality of evidence
Advice focusing on activation	More beneficial for acute whiplash-related pain when compared with no treatment at intermediate term	Moderate
	Less beneficial for pain reduction and no better in improving function from generic information given out in emergency care for acute whiplash at short or intermediate term	Low
Advice focusing on pain & stress coping skills and workplace ergonomics	-No difference compared to other treatment	Very low
	-Specific exercise training was more effective for chronic neck pain at short-term	Low

⇒ Evidence has not shown effectiveness for educational interventions including advice to activate, advice on stress-coping skills, workplace ergonomics and self-care strategies

Physical conditioning as part of a return to work strategy to reduce sickness absence for workers with back pain (2013)

Frederieke G Schaafsma, Karyn Whelan, Allard J van der Beek,
Ludeke C van der Es-Lambeek, Anneli Ojajärvi, Jos H Verbeek



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Overview of the study

Objectives

- To assess the effectiveness of physical conditioning as part of a return to work strategy in reducing time lost from work and improving work status for workers with back pain.

Methods

- Evidence current up to 20 March 2012
- Participants: Adults (aged 16 or older) with work disability related to back pain who took part in physical conditioning programmes
- Intervention: Physical conditioning programmes*
- Outcomes measured: Work status outcomes including time between intervention and return-to-work, return-to-work status in terms of 'at work' and 'off work', and time on light or modified duties

* Work conditioning or hardening, or functional restoration and exercise programmes including advice about exercises

Results & Conclusion

- 41 articles reporting on 25 trials (4404 participants) included.

Intervention	Evidence	Quality of evidence
Light and intense physical conditioning programmes	Little or no difference in sickness absence duration for acute back pain compared with care as usual (at three to 12 months follow-up)	Low
Physical conditioning as part of integrated care management in addition to usual care	May have reduced sickness absence days for chronic back pain compared to usual care at 12 months follow-up	Low

⇒ The effectiveness of physical conditioning as part of a return to work strategy in reducing sick leave for workers with back pain, compared to usual care or exercise therapy, remains uncertain

Prolotherapy injections for chronic low-back pain (2010)

Simon Dagenais, Michael J Yelland, Chris Del Mar, Mark L Schoene



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Overview of the study

Objectives

- To determine the efficacy of prolotherapy in adults with chronic low-back pain

Methods

- Evidence current up to 29 July 2009
- Participants: Adults (aged 18 years and over) with a history of non-specific low-back pain longer than three months
- Intervention: Prolotherapy
- Outcomes measured: Low-back pain, low-back-related disability, overall improvement or satisfaction with treatment, well-being, return-to work, physical examination, and side effects

Results & Conclusion

- Five trials (total 366 participants) included.

Intervention	Evidence	Quality of evidence
Prolotherapy injections	No more effective than control injection for chronic low-back pain and disability	Low
	Prolotherapy injections, given with spinal manipulation, exercise, and other therapies, are more effective than control injections for chronic low-back pain and disability	Low

⇒ There is conflicting evidence that prolotherapy alone is not an effective treatment for chronic low-back pain but it may improve chronic low-back pain and disability when combined with spinal manipulation, exercise, and other co-interventions.

Rehabilitation after lumbar disc surgery (2014)

Teddy Oosterhuis, Leonardo OP Costa, Christopher G Maher, Henrica CW de Vet, Maurits W van Tulder, Raymond WJG Ostelo



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Overview of the study

Objectives

- To determine whether active rehabilitation after lumbar disc surgery is more effective than no treatment, and to describe which type of active rehabilitation is most effective

Methods

- Evidence current up to 1 May 2013
- Participants: Adults (age between 18 and 65 years old) who had first time lumbar disc surgery because of a lumbar disc prolapse
- Intervention: Active rehabilitation after lumbar surgery including exercise therapy, strength and mobility training, physiotherapy, and multidisciplinary programs
- Outcomes measured
 - Primary outcomes: pain, a global measure of improvement, back pain specific functional status, return to work
 - Secondary outcomes: physical examination, behavioural outcomes, generic functional status

Results & Conclusion

- 22 trials (2503 participants) included

Intervention	Evidence	Quality of evidence
Physiotherapy	led to better function than no treatment or education only	Low
Multidisciplinary rehabilitation	led to faster return-to-work than usual care	
Exercises	More effective than no treatment for pain on short-term	Very low
	More effective for functional status on short-term but no difference on long-term	Low
High intensity exercise programs	More effective than low intensity exercise programs for pain in the short term	Very low
	More effective for functional status in the short term	Low

⇒ No high or moderate quality evidence was identified, therefore no firm conclusions can be drawn regarding the effectiveness of active rehabilitation intervention

Rehabilitation following surgery for lumbar spinal stenosis (2013)

Alison H McGregor, Katrin Probyn, Suzie Cro, Caroline J Doré, A Kim Burton, Federico Balagué, Tamar Pincus, Jeremy Fairbank



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Overview of the study

Objectives

- To determine whether active rehabilitation programmes following primary surgery for lumbar spinal stenosis have an impact on functional outcomes and whether such programmes are superior to 'usual postoperative care'

Methods

- Evidence current up to 1 March 2013
- Participants: Adults (> 18 years old) who had spinal decompression surgery for central or lateral stenosis at single or multiple levels
- Intervention: Active rehabilitation after surgery
- Outcomes measured
 - Primary outcomes: function and QoL
 - Secondary outcomes: pain severity, global improvement/overall health

Results & Conclusion

- Three trials (373 participants) included

Intervention	Evidence	Quality of evidence
Active rehabilitation	More effective than usual care for functional status and for reported low back pain in short term	Moderate
	No more effective than usual care for leg pain in short term	Low
	No additional benefit on general health status compared to usual care in short term	Low
	More effective than usual care for functional status for reported low back pain in long term	Moderate
	No more effective than usual care for general health improvement	Low

⇒ Evidence suggests that active rehabilitation is more effective than usual care in improving both short- and long-term (back-related) functional status. The clinical relevance of these effects is medium to small

Spinal Manipulative Therapy for Acute Low Back Pain (2012)

Sidney M Rubinstein, Caroline B Terwee, Willem JJ Assendelft, Michiel R de Boer, Maurits W van Tulder



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Overview of the study

Objectives

- To examine the effects of SMT for acute low-back pain

Methods

- Evidence current up to 31 March 2011
- Participants: Adults (≥ 18 years of age) with a mean duration of low back pain less than 6 weeks
- Intervention: Spinal manipulation and mobilization of the spine
- Outcomes measured:
 - Primary outcomes: pain, back-pain specific functional status, global improvement or perceived recovery
 - Secondary outcomes: perceived health status or QOL, return-to-work

Results & Conclusion

- 20 RCTs (total 2674 participants) included.

Intervention	Evidence	Quality of evidence
SMT	No difference in effect when compared to inert interventions, sham SMT, or when added to another	Very low to low
	No difference in effect for SMT when compared with other interventions (exercise, back school, physiotherapy)	Very low to moderate
	A significant and moderately clinically relevant short-term effect on <ul style="list-style-type: none"> - Pain relief when compared to inert interventions - Functional status when added to another intervention 	Low

⇒ SMT is no more effective than inert interventions, sham SMT, or when added to another intervention, or other interventions such as exercise or physiotherapy.

Spinal manipulative therapy for chronic low-back pain (2011)

Sidney M Rubinstein, Marienke van Middelkoop, Willem JJ Assendelft, Michiel R de Boer, Maurits W van Tulder



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Overview of the study

Objectives

- To assess the effects of spinal manipulative therapy (SMT) for chronic low-back pain

Methods

- Evidence current up to 8 June 2009
- Participants: Adults (≥ 18 years of age) with low back pain with a mean duration for the current episode longer than 12 weeks
- Intervention: Spinal manipulation and mobilization for chronic low back pain
- Outcomes measured
 - Primary outcomes: pain, functional status, global improvement, perceived recovery
 - Secondary outcomes: health related QOL, return-to-work

Results & Conclusion

- 26 RCTs (total 6070 participants) included.

Intervention	Evidence	Quality of evidence
SMT	A small, statistically significant but not clinically relevant short term effect on pain relief and functional status	High
	A statistically significant short-term effect on pain relief and functional status when added to another intervention	Low to high
	No more effective than inert interventions or sham SMT for short-term pain relief or functional status.	Very low

⇒ No clinically relevant difference between SMT and other interventions for reducing pain and improving function in patients with CLBP

Surgery for cervical radiculopathy or myelopathy (2010)

Ioannis Nikolaidis, Ioannis P Fouyas, Peter AG Sandercock, Patrick F Statham



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Overview of the study

Objectives

- To determine whether: 1) surgical treatment of cervical radiculopathy or myelopathy is associated with improved outcome, compared with conservative management; 2) timing of surgery (immediate or delayed pending persistence/progression of relevant symptoms and signs) has an impact on outcome.

Methods

- Evidence current up to 25 June 2008
- Participants: Patients with a clinical diagnosis of cervical radiculopathy or myelopathy
- Intervention: Any form of surgical decompression in the cervical spine, with/without fusion, designed to alleviate the symptomatic cord or root compression
- Outcomes measured: Surgical morbidity, pain intensity, functional performance of the arms or legs, mood and quality of life

Results & Conclusion

- Two trials (149 participants) included.

Intervention	Evidence	Quality of evidence
Surgical decompression	- Better than physiotherapy or cervical collar immobilization in the short-term for pain, weakness or sensory loss - No significant difference at one year follow-up	Low
	No significant differences between surgery and conservative treatment in three years follow-up	Very low

⇒ There is no reliable evidence on the effects of surgery for cervical spondylotic radiculopathy or myelopathy.

Therapeutic ultrasound for chronic low back pain (2014)

Safoora Ebadi, Nicholas Henschke, Nouredin Nakhostin Ansari, Ehsan Fallah, Maurits W van Tulder



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Overview of the study

Objectives

- To determine the effectiveness of therapeutic ultrasound in the management of chronic non-specific LBP

Methods

- Evidence current up to 1 October 2013
- Participants: Adults with chronic non-specific LBP
- Intervention: Ultrasound therapy
- Outcomes measured:
 - Primary outcomes : symptoms, overall improvement or satisfaction with treatment, back-specific functional status, well-being, and disability
 - Secondary outcomes: lumbar range of motion, muscle strength and endurance

Results & Conclusion

- Seven trials (362 participants) included.

Intervention	Evidence	Quality of evidence
Therapeutic ultrasound	Improves back-specific function compared with placebo in the short term	Moderate
	No better than placebo for short-term pain improvement	Low
Therapeutic ultrasound plus exercise	No better than exercise alone for short-term pain improvement or functional disability	Low

⇒ There is some evidence that therapeutic ultrasound has a small effect on improving low-back function in the short-term, but it is unlikely to be clinically important.

Total Disc Replacement for chronic back pain in the presence of disc degeneration (2012)

Wilco Jacobs, Niels A Van der Gaag, Alexander Tuschel, Marinus de Kleuver, Wilco Peul, AJ Verbout, F Cumhur Oner



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Overview of the study

Objectives

- To assess the effects of total disc replacement for chronic low-back pain in the presence of lumbar disc generation compared with other treatment options in terms of patient-centered improvement, motion preservation and adjacent segment degeneration

Methods

- Evidence current up to 22 December 2012
- Participants: Patients scheduled for surgery for chronic degenerative disc disease
- Intervention: Total disc replacement
- Outcomes measured
 - Primary outcomes: pain and pain medication usage, overall improvement, patient satisfaction, back-specific functional status, quality of life (QoL)
 - Secondary outcomes: motion segment mobility, general complications, general perioperative complications, surgical re-intervention, treatment specific complications

Results & Conclusion

- 40 studies included

Intervention	Evidence	Quality of evidence
Total disc replacement	- Improvement in back pain in the disc replacement group compared to the fusion group - No difference in leg pain between the two groups	Low
	- Improvement in back pain at 24 months in the disc replacement group compared to the fusion group	Low

⇒ Although total disc replacement seems to be slightly effective in treating low-back pain in the short term, no evidence exists for long-term effects of this treatment.

⇒ The differences between disc replacement and conventional fusion surgery were not clinically important with respect to short-term pain relief, disability and QoL.

Traction for low-back pain with or without sciatica (2013)

Inge Wegner, Indah S Widyahening, Maurits W van Tulder, Stefan El Blomberg, Henrica CW de Vet, Gert Brønfort, Lex M Bouter, Geert J van der Heijden



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Overview of the study

Objectives

- To assess the effects of traction compared to placebo, sham traction, reference treatments and no treatment in people with LBP

Methods

- Evidence current up to 24 August 2012
- Participants: Adults (≥ 18 years) treated for LBP; in the acute, subacute or chronic phases, with or without sciatica
- Intervention: Any type of traction
- Outcomes measured: Pain intensity, back-pain-specific functional status, a global measure of improvement, return-to-work

Results & Conclusion

- 32 RCTs (2762 participants) included.

Intervention	Evidence	Quality of evidence
Traction	Little or no difference in effects compared to placebo, for patients with mixed symptom patterns (acute, subacute, chronic LBP with/without sciatica)	Low to Moderate
	Combination of physiotherapy makes little or no difference in effects compared to traction with other treatments	Very low to Moderate
	No effects for patients with acute, subacute or chronic pain with sciatica	Low to Moderate
	Little or no difference in effects compared to sham treatment for patients with chronic LBP without sciatica	Moderate

⇒ Traction (either alone or in combination with other treatments) has little or no effects for patients with LBP

Transcutaneous electrical nerve stimulation (TENS) versus placebo for chronic low-back pain (2008)

Amole Khadilkar, Daniel Oluwafemi Odebiyi, Lucie Brosseau, George A Wells



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Overview of the study

Objectives

- To determine whether TENS is more effective than placebo for the management of chronic LBP

Methods

- Evidence current up to 19 July 2007
- Participants: Adults (≥ 18 years) with chronic LBP
- Intervention: Standard modes of TENS
- Outcomes measured
 - Primary outcomes: pain, back-specific functional status, generic health status, work disability, patient satisfaction, treatment side effects
 - Secondary outcomes: physical examination measures (e.g. range of motion, finger-to-floor distance, degree of straight leg raising etc.)

Results & Conclusion

- Five trials (585 participants) included.

Intervention	Evidence/ Quality of evidence*
TENS	Moderate evidence shows that work status and the use of medical services did not change with treatment
	Conflicting evidence on the effects of TENS in reducing back pain intensity
	Consistent evidence that TENS did not improve back-specific functional status
	Conflicting evidence on the effects of TENS on generic health

⇒ Current evidence does not support the effects of TENS in the routine management of chronic LBP

* The GRADE approach was not used to assess quality of evidence.

Workplace interventions for neck pain in workers (2011)

Randi Wågø Aas, Hanne Tuntland, Kari Anne Holte, Cecilie Røe, Thomas Lund, Staffan Marklund, Anders Moller



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Overview of the study

Objectives

- To determine the effectiveness of work place interventions (WIs) in adult workers with neck pain

Methods

- Evidence current up to 15 July 2009
- Participants: Working age adults (18 to 67 years; at work or absent from work) with neck pain (acute, subacute, or chronic)
- Intervention: workplace interventions aimed at modifying body function, activity performance, participation, environmental and personal factors *
- Outcomes measured
 - Primary outcomes: pain severity or pain prevalence, work absenteeism
 - Secondary outcomes: global improvement, functional status, and well-being/quality of life

* Environmental factors include workstation design, work layout changes, and new equipment; personal factors include life cycle adaptation, lifestyle redesign, and change habits

Results & Conclusion

- 10 RCTs (2745 participants) included

Intervention	Evidence	Quality of evidence
Workplace interventions	No significant effect of WIs compared to no intervention for pain prevalence and severity	Low
	Significant effectiveness of a four-component WI in reducing sick leave in the intermediate-term (but not in the short or long-term)	Moderate

⇒ No evidence supported or refuted the benefits of any specific WI for pain relief