

# 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.

Treatment	Evidence	Quality of evidence
Advice to rest in bed	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 has small benefits in 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.

# Behavioural treatment for chronic low-back pain (2010)

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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.

Treatment	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"> <li>- More effective than usual care for short-term pain relief, but no difference in the intermediate to long-term, or on functional status</li> <li>- Little or no difference between behavioral treatment and group exercise for pain relief or depressive symptoms over the intermediate to long-term</li> <li>- Adding behavioural therapy to inpatient rehabilitation was no more effective than inpatient rehabilitation alone</li> </ul>	

⇒ 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

# Combined chiropractic interventions for low-back pain (2010)

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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  $\geq 18$ ) 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

Treatment	Evidence	Risk of bias
Combined chiropractic interventions	The treatment improved short- and medium-term pain compared to other treatments, but no significant difference in long-term pain	High
	Short-term improvement in disability was greater in the treatment group compared to the other therapy group, but no difference in medium and long-term disability	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

# 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 ( $\geq 16$  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 (7139 participants) 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 Educational interventions that were less intensive were not more effective 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.

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

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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 ( $\geq 18$  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

Treatment	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 (up to 6 months)	Strong
	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	
	LLLT plus exercise is not more effective than exercise, with/without sham in the short-term	Strong

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

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

# 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

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

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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

Treatment	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.

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

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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.

Treatment	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

# 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 (4-6 weeks postsurgery)	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
Supervised exercise programs	No significant differences between supervised and home exercise programs for short-term pain relief or functional status	Very low

⇒ 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 ( $\geq 18$  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"> <li>- Pain relief when compared to inert interventions</li> <li>- Functional status when added to another intervention</li> </ul>	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 ( $\geq 18$  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.

Treatment	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

# 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.

Treatment	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
	Spinal manipulation reduces pain and functional disability better than ultrasound over the short to medium term	
	- No difference compared to electrical stimulation - Phonophoresis results in improved SF-36 scores compared to therapeutic ultrasound	Very 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.

# 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 ( $\geq 18$  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 ( $\geq 18$  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.