REFERENCE SUMMARIES


Rating: 5b


RESULTS: The evidence for caudal epidural steroid injections is strong for short-term relief and moderate for long-term relief, in managing chronic pain of lumbar radiculopathy and postlumbar laminectomy syndrome.

PMID: 17256030

Rating: 1c


PMID: 10598637

Rating: 5c

Aetna Clinical Policy Bulletins, MRI/CT of the Spine, #0236 May 11, 2004

I. Aetna considers MRI/CT of the spine medically necessary when any of the following criteria is met.
II. Aetna considers magnetic resonance spectroscopy experimental and investigational (see CPB 202 - Magnetic Resonance Spectroscopy (MRS)).

Rating: 8b
Aetna Clinical Policy Bulletins, **Nucleoplasty**, #0602 October 08, 2004

**Policy**
Aetna considers the Nucleoplasty procedure for the percutaneous decompression of herniated vertebral discs experimental and investigational because there is inadequate evidence of the safety and effectiveness of this treatment method.

Rating: 8b

Aetna Clinical Policy Bulletins, **Spinal Manipulation Under Anesthesia**, #0204 May 11, 2004

**Policy**
Aetna considers spinal manipulation under anesthesia experimental and investigational. This procedure has not been established as either safe or effective for the treatment of musculoskeletal disorders such as neck and back problems.

Rating: 8b

Aetna Clinical Policy Bulletins, Number: 0113, **Botulinum Toxin**, March 29, 2005

Thus, there is currently insufficient scientific evidence of the effectiveness of botulinum toxin in the treatment of back pain.

Rating: 8b

Aetna Clinical Policy Bulletins. Number: 0093, **Open Air, Low Field Strength, and Standing MRI Units.** March 11, 2005

Aetna considers “standing” MRIs (e.g., Stand-Up MRI) and “sitting” MRIs (Position MRI or pMRI) to be not medically necessary because they have not been demonstrated to provide any advantage over conventional (supine) MRIs.

Rating: 8b
Some evidence suggests that patients with moderate to severe symptoms will benefit more from surgery than from conservative treatment.

Rating: 1c


Rating: 5b


**CONCLUSIONS:** Cold gel therapy provided an effective and safe treatment for sports-related soft tissue injuries.

PMID: 12975186

Rating: 2b


PMID: 16550448

Rating: 8a

As problems on therapeutic modality and protocol remain, there is a further need for improvement in design to constitute acceptable proof and to establish treatment programs that better demonstrate electrical stimulation effects on spinal fusion.

PMID: 12224053
Rating: 1c


CONCLUSION: These results support for the first time the validity of clinical assumptions about disc behavior in functional positions: sitting postures may increase risk of posterior derangement, and prone and supine may be therapeutic for symptoms caused by posterior disc displacement.

PMID: 17572620
Rating: 3c


INTERPRETATION: We should not assume any efficacy for bed rest. Further studies need to be done to establish evidence for the benefit or harm of bed rest as a treatment.

PMID: 10520630
Rating: 1b


PMID: 23499340

The total injury rate was almost the same between two groups; however, the incidences of muscle/tendon injury and low back pain were significantly lower in the stretching group (p < 0.05). Static stretching decreased the incidence of muscle-related injuries but did not prevent bone or joint injuries.

PMID: 12834132

Rating: 3a


PMID: 9710000

Rating: 5b

"Currently, no published peer reviewed literature supports the use of diagnostic ultrasound in the evaluation of patients with back pain or radicular symptoms."


These are the initial guidelines for work hardening.

Rating: 8b

ACR Appropriateness Criteria™ -- Clinical Condition: Uncomplicated Low Back Pain

Appropriateness Criteria Scale: 1 2 3 4 5 6 7 8 9 (1=Least appropriate 9=Most appropriate)

Variant 1: No red flags.

**Radiologic Procedure -- Rating**

Plain lumbar x-rays -- 2
Isotope bone scan -- 2
Computed tomography -- 2
Myelogram -- 2
Myelogram/computed tomography -- 2
Plain magnetic resonance imaging -- 2
Magnetic resonance imaging plus gadolinium -- 2

Variant 2: Trauma, steroids, osteoporosis, over 70.

Plain lumbar x-rays -- 8
Plain magnetic resonance imaging -- 5
Magnetic resonance imaging plus gadolinium -- 4
Isotope bone scan -- 4
Computed tomography -- 4
Myelogram -- 2
Myelogram/computed tomography -- 2

Variant 3: Suspicion of cancer, infection.

Plain magnetic resonance imaging -- 8
Magnetic resonance imaging plus gadolinium -- 7
Plain lumbar x-rays -- 7
Isotope bone scan -- 5
Computed tomography -- 4
Myelogram -- 2
Myelogram/computed tomography -- 2

Variant 4: Radiculopathy.

Plain magnetic resonance imaging -- 8
Myelogram/computed tomography -- 5
Computed tomography -- 5
Magnetic resonance imaging plus gadolinium -- 4
Plain lumbar x-rays -- 4
Isotope bone scan -- 2
Myelogram -- 2

Variant 5: Prior lumbar surgery.

Plain magnetic resonance imaging -- 7
Magnetic resonance imaging plus gadolinium -- 7 (Differentiate disc versus scar)
Computed tomography -- 5 (To study fusion bone)
Isotope bone scan -- 5 (Helps detect and localize painful pseudoarthrosis)
Plain lumbar x-rays -- 5 (Flex/extension may be useful)
Myelogram/computed tomography -- 5
Myelogram -- 2

Variant 6: Cauda equina syndrome.

Plain magnetic resonance imaging -- 8
Magnetic resonance imaging plus gadolinium -- 6
Plain lumbar x-rays -- 5
Computed tomography -- 4
Myelogram/computed tomography -- 4 (May be requested preoperatively)
Myelogram -- 2
Isotope bone scan -- 2

Rating: 6a

############


CONCLUSIONS: Osteopathic manual care and standard medical care had similar clinical results in patients with subacute low back pain. However, the use of medication was greater with standard care.

PMID: 10547405

Comments:
Exclusion of workers’ compensation cases may limit external validity
Sample size acknowledged as possible limitation, but no clear statement of power to detect differences in pain reduction or functional improvement

Rating: 2b, RCT, 172 cases

############


**Radiculopathy** (page 382-383)
“is defined as significant alteration in the function of a nerve root or nerve roots and is usually caused by pressure on one or several nerve roots. The diagnosis requires a dermatomal distribution of pain, numbness, and/or paresthesias in a dermatomal distribution. A root tension sign is usually positive. The diagnosis of herniated disk must be substantiated by an appropriate finding on an imaging study. The presence of findings on an imaging study in and of itself does not make the diagnosis of radiculopathy. There must also be clinical evidence as described above.”

**Electrodiagnostic evidence of acute nerve root pathology** (page 382-383)
“includes the presence of multiple positive sharp waves or fibrillation potentials in muscles innervated by one nerve root. However, the quality of the person performing and interpreting the study is critical. Electromyography should be performed only by a licensed physician qualified by reason of education, training, and experience in these procedures. Electromyography does not
detect all compressive radiculopathies and cannot determine the cause of the nerve root pathology. On the other hand, electromyography can detect noncompressive radiculopathies, which are not identified by imaging studies.

**Instability (page 379)**
The Guides define loss of motion segment integrity as an “anteroposterior motion of one vertebra over another that is greater than 3.5 mm in the cervical spine, greater than 2.5 mm in the thoracic spine, and greater than 4.5 mm in the lumbar spine.”

Rating: 9a

**Radiculopathy, page 382-383:**
Weekly Impairment Evaluation Tip-Radiculopathy
The preferred methodology in the AMA Guides 5th ed. for rating impairment of the spine is the Diagnosis-Related Estimate (DRE). Table 15-3, Criteria for Rating Impairment Due to Lumbar Spine Injury, Table 15-4, Criteria for Rating Impairment Due to Thoracic Spine Injury, and Table 15-6, Criteria for Rating Impairment Due to Cervical Disorders, outline the five applicable categories and impairment ranges based upon historical, physical examination, and other clinical findings. Box 15-1, Definitions of Clinical Findings Used to Place an Individual in a DRE Category, on pages 382-383 contains essential definitions of clinical findings to help assess the proper placement of an examinee in a DRE category. In our experience, after reviewing thousands of reports over the past years, the diagnosis of Radiculopathy presents one of the more challenging concepts when determining the correct DRE placement. The Guides define Radiculopathy as a "significant alteration in the function of a nerve root or nerve roots and is usually caused by pressure on one or several nerve roots". The most important clinical components required to support the diagnosis of a compressive Radiculopathy include:

- Pain, numbness, and/or paresthesias in a dermatomal distribution
- An imaging study documenting correlating concordant nerve root pathology
- Associated clinical findings such as loss of relevant reflexes, muscle weakness and/or atrophy of appropriate muscle groups, loss of sensation in the corresponding dermatome(s)

Electrodiagnostic studies are helpful in supporting the diagnosis of a compressive radiculopathy but are not required, and do not substitute for imaging studies.

Impairment Tip Archives at www.impairment.com/tips
Sincerely, Christopher Brigham, MD, FACOEM, FAADEP, CIME

**Instability, page 379:**
Loss of structural integrity is present if there has been a surgical fusion (or an attempted fusion). It is present if flexion and extension films of the region show instability. Translations which indicate instability: cervical inter-segmental movement of more than 3.5 mm; thoracic inter-segmental movement of more than 2.5 mm; or, lumbar inter-segmental movement of more than 4.5 mm.

On page 379, the Guides define loss of motion segment integrity as an “anteroposterior motion of one vertebra over another that is greater than 3.5 mm in the cervical spine, greater than 2.5 mm in the thoracic spine, and greater than 4.5 mm in the lumbar spine.” Id. As a reference, the Guides cite White AW, Punjabi MM. Clinical Biomechanics of the Spine. 2nd ed. Philadelphia, Pa: JB Lippincott; 1990.

**Excessive motion, page 384:**
AMA Guides Edition 5 chapter 15 table 15-3 which is found on page 384. This would include or define it as evidence on flexion extension radiographs at least four in a half millimeters as translation one vertebra another or angular motion greater than 15 degrees at L1-2, L2-3, L3-4, and greater than twenty degrees to L4-5 and greater than twenty five degrees at L5-S1.


CONCLUSION: The majority of patients reported improvement in symptoms following both spinal fusion and the IDET procedure. The IDET procedure appears to offer sufficiently similar symptom amelioration to spinal fusion without the attendant complications.

PMID: 16886032
Rating: 1c

This study was sponsored by a manufacturer of an IDET catheter.


CONCLUSIONS: Results suggest that ergonomic interventions are effective on return-to-work of workers long term sicklisted due to LBP.

PMID: 15031385
Rating: 4a


CONCLUSION: Workplace intervention is advised for multidisciplinary rehabilitation of subacute LBP. Graded activity or combined intervention is not advised.

After treatment, the extension and lateral flexion range of motion significantly increased in the US group (p = 0.04), but the back movements in the placebo group did not show significant changes (p > 0.05).


CONCLUSIONS: In this pragmatic study, ESIs offered transient benefit in symptoms at 3 weeks in patients with sciatica, but no sustained benefits in terms of pain, function or need for surgery. Sciatica is a chronic condition requiring a multidisciplinary approach. To fully investigate the value of ESIs, they need to be evaluated as part of a multidisciplinary approach.


The results obtained suggested that exercises in water may be one of the most useful modes of exercise for a patient with low-back pain.

1) epidural steroid injections may result in some improvement in radicular lumbosacral pain when assessed between 2 and 6 weeks following the injection, 2) in general, epidural steroid injection for radicular lumbosacral pain does not impact average impairment of function, need for surgery, or provide long-term pain relief beyond 3 months. Their routine use for these indications is not recommended.

PMID: [17339579](https://www.ncbi.nlm.nih.gov/pubmed/17339579)

Rating: 1b


XLIF has a unique set of complications, including neural injuries, psoas weakness, and thigh numbness. Additional studies are required to further evaluate and monitor the short and long-term safety, efficacy, outcomes, and complications of XLIF procedures.

PMID: [22905326](https://www.ncbi.nlm.nih.gov/pubmed/22905326)

Rating: 5b


CONCLUSION: Treatment of nonspecific LBP using the GDS method provides greater improvements in the midterm (6 months) in terms of the pain, functional ability, and quality of life perceived by patients than the conventional treatment based administered in primary care.

PMID: [19564761](https://www.ncbi.nlm.nih.gov/pubmed/19564761)

CONCLUSIONS: Tubular diskectomy resulted in less favorable results for patient self-reported leg pain, back pain, and recovery.

PMID: 19584344

Rating: 2b


CONCLUSIONS: Patient knowledge of imaging findings do not alter outcome and are associated with a lesser sense of well-being.

PMID: 18467522

Rating: 2a


CONCLUSIONS: There is no evidence that spinal manipulative therapy is superior to other standard treatments for patients with acute or chronic low back pain.

PMID: 12779297

Comments from Clinician Reviews ®, Do Alternative Treatments Work for Back Pain?, Posted 08/19/2003:

Spinal manipulation proved superior to other nonconventional therapies but was not found any more effective than traditional back pain management. Back pain may account for 40% of visits
to chiropractors, 20% of visits to massage therapists, and 14% of visits to acupuncturists, research has shown.

Assendelft and colleagues conducted a meta-analysis of 53 published articles, representing 39 studies, which compared spinal manipulation or mobilization with another treatment or control. A total of 5,486 patients were included, with individual study sample sizes varying from 19 to 666 (median, 92). Comparison therapies included sham therapies, conventional general practitioner care (which in most cases involved the prescription of analgesics), physical therapy and exercise, and treatments (eg, traction, bed rest, topical gel) for which there is a lack of evidence of benefits or evidence of harm.

For patients with acute lower back pain, spinal manipulation conferred statistically significant benefits only in comparison with sham therapy (a 10-mm improvement in short-term pain on a 100-mm visual analog scale) and with the group of treatments considered ineffective or even harmful (a 4-mm improvement). Similar results were noted among patients with chronic low back pain.

The authors conclude that "the effectiveness of acupuncture for back pain remains unclear, ... massage is effective for persistent back pain, [and] ... spinal manipulation has small clinical benefits, similar to those of other commonly used therapies, for acute and chronic back pain." Clinicians should consider effectiveness, safety, and patient preferences when offering alternative therapies, they suggest.

Alternative therapies for back pain display modest benefits, but a truly effective treatment has yet to be found.

Rating: 1b


Based on this low methodological quality one of the review groups (Koes et al., 1991) refrained from statistical pooling and concluded that "although some results are promising, so far the efficacy of spinal manipulation has not convincingly demonstrated". The other review team (Shekelle et al., 1992) included statistical pooling in the analysis of the results. Heterogeneity of the study populations and missing data resulted in pooling for acute low-back pain only. This team concluded that "spinal manipulation is of short-term benefit in some patients, particularly those with uncomplicated, acute low-back pain. Data are insufficient concerning the efficacy of spinal manipulation for chronic low-back pain".

Rating: 5b

**CONCLUSIONS:** There is no evidence that spinal manipulative therapy is superior to other standard treatments for patients with acute or chronic low-back pain.

PMID: 14973958

Rating: 1b


**RESULTS:** Drawing principally from systematic reviews and meta-analyses, there is considerable evidence of efficacy for several mind-body therapies in the treatment of coronary artery disease (eg, cardiac rehabilitation), headaches, insomnia, incontinence, chronic low back pain, disease and treatment-related symptoms of cancer, and improving postsurgical outcomes. We found moderate evidence of efficacy for mind-body therapies in the areas of hypertension and arthritis.

PMID: 12665179

Rating: 1c


Discounting the services of the primary treating physician may result only in cost-shifting, not cost-saving.

PMID: 11515249

Rating: 4a

The relative risks and benefits of various surgical and nonsurgical treatments are poorly understood, and the result has been wide variations in the evaluation and treatment of spinal stenosis across geographic regions. Decompressive laminectomy is the standard surgical procedure for patients with spinal stenosis. The addition of fusion with or without instrumentation is considered when spinal stenosis is accompanied by degenerative spondylolisthesis or related to concerns about instability.

PMID: 16462443

Rating: 5b


CONCLUSIONS: Long-term employment and disability outcomes were favorable for most patients with a disc herniation, regardless of initial workers' compensation status. However, individuals initially receiving workers' compensation had worse disability and quality of life outcomes compared to individuals not receiving workers' compensation. Despite these differences, long-term work outcomes were similarly favorable.

PMID: 17173004

Rating: 3a


RESULTS: Combining randomized and observational cohorts, 113 patients with workers' compensation and 811 patients without were followed for 2 years. CONCLUSION: Patients with a lumbar IDH improved substantially with both surgical and nonoperative treatment. However, there was no added benefit associated with surgical treatment for patients with workers' compensation at 2 years while those in the nonworkers' compensation group had significantly greater improvement with surgical treatment.

PMID: 20023603

Rating: 3a

CONCLUSIONS: Improvements were found in both intervention groups, but manual therapy showed significantly greater improvement than exercise therapy in patients with chronic low back pain. The effects were reflected on all outcome measures, both on short and long-term follow-up.

PMID: 12642755
Rating: 2b


This document is the outcome of a multi-disciplinary review of the scientific evidence for the diagnosis, prognosis and treatment of acute musculoskeletal pain.

Rating: 8b


If the spine is unstable following injury, surgical fusion and bracing may be necessary to obtain vertical stability and prevent re-injury of the spinal cord from repeated movement of the unstable bony elements (Geisler 1988).

Rating: 5b


CONCLUSION: We found strong evidence that leisure time sport or exercises, sitting, and prolonged standing/walking are not associated with LBP. Evidence for associations in leisure time activities (e.g., do-it-yourself home repair, gardening), whole-body vibration, nursing tasks,
heavy physical work, and working with ones trunk in a bent and/or twisted position and LBP was conflicting.

PMID: 19365237
Rating: 1b


These results confirm the clinical relevance of manual therapy as an appropriate treatment for CNSLBP.

PMID: 22925609
Rating: 2b


CONCLUSIONS: Percutaneous intradiscal radiofrequency thermocoagulation (90 seconds, 70 C) is not effective in reducing chronic discogenic low back pain.

Rating 2b, RCT, 28 cases


CONCLUSION: Performing sequestrectomy alone may therefore represent an advantageous alternative to standard microdiscectomy.

PMID: 18303458
Rating: 2b

It is concluded that viscoelastic insoles can effectively improve comfort and reduce back, leg, and foot pain in individuals who must stand throughout the day.

PMID: 2965809
Rating: 3c


FINDINGS: Disc degeneration did not differ between occupational drivers and their twin brothers.

PMID: 12423982
Rating: 4b


Research indicates that heredity has a dominant role in disc degeneration.

PMID: 15564917
Rating: 4b


Results of studies on twins suggest that physical loading specific to occupation and sport plays a relatively minor role in disc degeneration.

PMID: 16595435

CONCLUSIONS: Traction applied in the prone position using the VAX-D for 8 weeks was associated with improvements in pain intensity and RMDQ scores at discharge, and at 30 and 180 days after discharge in a sample of patients with activity-limiting LBP. Causal relationships between these outcomes and the intervention should not be made until further study is performed using randomized comparison groups.

PMID: 18226650


CONCLUSION: these results provide evidence that changes in the lumbar discs during bed-rest and selective atrophy of the MF muscle may be important factors in the occurrence of LBP after prolonged bed-rest.

PMID: 20595922

Rating: 3c

Epidural adhesiolysis is a catheterization procedure used to treat chronic back pain by eliminating from the epidural space fibrous tissue that can prevent direct application of drugs to nerves or other tissues. Local anesthetic and steroid are injected into the epidural space. Lysis of adhesions is then carried out by slow and intermittent injections of hypertonic saline. Epidural adhesiolysis may be performed fluoroscopically or endoscopically over 3 days or in 1 day.

These injections are recommended in patients with signs and symptoms of nerve root irritation.

PMID: [3008063](https://www.ncbi.nlm.nih.gov/pubmed/3008063)

Rating: 5b


Rating: 9b


**CONCLUSION:** The Waterbed and foam mattress' did influence back symptoms, function and sleep more positively as apposed to the hard mattress, but the differences were small.

PMID: [18379395](https://www.ncbi.nlm.nih.gov/pubmed/18379395)

Rating: 2b

The predominant reason for dropping out at this stage was related to the waterbed. Several test-persons dropped out due to the fact that they had some prejudice towards this type of mattress. There can be many reasons why a hard mattress is more negative than many people often have believed: If it is hard, the user will be more likely to turn around in the bed during the night, because the pressures on prominating body parts, e.g., hip, shoulder, and so on, are bigger.


**CONCLUSIONS:** The effects of the three methods of thermotherapy differ quantitatively due to their physical attributes.

Rating 5b

__________


Summary of differences in recommendations table since publication of AHCPR Guidelines:

- Column 4 heading changed to “Recommend Against” vs “Not Recommended”
- Patient education -- Now Recommend back school in occ. Settings; Optional in non-occ
- Medication: Muscle relaxants now Optional vs Not Recommended
- Physical methods -- Now Optional: Manipulation for patients who have symptoms >1 month, Self-application of heat or cold to low back, Shoe insoles, & Corset for prevention in occupational setting; Add to Recommended Against: Shoe lifts, & Corset for treatment.
- Activities & Exercise: remove Intensive physical training from Not Recommended
- Surgical – Recommended: Chymopapain, used after ruling out allergic sensitivity, acceptable but less efficacious than discectomy to treat herniated disc; Recommended Against: added Percutaneous discectomy less efficacious than chymopapain, removed chemonucleolysis

PMID: 9855678

Rating: 6a

<table>
<thead>
<tr>
<th>Table 1 -- Categories Of The Findings And Recommendation Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recommendations for:</strong> If the available evidence (amount A, B, C, D) indicated potential benefit and outweighed potential harms</td>
</tr>
<tr>
<td><strong>Options:</strong> If the available evidence (amount A, B, C, D) of potential benefit is weak or equivocal, (some studies for and some against) but potential harms and costs appear small</td>
</tr>
<tr>
<td><strong>Recommendations against:</strong> If the available evidence (amount A, B, C, D) indicated that there was a lack of benefit, or that potential harms and costs outweighed potential benefits</td>
</tr>
<tr>
<td>Table 2 -- Summary of Findings and Recommendation Statements about Evidence with Amount of Evidence to Support the Statement (A, B, C, D)</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td><strong>Recommend</strong></td>
</tr>
<tr>
<td><strong>History and Physical Examination (34 studies)</strong></td>
</tr>
<tr>
<td><strong>Physical Treatment Methods (42 studies)</strong></td>
</tr>
<tr>
<td><strong>Injections (26 studies)</strong></td>
</tr>
<tr>
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</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Recommend</strong></td>
</tr>
<tr>
<td>Facet joint injections (C). Needle acupuncture (D).</td>
</tr>
<tr>
<td><strong>Bed rest (4 studies)</strong></td>
</tr>
<tr>
<td><strong>Activities and Exercise (20 studies)</strong></td>
</tr>
<tr>
<td><strong>Detection of Physiologic Abnormalities (14 studies)</strong></td>
</tr>
<tr>
<td><strong>Radiographs of L-S spine (18 studies)</strong></td>
</tr>
<tr>
<td><strong>Imaging (18 studies)</strong></td>
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<tr>
<td><strong>Surgical</strong></td>
</tr>
</tbody>
</table>
Table 2 -- Summary of Findings and Recommendation Statements about Evidence with Amount of Evidence to Support the Statement (A, B, C, D)

<table>
<thead>
<tr>
<th>Considerations (14 studies)</th>
<th>Recommend</th>
<th>Option</th>
<th>Recommend Against</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYCHOSOCIAL FACTORS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social economic, and psychological factors can alter patient response to symptoms and treatment (D).</td>
<td>Recommend</td>
<td>Option</td>
<td>Recommend Against</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>who have back pain alone, no red flags, and no nerve root compression (D).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Percutaneous discectomy less efficacious than chymopapain (C).</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Surgery for spinal stenosis within the first 3 months of symptoms (D).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Stenosis surgery justified by imaging test rather than patient's functional status (D).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Spinal fusion during the first 3 months of symptoms in the absence of fracture, dislocation, complications of tumor or infection (C).</td>
</tr>
</tbody>
</table>

| Abbreviations: NSAIDs = nonsteroidal anti-inflammatory drugs; TNS = transcutaneous nerve stimulator; CT = computerized tomography; MRI = magnetic resonance imaging; EMG = electromyography. |

Table 3 -- Amount of Available Evidence as Interpreted by the Panel to Support Guideline Statements

<table>
<thead>
<tr>
<th>A</th>
<th>Strong research-based evidence (multiple specific and relevant high-quality scientific studies).</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Moderate research-based evidence (multiple adequate or one specific and relevant high-quality scientific study).</td>
</tr>
</tbody>
</table>
C | Some research-based evidence (at least one adequate scientific study).
---|---
D | Indirect helpful information that did not meet the inclusion trial criteria on evidence tables.


We now know that clinicians can greatly improve the patient's response to back symptoms by admitting our diagnostic limitations, demedicalizing the issue, providing assurance, and encouraging a more reasonable approach to improving comfortable activity tolerance.

Rating: 5a


CONCLUSIONS: Twenty high-quality controlled trials found strong, consistent evidence to guide prevention of BP episodes in working-age adults. Trials found exercise interventions effective and other interventions not effective, including stress management, shoe inserts, back supports, ergonomic/back education, and reduced lifting programs.

PMID: 19185272

Rating: 1a


These results show that foot wedging can produce measurable changes in timing of muscle activity within the low back and pelvis during the gait cycle.

PMID: 14654211

Rating: 5c

##########

Rehabilitation Science Research Group, University of Ulster at Jordanstown, Antrim, Ireland.

There was marginal evidence that ice plus exercise is most effective, after ankle sprain and postsurgery.

PMID: 14754753
Rating: 1c


CONCLUSIONS: These findings suggest that PPS should become a more routine part of the evaluation of chronic pain patients in whom spine surgery is being considered.

PMID: 14588332
Rating: 4b


We do not cover botulinum toxin A (Botox™) injections for:
- Headaches including migraine
- Myofascial pain syndrome
- Chronic low back pain

Rating: 8b

BlueCross BlueShield, Surgery Section - Percutaneous Electrical Nerve Stimulation (PENS), Policy No: 44, 08/03/2004

Percutaneous neuromodulation therapy (PNT) is considered investigational.

Rating: 8b
BlueCross BlueShield. Durable Medical Equipment Section - Functional Neuromuscular Stimulation to Provide Ambulation. Policy No: 56. Revised/Effective Date: 05/04/2004

Functional neuromuscular stimulation to provide ambulation is considered investigational.

Rating: 8b

BlueCross BlueShield. Surgery Section - Decompression of Intervertebral Discs Using Laser (Laser Discectomy) or Radiofrequency Energy (Disc Nucleoplasty™), Policy No: 131, Effective Date: 01/07/2005

Laser discectomy and Disc nucleoplasty™ are considered investigational as techniques of disc decompression and treatment of associated low back pain.

Rating: 8b

BlueCross BlueShield. Surgery Section - Facet Joint Injections. Policy No: 135. Effective Date: 07/06/2004

Rating: 8c

BlueCross BlueShield. Surgery Section - Percutaneous Intradiscal Electrothermal Annuloplasty (IDET) and Percutaneous Intradiscal Radiofrequency Thermocoagulation. Policy No: 118. Effective Date: 02/01/2005

The authors concluded that PIRFT was not better than placebo procedure in reducing pain and disability.

Rating: 8b

Catheter-based techniques for lysis of epidural adhesions, with or without endoscopic guidance, are considered investigational.

Rating: 8b

Conclusion: There are inadequate data regarding paraspinal SEMG to validate the three key attributes of any diagnostic test: its performance compared to a gold standard, how the test is used in the management of the patient, and validation that the changes in patient management result in an overall health benefit.
References

Rating: 8a

########

BlueCross BlueShield, Medicine Section - Vertebral Axial Decompression. Policy No: 45. Effective Date: 06/01/2004

Policy/Criteria: Vertebral axial decompression is considered investigational.

Rating: 8b

########

BlueCross BlueShield, Utilization Management Section - Physical Therapy. Policy No: 6. Effective Date: 03/01/2005

Rating: 8b

########


CONCLUSIONS: The long-term results of IDETA are stable and enduring. It is not universally successful, but 54% of patients can reduce their pain by half, and one in five patients can expect to achieve complete relief of their pain.

Rating: 2c

########

CONCLUSION: The apparent efficacy of lumbar intra-articular steroids [Facet-joint injections] is no greater than that of a sham injection. There is no justification for the continued use of this intervention. Better outcomes can be achieved with deliberate placebo therapy.

PMID: 16083458
Rating: 5b


Results. The equations indicated that cost-effectiveness was critically dependent on the ratio between the cost of treatment and the cost of a diagnostic block. For cervical zygaphysial joint pain, reimbursements discourage best practice, both in Australia and in the United States, by rendering the use of controlled blocks more expensive than no controls.

Rating: 11b


CONCLUSIONS: The findings on magnetic resonance scans were not predictive of the development or duration of low-back pain.

PMID: 11568190
Rating: 3c


[Note: Much of the evidence used in this practice guideline for pain physicians is based on studies published in *Pain Physician*, a journal that was not included in Medline’s list of indexed journals prior to March 6, 2006, at which time it was accepted. Studies in journals not accepted in Medline are not part of the evidence base for ODG Treatment or the ACOEM Guidelines.]

**Objective:** To evaluate the effectiveness of three types of facet joint interventions (facet joint injections, medial branch blocks and facet joint neurotomy) in managing spinal pain. **Results:** For lumbar intraarticular facet joint injections, there was moderate evidence for short-term improvement, and limited evidence for long-term improvement. The evidence was negative for cervical intraarticular facet joint injections. For cervical and lumbar medial branch blocks with local anesthetics and steroids, the evidence was moderate. The evidence for pain relief with radiofrequency neurotomy of medial branch nerves was moderate to strong. **Conclusion:** The evidence for facet joint interventions ranged from negative to strong.

Rating: 1c

Note: The abstract of this article states that there was moderate evidence for short-term improvement and limited evidence for long-term improvement with therapeutic intra-articular injections. This is consistent with the article by Boswell et al. published in 2005 on interventional techniques in general. (Boswell, 2005) In the actual conclusion of the article, it is stated that there is moderate evidence for both short- and long-term.


**CONCLUSION:** With intraarticular facet joint injections, the evidence for short- and long-term pain relief is limited for cervical pain and moderate for lumbar pain. For medial branch blocks, the evidence is moderate for short- and long-term pain relief. For medial branch neurotomy, the evidence is moderate for short- and long-term pain relief.

PMID: 17256032

Rating: 1c


PMID: 17256025

Results: 1c


CONCLUSION: Fluoroscopically guided transforaminal epidural steroid injections may help reduce unilateral radicular pain and improve standing and walking tolerance in patients with degenerative lumbar spinal stenosis.

PMID: 12447088

Rating: 3b


CONCLUSIONS: Given the extremely low level of evidence available for this procedure it was recommended that the procedure be regarded as experimental until results are available from a controlled clinical trial, ideally with random allocation to an intervention and control group.

PMID: 10901572

From the Cochrane Library: The evidence supports the authors' conclusions.

Rating: 1c


CONCLUSIONS: Most common flaws of earlier studies on traction therapy could be overcome. This trial did not support the claim that traction is efficacious for patients with low back pain. Subgroup analyses did not show any group for which traction might seem promising.

In conclusion, no specific effect of traction on standard physical therapy was observed in our study group. We suggest focusing on back education and exercise therapy in the management of patients suffering from this chronic condition.

PMID: [12634941](https://www.ncbi.nlm.nih.gov/pubmed/12634941)

Rating: 2b

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**CONCLUSIONS:** This study shows that treatment with etanercept is efficacious and safe after readministration over 1 yr in patients with active AS not taking DMARDs or steroids.

PMID: [15561737](https://www.ncbi.nlm.nih.gov/pubmed/15561737)

Rating: 2c

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**CONCLUSION:** Acupuncture was more effective in improving pain than no acupuncture treatment in patients with chronic low back pain, whereas there were no significant differences between acupuncture and minimal acupuncture.

PMID: [16505266](https://www.ncbi.nlm.nih.gov/pubmed/16505266)

Rating: 2a

CONCLUSIONS: Our data synthesis suggests that recommendations can be made with some confidence regarding the use of SMT and/or MOB as a viable option for the treatment of both low back pain and NP.

PMID: 15125860
Rating: 1b


Those who received supervised trunk exercise were most satisfied with care, but they did not significantly differ from those receiving chiropractic spinal manipulation or home exercise in terms of pain.

PMID: 21622028
Rating: 2a


CONCLUSION: The results of the meta-analysis present no evidence to support the use or nonuse of TENS alone in the treatment of chronic low back pain. Considering the small number of studies responding to the criteria to be included in this meta-analysis, it is clear that more appropriately designed studies are needed before a final conclusion.

PMID: 11884907

Exercise was associated with significantly lower pain scores over time in the Runners' Association group after adjusting for gender, baseline BMI, and study attrition (p < 0.01). Similar differences were observed for Ever-Runners versus Never-Runners. Consistent exercise patterns over the long term in physically active seniors are associated with about 25% less musculoskeletal pain than reported by more sedentary controls, either by calendar year or by cumulative area-under-the-curve pain over average ages of 62 to 76 years.


Despite little research, Feldenkrais is being used with people of widely ranging ages and abilities in varied settings.

PMID: 11770781

Rating: 5c


RESULTS: The studies were completed by 4730 individuals in the general population and 2556 general practitioners. There were large statistically significant improvements in back pain beliefs over time in Victoria (mean scores on the Back Beliefs Questionnaire, 26.5, 28.4, and 29.7), but not in New South Wales (26.3, 26.2, and 26.3, respectively).

PMID: 11725233

Rating: 4a

**CONCLUSIONS:** A population based strategy of provision of positive messages about back pain improves population and general practitioner beliefs about back pain and seems to influence medical management and reduce disability and workers’ compensation costs related to back pain.

PMID: [11420272](https://www.ncbi.nlm.nih.gov/pubmed/11420272)

Rating: 4a


**CONCLUSIONS:** We found no beneficial effect of vertebroplasty as compared with a sham procedure in patients with painful osteoporotic vertebral fractures, at 1 week or at 1, 3, or 6 months after treatment.

PMID: [19657121](https://www.ncbi.nlm.nih.gov/pubmed/19657121)

Rating: 2a


During a 22-month period, 181 active duty Army soldiers, placed on temporary profiles for injuries that precluded them from their regular weightbearing physical fitness activities, participated in a DWR program.

PMID: [11263030](https://www.ncbi.nlm.nih.gov/pubmed/11263030)

Rating: 5b

Burton AK, Waddell G, Tillotson KM, Summerton N, Information and advice to patients with back pain can have a positive effect. A randomized controlled trial of a novel educational booklet in primary care, *Spine* 1999 Dec 1;24(23):2484-91
CONCLUSION: This trial shows that carefully selected and presented information and advice about back pain can have a positive effect on patients' beliefs and clinical outcomes, and suggests that a study of clinically important effects in individual patients may provide further insights into the management of low back pain.

PMID: 10626311

Rating 2c, 162 cases


Crude cost analysis suggested an overall financial advantage from manipulation. Because osteopathic manipulation produced a 12-month outcome that was equivalent to chemonucleolysis, it can be considered as an option for the treatment of symptomatic lumbar disc herniation, at least in the absence of clear indications for surgery.

PMID: 10905437

Rating: 2b


Conclusions: This review provides evidence that McKenzie therapy results in a decrease in short-term (<3 months) pain and disability for low back pain patients compared with other standard treatments, such as nonsteroidal anti-inflammatory drugs, educational booklet, back massage with back care advice, strength training with therapist supervision, and spinal mobilization.

PMID: 16619104

Rating: 1b

CONCLUSIONS: Epidural steroid injection was not as effective as discectomy with regard to reducing symptoms and disability associated with a large herniation of the lumbar disc. However, epidural steroid injection did have a role: it was found to be effective for up to three years by nearly one-half of the patients who had not had improvement with six or more weeks of noninvasive care.

PMID: 15069129
Rating: 2b


CONCLUSIONS: Spinal steroid injections, both ESI and ISI, are beneficial for a small number of patients with advanced DDD and chronic low back pain. For those patients in whom a beneficial effect is found, spinal steroid injection is a low-risk and rapid treatment option. Spinal steroid injections are more effective in patients with MRI findings of discogenic inflammation, specifically adjacent inflammatory end-plate changes.

PMID: 15363419
Rating: 2b


A clinical prediction rule with four variables (non-involvement of manual work, low level fear-avoidance beliefs, no neurological deficit and age above 30 years) was identified. The presence of all four variables (positive likelihood ratio = 9.36) increased the probability of response rate with mechanical lumbar traction from 19.4 to 69.2%.

PMID: 19255792
Rating: 3b


RESULTS: One hundred ninety-seven patients have participated. CONCLUSION: Lumbar belt wearing is consequent in subacute low back pain to improve significantly the functional status, the pain level, and the pharmacologic consumption.

PMID: [19179915](#)
Rating: 2b


METHODS: The study recruited 50 patients. RESULTS: This study showed changes in back pain and disability with the use of shoe orthotics for 6 weeks compared with a wait-list control group.

PMID: [21621727](#)
Rating: 2c


RESULTS: A preliminary LCMS analysis of commercially-prepared extracts of comfrey roots (*Symphytum officinale* and *S. uplandicum* s. l.) was used as a model to highlight the analytical importance of N-oxides in the safety assessment of pyrrolizidine alkaloid-containing medicinal herbs.

PMID: [18618436](#)
Rating: 5b

CONCLUSIONS. We conclude that injecting methylprednisolone acetate into the facet joints is of little value in the treatment of patients with chronic low back pain.

PMID: 1832209

Rating: 2b


CONCLUSIONS: Although epidural injections of methylprednisolone may afford short-term improvement in leg pain and sensory deficits in patients with sciatica due to a herniated nucleus pulposus, this treatment offers no significant functional benefit, nor does it reduce the need for surgery.

PMID: 9171065

Rating: 2b, RCT, 158 cases

CARF. Definition of Work Hardening/Work Conditioning. Commission on Accreditation of Rehabilitation Facilities (CARF International), 4891 E. Grant Road, Tucson, AZ 85712. 2006.

Definition of Work Conditioning
“a work related, intensive, and goal-oriented treatment program specifically designed to restore an individual’s systemic, neuro-muscular (strength, endurance, flexibility, etc.) and cardiopulmonary function.” The objective of the work conditioning program is to restore the client’s physical capacity and function so the client can “return to work”.

Definition of Work Hardening
“A highly structured, goal oriented, individualized treatment program designed to return the person to work.” Work hardening programs use real or simulated work activities designed to restore physical, behavioral, and vocational function.

Rating: 5b

Work Conditioning should be work simulation and not just therapeutic exercise. Work Hardening adds psychological support.

Original CARF Guidelines

Rating: 6

+++++++


CONCLUSIONS: A high percentage of asymptomatic patients with normal psychometric testing who previously have undergone lumbar discectomy will have significant pain on injection of their discs that had previous surgery (40%).

PMID: 11145818

Rating: 4b

+++++++


CONCLUSIONS: The presence of a high-intensity zone does not reliably indicate the presence of symptomatic internal disc disruption. Although higher in symptomatic patients, the prevalence of a high-intensity zone in asymptomatic individuals with degenerative disc disease (25%) is too high for meaningful clinical use. When injected during discography, the same percentage of asymptomatic and symptomatic discs with a high-intensity zone were shown to be painful.

PMID: 11145809

Rating: 4b

+++++++


CONCLUSION: Discography in a subject group without low back pain but with significant emotional and chronic pain problems may result in reports of significant back pain for at least 1
year after injection. Subjects with normal psychometric test results had no reports of significant long-term back pain after discography.

PMID: 10888949
Rating: 4c


RESULTS: Discs with annular disruption were more likely to be painful on injection, particularly in those individuals with ongoing compensation issues, chronic pain, or abnormal psychological testing.

PMID: 10828919
Rating: 4c


CONCLUSIONS: Painful disc injections are poor independent predictors of subsequent LBP episodes in subjects initially without active lower back complaints. Annular disruption is a weak predictor of future LBP problems. Psychological distress and preexisting chronic pain processes are stronger predictors of LBP outcomes.

PMID: 15131439
Rating: 2b


In the end, the discogram and other diagnostic tests are tools that have clear limitations. In this field, clinical judgment begins and ends with an understanding of a patient's life and circumstances as much as with their specific spinal pathology.
CONCLUSIONS: Positive discography was not highly predictive in identifying bona fide isolated intradiscal lesions primarily causing chronic serious LBP illness in this first study comparing discography results to a gold standard.

CONCLUSION: Findings on MR imaging within 12 weeks of serious LBP inception are highly unlikely to represent any new structural change. Most new changes (loss of disc signal, facet arthrosis, and end plate signal changes) represent progressive age changes not associated with acute events.

CONCLUSION: Modern discography techniques using small gauge needle and limited pressurization resulted in accelerated disc degeneration, disc herniation, loss of disc height and signal and the development of reactive endplate changes compared to match-controls. Careful consideration of risk and benefit should be used in recommending procedures involving disc injection.

**RESULTS:** Subjects with advanced structural findings were not more likely to become symptomatic with minor trauma events.


There is a strong association between treatment with BMP and the incidence of cancer, based data from the AMPLIFY trial. In a few people, if the tumors can be promoted by the BMP, it makes them take off.

Rating: 10a


There is strong epidemiological evidence that physical demands of work (manual materials handling, lifting, bending, twisting, and whole body vibration) can be associated with increased reports of back symptoms, aggravation of symptoms and 'injuries'. Whilst the epidemiological evidence shows that low back symptoms are commonly linked to physical demands of work, that does not necessarily mean that LBP is caused by work.

Rating: 8a

Two chiropractic practice guideline documents, Vertebral Subluxation in Chiropractic Practice (CCP) and Guidelines for Chiropractic Quality Assurance and Practice Parameters (Mercy) were then independently evaluated for validity by 10 appraisers using the identified appraisal tool. The result of the application of this appraisal tool in the assessment of the CCP and Mercy guideline documents was that the former scored notably lower than the latter. On the basis of the results of the guideline appraisals, the CCP document is not recommended, and its guidelines are not considered suitable for application in chiropractic practice. The Mercy guidelines are recommended for application in chiropractic practice, with the proviso that new scientific data should be considered.

PMID: 11313612

Rating: 8b

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**Diagnostic & Care Options for Low Back Pain and Summary of Evidence for Each**

- Established for patients with chronic low back pain of greater than 6 weeks duration
  - Rating: A; Number of separate clinical trials: 29; Number rated as high: 18
- Established for patients with low back pain of 2-6 weeks duration.
  - Rating: A; Number of separate clinical trials: 6; Number rated as high: 3
- Established for patients low back pain of less than 2 weeks duration.
  - Rating: A; Number of separate clinical trials: 23; Number rated as high: 9
- Established for patients with low back pain and radiating leg pain, sciatica or radiculopathy.
  - Rating: AB; Number of separate clinical trials: 6; Number rated as high: 0
- Established for other specific conditions affecting the low back.
  - Rating: C; Number of separate clinical trials: 2; Number rated as high: 0

Rating: 6a

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Medicare Coverage of Home Health Care

In summary, SBP and CBP groups differ on 3 independent parameters: VAS ratings, pain location, and temporal dynamics of spontaneous pain.

PMID: 21497139


CONCLUSION: Regular high-intensity aerobic exercise alleviated pain, disability, and psychological strain in subjects with chronic low back pain but did not improve serum cortisol concentrations.

PMID: 17284546


RESULTS: The VAS(LBP) score was significantly reduced to 63.1% of the prestimulation value after TENS (p<.001).

**CONCLUSIONS:** Pressure reduction through nucleoplasty is highly dependent on the degree of spine degeneration. **Nucleoplasty markedly reduced intradiscal pressure in nondegenerative discs, but had a negligible effect on highly degenerative discs.**

PMID: [12671352](https://www.ncbi.nlm.nih.gov/pubmed/12671352)

Rating: 5c

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**CONCLUSIONS:** For patients with low back pain, the McKenzie method of physical therapy and chiropractic manipulation had similar effects and costs, and patients receiving these treatments had only marginally better outcomes than those receiving the minimal intervention of an educational booklet. Whether the limited benefits of these treatments are worth the additional costs is open to question.

PMID: [9761803](https://www.ncbi.nlm.nih.gov/pubmed/9761803)

Rating: 2a, RCT, 321 cases

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**CONCLUSIONS:** Therapeutic massage was effective for persistent low back pain, apparently providing long-lasting benefits. Traditional Chinese Medical acupuncture was relatively ineffective. Massage might be an effective alternative to conventional medical care for persistent back pain.

PMID: [11322842](https://www.ncbi.nlm.nih.gov/pubmed/11322842)

Rating: 2b, RCT, 262 cases

**********

CONCLUSIONS: Initial studies have found massage to be effective for persistent back pain. Spinal manipulation has small clinical benefits that are equivalent to those of other commonly used therapies. The effectiveness of acupuncture remains unclear. All of these treatments seem to be relatively safe. Preliminary evidence suggests that massage, but not acupuncture or spinal manipulation, may reduce the costs of care after an initial course of therapy.

PMID: 12779300

Rating: 1b


CONCLUSIONS: These findings raise questions about acupuncture's purported mechanisms of action. It remains unclear whether acupuncture or our simulated method of acupuncture provide physiologically important stimulation or represent placebo or nonspecific effects.

PMID: 19433697

Rating: 2a


Patients: 401 persons 20 to 65 years of age with nonspecific chronic low back pain. Intervention: Massage therapy may be effective for treatment of chronic back pain, with benefits lasting at least 6 months.

PMID: 21727288

Rating: 2a

**CONCLUSIONS:** The LMM appears to be a useful assessment tool for gauging the presence of LBP and LBD.

PMID: 14588334

Rating: 4c


During the period from March 1992 to June 1996, we performed percutaneous radiofrequency (RF) facet rhizotomy in 324 patients with low back pain. We concluded that percutaneous RF facet rhizotomy is a safe and effective procedure for low back pain patients, especially for those with mechanical low back pain syndrome.

PMID: 9711719

Rating: 4a


**CONCLUSION:** These results support the positive effects of the postoperative early lumbar extension muscle-strengthening program on pain, return to work, and strength of back muscles in patients after operation of herniated lumbar disc.

PMID: 16239890

Rating: 2b

RESULTS: There was strong evidence to indicate effectiveness of percutaneous epidural adhesiolysis with administration of epidural steroids for short term and long term in chronic, refractory low back pain and radicular pain. There was moderate evidence of effectiveness of addition of hypertonic saline. The evidence of effectiveness of hyaluronidase was negative. There was strong evidence to indicate effectiveness of spinal endoscopic adhesiolysis and epidural steroid administration for short-term improvement, and moderate evidence for long-term improvement in managing chronic, refractory, low back and lower extremity pain.

PMID: 16850047
Rating: 5c


INTERPRETATION: Lumbar imaging for low-back pain without indications of serious underlying conditions does not improve clinical outcomes. Therefore, clinicians should refrain from routine, immediate lumbar imaging in patients with acute or subacute low-back pain and without features suggesting a serious underlying condition.

PMID: 19200918
Rating: 1b

A new meta-analysis of randomized trials finds no benefit to routine lumbar imaging for low back pain without indications of serious underlying conditions. The researchers conclude that clinicians should refrain from routine use of imaging in these patients, although they acknowledge that patient expectations will also have to be managed to accomplish this.

PMID: 21282698
Rating: 6a
Experience with this type of magnet is still limited. The images are not the same quality as with the enclosed magnets which are also higher in field strength. Moreover, the field of view is smaller, so each image covers a smaller area of the body and more pictures are required. A Standing is my last choice because of the lack of experience with it and the problem of motion -- imagine standing perfectly still for 5-10 minutes.

Rating: 5b


RESULTS: A patient who was positive on the rule and received manipulation has a 92% chance of a successful outcome, with an associated number needed to treat for benefit at 4 weeks of 1.9 (CI, 1.4 to 3.5).

PMID: [15611489](http://www.ncbi.nlm.nih.gov/pubmed/15611489)

Rating: 2b


CONCLUSIONS: Therapies with good evidence of moderate efficacy for chronic or subacute low back pain are cognitive-behavioral therapy, exercise, spinal manipulation, and interdisciplinary rehabilitation. For acute low back pain, the only therapy with good evidence of efficacy is superficial heat.

PMID: [17909210](http://www.ncbi.nlm.nih.gov/pubmed/17909210)

Rating: 1a

Chou R, Huffman LH; American Pain Society; American College of Physicians. Medications for acute and chronic low back pain: a review of the evidence for an American...

CONCLUSIONS: Medications with good evidence of short-term effectiveness for low back pain are NSAIDs, acetaminophen, skeletal muscle relaxants (for acute low back pain), and tricyclic antidepressants (for chronic low back pain).

PMID: 17909211

Rating: 1b

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Some of their recommendations include: Invasive diagnostics such as provocative diskography, facet joint block, and sacroiliac joint block tests have not been proven to be accurate for diagnosing various spinal conditions, and their ability to effectively guide therapeutic choices and improve ultimate patient outcomes is uncertain, the authors note in a press statement from APS. Epidural steroid injections are an option for short-term pain relief of persistent radiculopathy, although not for nonspecific low back pain or spinal stenosis, Dr. Chou noted. Other interventional strategies, such as local injections, prolotherapy, botulinum toxin injections, facet joint injection, sacroiliac joint injection, radiofrequency denervation, and intradiskal electrothermal therapy, "are not supported by convincing, consistent evidence of benefit from randomized trials," the statement says. Fair evidence supports the use of spinal cord stimulation in failed back surgery syndrome, those with persistent radiculopathy after surgery, Dr. Chou said. There is consistent evidence that for patients with a herniated disk, discectomy is associated with better short-term outcomes than continued conservative management, although outcomes begin to look similar after 3 to 6 months, he noted. "We think that's a decision to be made with the patients, discussing the likelihood that they are going to improve either way but will improve faster with surgery," Dr. Chou said. Similar evidence supports the use of surgery for spinal stenosis, he noted, although the outcomes look better with surgery out to about 2 years. The efficacy of surgery for nonspecific back pain is less certain; the data are not as impressive as those supporting radiculopathy or spinal stenosis, Dr. Chou said. Some studies have shown no benefit of surgery compared with intensive interdisciplinary rehabilitation, with a significant proportion of patients experiencing suboptimal outcomes, including persistent pain or functional deficits after surgery. On the basis of the evidence, he said, they were unable to give strong recommendations, "but we think there may be some patients for whom surgery, fusion specifically, might be helpful, but it's really important for doctors to discuss the fact that surgery doesn't tend to lead to huge improvements on average," he said. "You're talking about a 10- to 20-point improvement in function on a 100-point scale, so that's pretty small, and a significant proportion of patients still need to take pain medication and don't return to full function."
Rating: 10a


RESULTS: For nonradicular low back pain with common degenerative changes, we found fair evidence that fusion is no better than intensive rehabilitation with a cognitive-behavioral emphasis for improvement in pain or function, but slightly to moderately superior to standard (nonintensive) nonsurgical therapy. Less than half of patients experience optimal outcomes (defined as no more than sporadic pain, slight restriction of function, and occasional analgesics) following fusion. Clinical benefits of instrumented versus noninstrumented fusion are unclear. For radiculopathy with herniated lumbar disc, we found good evidence that standard open discectomy and microdiscectomy are moderately superior to nonsurgical therapy for improvement in pain and function through 2 to 3 months. For symptomatic spinal stenosis with or without degenerative spondylolisthesis, we found good evidence that decompressive surgery is moderately superior to nonsurgical therapy through 1 to 2 years. For both conditions, patients on average experience improvement either with or without surgery, and benefits associated with surgery decrease with long-term follow-up in some trials. Although there is fair evidence that artificial disc replacement is similarly effective compared to fusion for single level degenerative disc disease and that an interspinous spacer device is superior to nonsurgical therapy for 1- or 2-level spinal stenosis with symptoms relieved with forward flexion, insufficient evidence exists to judge long-term benefits or harms.

PMID: 19363455

Rating: 1b


RESULTS: Investigators reviewed 3348 abstracts. A total of 161 randomized trials were deemed relevant to the recommendations in this guideline.

PMID: 19363457

Rating: 1b

RESULTS: For sciatica or prolapsed lumbar disc with radiculopathy, we found good evidence that chemonucleolysis is moderately superior to placebo injection but inferior to surgery, and fair evidence that epidural steroid injection is moderately effective for short-term (but not long-term) symptom relief. We found fair evidence that spinal cord stimulation is moderately effective for failed back surgery syndrome with persistent radiculopathy, though device-related complications are common. We found good or fair evidence that prolotherapy, facet joint injection, intradiscal steroid injection, and percutaneous intradiscal radiofrequency thermocoagulation are not effective.

PMID: 19363456

Rating: 1b

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SYNTHESIS: A total of 20 studies evaluating 10,842 patients were identified. CONCLUSION: The most helpful components for predicting persistent disabling low back pain were maladaptive pain coping behaviors, nonorganic signs, functional impairment, general health status, and presence of psychiatric comorbidities.

PMID: 20371789

Rating: 1b

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Includes many recommendations. Among them: "CIGNA HealthCare covers epidural steroid injections for acute or chronic radicular pain or sciatica when ALL of the following medical necessity criteria are met: Acute pain has persisted for more than two weeks or chronic pain has persisted for more than three months despite appropriate conservative treatment. Injections for treatment are two months or longer apart, as long as at least 50% relief is obtained for six weeks. If neural blockade is applied for different regions, injections are performed at least one week apart. Treatment for each region is not repeated until at least two months have elapsed and are given no more than six times in one year. CIGNA HealthCare does not cover …Intradiscal
Electrothermal™ Therapy (IDET™) because it is considered to be experimental, investigational or unproven.

Rating: 8b

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**Cigna Healthcare** Coverage Position. **Standing Magnetic Resonance Imaging** (MRI) (Vertical or Positional MRI. 9/15/2005

**Coverage Position**
CIGNA HealthCare does not cover standing (i.e., vertical, upright, positional, dynamic) magnetic resonance imaging (MRI) because it is considered experimental, investigational or unproven. Standing MRI is considered experimental, investigational or unproven because of lack of evidence in published, peer-reviewed clinical trials.

Rating: 8b

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Six trials were found to be eligible, all comparing McKenzie therapy to a comparison treatment. The data from five lumbar trials were pooled at short term (less than three months) and from three at intermediate (3-12 months) follow-up. At short term follow-up the McKenzie therapy provided a mean 8.6 point greater pain reduction on a 0 to 100 point scale (95% CI 3.5 to 13.7) and a 5.4 point greater reduction in disability on a 0 to 100 point scale (95% CI 2.4 to 8.4) than comparison. At intermediate follow-up, relative risk of work absence was 0.81 (0.46 to 1.44) favouring McKenzie, however the comparison treatments provided a 1.2 point greater disability reduction (95% CI -2.0 to 4.5). In the one cervical trial, McKenzie therapy provided similar benefits to an exercise program. The results of this review show that for low back pain patients McKenzie therapy does result in a greater decrease in pain and disability in the short term than other standard therapies.

PMID: 15574109

Rating: 1c

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CONCLUSIONS: The evidence suggests that traction is probably not effective. Neither continuous nor intermittent traction by itself was more effective in improving pain, disability or work absence than placebo, sham or other treatments for patients with a mixed duration of LBP, with or without sciatica. Although trials studying patients with sciatica had methodological limitations and inconsistent results, there was moderate evidence that autotraction was more effective than mechanical traction for global improvement in this population.

PMID: 16235311

Rating: 1a


CONCLUSION: Based on the current evidence, intermittent or continuous traction as a single treatment for LBP cannot be recommended for mixed groups of patients with LBP with and without sciatica.

PMID: 16778694

Rating: 1a


The evidence is moderate for continuous or intermittent traction compared to placebo, sham or no treatment, and limited for light versus normal force traction.

PMID: 17443521

Rating: 1a

Continuous or intermittent traction = home based.


Rating: 9b
For chronic pain, the standard of care for all transforaminal epidural and selective nerve root injections requires that these procedures be performed under fluoroscopic or CT-guided imaging. **Frequency and Number of Injections or Interventions:**

The number of injections in the diagnostic phase should be limited to no more than two times. In the therapeutic phase (after the diagnostic phase is completed), the frequency of interventional techniques should be two months or longer between each injection, provided that at least >50% relief is obtained for six to eight weeks.

Rating: 8a

CONCLUSIONS: We conclude that with use of the present selection criteria, nucleoplasty is not an effective long-term treatment for lumbar radiculopathy, either alone or with IDET.

PMID: 15699797

Rating: 3c

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The most accepted method for diagnosing pain arising from the lumbar facet joints is with low-volume intraarticular or medial branch blocks, both of which are associated with high false-positive rates. Standard treatment modalities for lumbar zygapophyseal joint pain include intraarticular steroid injections and radiofrequency denervation of the medial branches innervating the joints, but the evidence supporting both of these is conflicting.

PMID: 17325518

Rating: 5a

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CONCLUSIONS: It is counterproductive to use 'facet loading' as the sole basis for choosing patients for facet interventions.

PMID: 17277644

Rating: 4b

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CONCLUSIONS: Using current reimbursement scales, these findings suggest that proceeding to radiofrequency denervation without a diagnostic block is the most cost-effective treatment paradigm.

PMID: 20613471
Rating: 2b


Magnetic resonance imaging does not improve outcomes in patients who are clinical candidates for ESI and has only a minor effect on decision making.

PMID: 22157067
Rating: 2b


The group that received epidural steroids had greater reductions in the primary outcome measure than those who received saline or etanercept.

PMID: 22508732
Rating: 2a


This study concluded, “No statistically significant differences were noted in the effect between real and sham magnets with any of the other outcome measures.”

PMID: 10714732
Rating: 2c, RCT, 20 cases

Colorado Division of Workers' Compensation, Medical Treatment Guidelines, Rule XVII, Low Back Pain, 12/1/01

Rating: 7a


This study was an uncontrolled case series of 83 patients with low back pain. While pain improved at 5-week follow-up, the lack of a control group precludes scientific assessment. These preliminary reports do not offer data on outcomes in pain management.

Rating: 10c


CONCLUSION: More than one third of patients with recent onset, non-radicular chronic low back pain recover within 12 months.

PMID: 19808766

Rating: 3b


PMID: 23246998

Rating: 1b

Long-term follow-up, averaging twenty months, failed to demonstrate the efficacy of a second injection of epidural steroids administered to the patients whose pain did not respond within twenty-four hours.

PMID: [3155742](https://www.ncbi.nlm.nih.gov/pubmed/3155742)

Rating: 2b

There is a lack of support for 2nd epidural steroid injection if the 1st is not effective.


CONCLUSIONS: Periradicular infiltration is a simple, safe, and effective nonsurgical procedure that should be performed quite early in the course of the illness to provide radicular pain relief, because corticosteroid infiltration is less beneficial for patients with more chronic radicular pain.

PMID: [16687527](https://www.ncbi.nlm.nih.gov/pubmed/16687527)

Rating: 3a


Rating: 6b

CONCLUSION: Prolotherapy describes a variety of treatment approaches rather than a specific protocol. Results from clinical studies published to date indicate that it may be effective at reducing spinal pain. Great variation was found in the injection and treatment protocols used in these studies that preclude definite conclusions.

PMID: 15863087
Rating: 5b


PMID: 18164462
Rating: 5b

In this article, medicine-assisted manipulation (MAM) was reviewed. MAM refers to the use of spinal manipulation after any type of pain control has been given. The pain control may be from pills or injections. When injections are used, this treatment is called manipulation under anesthesia (MUA). MAM is used with patients who have loss of motion and who have not responded to other conservative methods of treatment. It is advised that four to eight weeks of spinal manipulative therapy should be tried first before MAM. Patients who have had a failed back surgery or who have nerve entrapment or muscle contracture are also good candidates for this treatment. There is not enough evidence to support or deny the value of MAM. Many of the studies done are of poor quality or too small to rely upon.


PMID: 18164468
Rating: 1c

This systematic review concluded that despite its use for over 50 years, there is no evidence of efficacy for prolotherapy injections alone for chronic low back pain.

CONCLUSIONS: When used alone, prolotherapy is not an effective treatment for chronic low-back pain. When combined with spinal manipulation, exercise, and other co-interventions, prolotherapy may improve chronic low-back pain and disability.

PMID: 17443537
Rating: 1b


CONCLUSIONS: Results from most studies suggest that 5 to 10 sessions of SMT administered over 2 to 4 weeks achieve equivalent or superior improvement in pain and function when compared with other commonly used interventions.

PMID: 20869008
Rating: 1b


CONCLUSIONS: Moderate quality evidence shows that patients with acute LBP may experience small benefits in pain relief and functional improvement from advice to stay active compared to advice to rest in bed; patients with sciatica experience little or no difference between the two approaches.

PMID: 20556780
Rating: 1b


Thirty-one patients had 41 vertebral body fractures secondary to spinal metastasis or multiple myeloma. We concluded that kyphoplasty is a safe and effective procedure for treating painful
Vertebral body fractures caused by metastasis and multiple myeloma. It can restore VBH and correct the kyphosis angle.

PMID: 19963388
Rating: 4b


CONCLUSION: The system seems to give an effective spinal decompression and deserves a careful consideration when lumbar discal disease is treated conservatively.

PMID: 15830985
Rating: 4b


CONCLUSIONS: A large-scale, randomized, controlled trial of an educational program to prevent work-associated low back injury found no long-term benefits associated with training.

PMID: 9233870
Rating: 2a


SUMMARY: Only limited evidence is available to warrant the routine use of non-surgical spinal decompression, particularly when many other well investigated, less expensive alternatives are available.

PMID: 17511872
Rating: 5b

RESULTS: Overall, 398 patients completed all forms at 12 months. CONCLUSION: Our results confirm the hypothesis that application of appropriateness criteria can significantly improve patient outcomes.

PMID: [20139809](https://www.ncbi.nlm.nih.gov/pubmed/20139809)

Rating: 3a


RESULTS: No significant differences were found between the groups for any of the measures at any time. However, there were significant differences within both groups compared with pre-treatment values. For the caudal group, significant improvements were found for descriptive pain at 6 months. When analysed individually, both techniques benefited patients.

PMID: [15695544](https://www.ncbi.nlm.nih.gov/pubmed/15695544)

Rating: 2b


CONCLUSION: At 1-year post-IDET, half of patients were dissatisfied with their outcome. The percentage of patients on disability remained constant. The estimated proportion of patients undergoing fusion was predicted to be 15% at 1 year and 30% at 2 years.

PMID: [15087797](https://www.ncbi.nlm.nih.gov/pubmed/15087797)

Rating: 3b

**CONCLUSIONS:** However, considering its high cost and the small differences compared with control treatments, its use should be reserved only for patients with pain refractory to other invasive treatments.

PMID: [20921836](https://doi.org/10.1097/ANE.0b013e3181e666f7)  
Rating: 2b


**CONCLUSIONS:** Results of this study suggest that compensated back surgery patients are at greater risk for poor lumbar discectomy outcomes than noncompensation patients.

PMID: [18440278](https://doi.org/10.1097/BRS.0b013e31817bac65)  
Rating: 3b


**CONCLUSIONS:** Presurgical biopsychosocial variables are important predictors of compensated lumbar discectomy costs. Medical cost control programs might benefit from identifying biopsychosocial variables related to increased costs.

PMID: [21514244](https://doi.org/10.1097/BRS.0b013e3181f6f9be)  
Rating: 3b

RESULTS: There were no statistically significant differences in patient characteristics between the placebo and treatment groups at baseline or for any measure at follow-up. CONCLUSIONS: Three, weekly sclerosant injections alone may not be effective treatment in many patients with undifferentiated chronic back pain. Patient selection and combination with other treatment modalities may be factors in determining treatment success.

PMID: 10587555

Rating: 2b, RCT, 74 cases


This case shows that VAX-D therapy has the potential to cause sudden deterioration requiring urgent surgical intervention.

PMID: 14661685

Rating: 5c


CONCLUSIONS: Because of heterogeneity and overall poor quality, no firm conclusions about the diagnostic performance of the different tests can be drawn.

PMID: 16648755

Rating: 1c


CONCLUSIONS: ESI is a reasonable treatment for LSS, providing one third of our patient population with sustained relief and more than half with sustained improvement in function.

PMID: 15031837

**CONCLUSIONS:** The evidence for TFESIs reveals level III (moderate) evidence in support of these minimally invasive and safe procedures in treating painful lumbar radicular symptoms.

PMID: [16003684](https://www.ncbi.nlm.nih.gov/pubmed/16003684)

Rating: 3b


**CONCLUSIONS:** Pressure-controlled manometric discography using strict criteria may distinguish asymptomatic discs among morphologically abnormal discs with Grade 3 annular tears in patients with suspected chronic discogenic LBP.

PMID: [15996608](https://www.ncbi.nlm.nih.gov/pubmed/15996608)

Rating: 3b


**CONCLUSIONS:** Lumbar discs in asymptomatic volunteers can be made painful, but as a rule, the pain is mild and requires high pressures of injection. If attention is paid to pressure of injection and intensity of response, operational criteria can be defined that provide lumbar discography with a potential false-positive rate of zero or less than 10%.

PMID: [15972084](https://www.ncbi.nlm.nih.gov/pubmed/15972084)

Rating: 3c

CONCLUSIONS: Patients with highly (chemically) sensitive discs appear to achieve significantly better long-term outcomes with interbody/combined fusion than with intertransverse fusion. Patients without disc surgery have the least favorable outcome. Precise prospective categorization of positive discographic diagnoses may predict outcomes from treatment, surgical or otherwise, thereby greatly facilitating therapeutic decision-making.

PMID: 10065521
Rating: 4b


PMID: 18164457
Rating: 5a


CONCLUSIONS: Intensive spinal manipulation is effective for the treatment of chronic low back pain. This experiment suggests that maintenance spinal manipulations after intensive manipulative care may be beneficial to patients to maintain subjective postintensive treatment disability levels.

PMID: 15510094
Rating: 2c

CONCLUSION: The data suggest that the HIG-scan is not useful in detecting inflammatory spinal lesions in ankylosing spondylitis.

PMID: 10895377
Rating: 2c


CONCLUSION: Microdiscectomy for symptomatic lumbar disc herniations in young, active patients with a preponderance of leg pain who have failed nonoperative treatment demonstrated a high success rate based on validated outcome measures, patient satisfaction, and return to active duty. Patients with disc herniations at the L5-S1 level had significantly better outcomes than did those at the L4-L5 level. Patients with sequestered or extruded lumbar disc herniations had significantly better outcomes than did those contained herniations. Patients with contained disc herniations, a predominance of back pain, on restricted duty and smoking should be counseled before surgery of the potential for less satisfaction, poorer outcomes scores, and decreased return to duty rates.

PMID: 18165746
Rating: 3b


The 95 percent confidence intervals for group differences excluded a major clinical benefit of TENS for most outcomes. Two months after the active intervention, however, most patients had discontinued the exercises, and the initial improvements were gone. We conclude that for patients with chronic low back pain, treatment with TENS is no more effective than treatment with a placebo, and TENS adds no apparent benefit to that of exercise alone.

PMID: 2140432
Rating: 2c

Recent studies document a 629% increase in Medicare expenditures for epidural steroid injections; a 423% increase in expenditures for opioids for back pain; a 307% increase in the number of lumbar magnetic resonance images among Medicare beneficiaries; and a 220% increase in spinal fusion surgery rates. The limited studies available suggest that these increases have not been accompanied by population-level improvements in patient outcomes or disability rates.

PMID: [19124635](https://pubmed.ncbi.nlm.nih.gov/19124635/)

Rating: 5b


There were 26,014 eligible patients. Of these, 61% received a course of opioids, and 19% were long-term users. Prescription of opioids was common among patients with back pain. The prevalence of psychologic distress, unhealthy lifestyles, and health care utilization increased incrementally with duration of use.

PMID: [22086815](https://pubmed.ncbi.nlm.nih.gov/22086815/)

Rating: 3a


The study concluded, “Botulinum toxin, which has already been shown to alleviate pain associated with cervical dystonia and other conditions characterized by muscle spasticity, is now being studied for the treatment of back pain. Preliminary evaluations have shown that this treatment is safe and has the advantage of providing local relief directly to the site of injury or pain, without causing systemic side effects. Initial data from small trials also suggest that botulinum toxin is effective, alleviating back pain in selected patients. On the basis of these promising results, additional study in larger trials is warranted.”

PMID: [12569963](https://pubmed.ncbi.nlm.nih.gov/12569963/)

### 724.2 Lumbago

<table>
<thead>
<tr>
<th>Age Group</th>
<th>18-24</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>65-74</th>
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<tbody>
<tr>
<td>Adjustment Factor</td>
<td>0.66</td>
<td>0.74</td>
<td>1.07</td>
<td>1.10</td>
<td>1.35</td>
<td>1.64</td>
</tr>
<tr>
<td>At-Risk Days</td>
<td>52</td>
<td>58</td>
<td>85</td>
<td>87</td>
<td>107</td>
<td>130</td>
</tr>
</tbody>
</table>


CONCLUSIONS: In our study no correlation was found between intraoperative EMG findings and immediate postoperative pain.

PMID: 15352664


CONCLUSION: The McKenzie assessment process reliably differentiated discogenic from nondiscogenic pain (P < 0.001) as well as competent from an incompetent anulus (P < 0.042) in symptomatic discs and was superior to magnetic resonance imaging in distinguishing painful from nonpainful discs.

PMID: 9160470

PMID: [15389176](https://www.ncbi.nlm.nih.gov/pubmed/15389176)

Rating: 4c, 63 cases


CONCLUSIONS: Lumbar medial branch neurotomy is an effective means of reducing pain in patients carefully selected on the basis of controlled diagnostic blocks.

PMID: [10806505](https://www.ncbi.nlm.nih.gov/pubmed/10806505)

Rating: 4c, 15 cases

Comment: 460 people were interviewed by phone. After the interview, 138 remained eligible. Exclusion criteria included radicular pain, spinal stenosis, or a score > 20 on the BDI. After exam, 41 patients remained eligible.


1. The primary role of facet joint injections is diagnostic. Medial branch injections and intra-articular injections have equal diagnostic specificity.
2. Facet joint injections should be reserved for patients who have failed conservative therapy.
3. The therapeutic benefit of facet joint injections remains controversial. There is no role for a “series of injections” and no role for therapeutic injections if prolonged response (approximately 3 months) does not occur.
4. Fluoroscopic guidance is required.
5. Radiographic findings do not determine the need for injections.
6. There are no known pathognomonic findings for pain secondary to facet joints. Localizing signs may be helpful.
7. If response if found with a first block, a second block may be indicated. If reproducible pain relief is found after a set of blocks (two), the patient may be a candidate for medial branch neurotomy.

PMID: 14589218
Rating: 5a


CONCLUSION: Both groups showed long-term improvements in pain and disability scores, with only minor statistically significant differences between the 2 groups. The minor outcome difference in favor of the group-based multidisciplinary rehabilitation program is hardly of clinical interest for individual patients.

PMID: 20147878
Rating: 2b


CONCLUSION: It is concluded that a water-based exercises produced better improvement in disability and quality of life of the patients with CLBP than land-based exercise.

PMID: 19525833
Rating: 2b

Recommended first-line treatments include certain antidepressants (i.e., tricyclic antidepressants and dual reuptake inhibitors of both serotonin and norepinephrine), calcium channel alpha2-delta ligands (i.e., gabapentin and pregabalin), and topical lidocaine.

PMID: 17920770
Rating: 1b

Rating: 9b


CONCLUSION: Surface EMG may be helpful for physical therapists in selecting exercises when progressing patients with LBP from low-intensity exercises to those that require more muscle activity.

PMID: 19195137
Rating: 2c


PMID: 23484826
Rating: 2b

CONCLUSIONS: Few studies were performed to assess the outcome return to work after ergonomic intervention. However, there is evidence that intervention in the subacute phase of back pain is preferable.

PMID: 10963418
Rating: 1b


PMID: 23529302
Rating: 4a


CONCLUSION: This finding demonstrates that therapeutic climbing is equivalent and partly superior to standard exercise therapy for patients with chronic low back pain.

PMID: 21192296
Rating: 2b


MAIN RESULTS: Of the 24 studies included in this review, 14 (58%) were of high quality. Results showed that for patients with subacute LBP, there is strong evidence that an individual 2.5 hour oral educational session is more effective on short-term and long-term return-to-work than no intervention. Furthermore, there is strong evidence that individual education for patients with (sub)acute LBP is as effective as non-educational interventions on long-term pain and global improvement and that for chronic patients, individual education is less effective for back pain-specific function when compared to more intensive interventions.

PMID: 18254037

\textbf{CONCLUSION:} Percutaneous intradiscal radiofrequency thermocoagulation has been suggested and performed to relieve discogenic pain. In the previous controlled study, no effective pain relief has been obtained. In this study, the authors increased the duration of radiofrequency thermocoagulation to improve the effectiveness of this method. Yet, the authors have not found any significant differences between the application of lesioning at two different times in percutaneous intradiscal radiofrequency thermocoagulation.

PMID: 12973135

Rating: 2b


Using vertebroplasty to treat multiple myeloma (MML) patients with nonosteoporotic vertebral compression fractures (VCF) reduces pain and disability, according to results from the largest study to date to look at this issue in this patient population, with almost 800 patients. When asked during a later press conference if he thought a randomized controlled trial could be done comparing vertebroplasty with a sham procedure in these patients, Dr. Erdem replied: "I don't believe that would be ethical with cancer patients, because they have a short life expectancy to start with and you cannot expect them to live a short life with pain." "Unfortunately, the recent news reports on the dangers of [vertebroplasty] has needlessly frightened millions of cancer sufferers who could have had vertebral augmentation to alleviate their pain," said session comoderator J. Kevin McGraw, MD.

Rating: 10a

CONCLUSION: As compared with no therapy, physiotherapy following first-time disc herniation operation is effective in the short-term. Because of the limited benefits of physiotherapy relative to "sham" therapy, it is open to question whether this treatment acts primarily physiologically in patients following first-time lumbar disc surgery, but psychological factors may contribute substantially to the benefits observed.

PMID: 17762803
Rating: 2b


RESULTS: Sixteen papers were included relating to the following conditions: back pain (n=3), neck pain (n=2), lower back pain and neck pain (n=1), headache (n=3), non-spinal pain (n=1), primary and secondary dysmenorrhea (n=1), infantile colic (n=1), asthma (n=1), allergy (n=1), cervicogenic dizziness (n=1), and any medical problem (n=1). The conclusions of these reviews were largely negative, except for back pain where spinal manipulation was considered superior to sham manipulation but not better than conventional treatments.

PMID: 16574972
Rating: 1b

Note: Findings are consistent with recommendation in ODG, “Medical evidence shows good outcomes from the use of manipulation in acute low back pain without radiculopathy (but also not necessarily any better than outcomes from other recommended treatments).”


CONCLUSIONS: A multimodal program is not superior to a general exercise program in influencing the process leading to chronic LBP in a population of nurses with a history of pain.

PMID: 19769912
Rating: 2b
Faas A, Exercises: which ones are worth trying, for which patients, and when?, *Spine* 1996 Dec 15;21(24):2874-8; discussion 2878-9

CONCLUSIONS: In acute back pain, exercise therapy is ineffective, whereas in subacute back pain, exercises with a graded activity program, and in chronic back pain, intensive exercising, deserve attention. More research on McKenzie therapy, on exercises with a graded activity program, and on different types of exercising in patients with chronic back pain is necessary.

PMID: 9112711

Rating: 1c


CONCLUSIONS: Both groups reported reductions in disability during two years of follow-up, possibly unrelated to the interventions. The statistical difference between treatment groups in one of the two primary outcome measures was marginal and only just reached the predefined minimal clinical difference, and the potential risk and additional cost of surgery also need to be considered. No clear evidence emerged that primary spinal fusion surgery was any more beneficial than intensive rehabilitation.

PMID: 15911537

The rehabilitation program included stretching, spinal flexibility exercises, spinal stabilization exercises, aerobic exercise, and hydrotherapy. It also involved cognitive behavior therapy, which focused on identifying and overcoming fears and unwanted beliefs associated with low back pain. Complications occurred in 11 percent of patients treated with surgery; there were no complications in the rehabilitation group. A study of the cost-effectiveness of spinal fusion compared with rehabilitation showed spinal surgery to cost $92,000 (U.S. dollars) per quality-adjusted life year, which is more expensive than interventions generally judged to be cost-effective.

Rating: 2a


The enforcement action was based in part on 50 reports of adverse events, including 23 deaths, associated with intravenous colchicine use, according to an alert sent yesterday by MedWatch, the FDA's safety information and adverse event reporting program. Colchicine is a highly toxic drug with a narrow therapeutic index; effects can include neutropenia, thrombocytopenia, pancytopenia, acute renal failure, and congestive heart failure. Injectable colchicine products are also formulated by compounding pharmacies for the treatment of back pain — an unapproved indication that has gained popularity within the alternative medicine community.

Rating: 6b


CONCLUSIONS: Spinal manipulative therapy, exercise, usual physiotherapy, and medical care appear to produce similar outcomes in the first 4 weeks of treatment.

PMID: 14673408

Rating: 1c


These findings confirm and precisely localize focal nerve compressions, thus avoiding some exploratory surgery and allowing for smaller targeted exposures when surgery is indicated.

**CONCLUSIONS:** Although an IV bolus of glucocorticoids provides a short-term improvement in leg pain in patients with acute discogenic sciatica, its effects are transient and have small magnitude.


The InterQual Indicators for Surgery and Procedures (ISP) were used to compare surgeon practice patterns with standardized indications for surgery. Other than preoperative HRQOL scores, the only other variable that inversely influenced HRQOL was the duration of time between symptom onset and surgery.


A clinical prediction rule with five variables (symptom duration, fear-avoidance beliefs, lumbar hypomobility, hip internal rotation range of motion, and no symptoms distal to the knee) was identified. The presence of four of five of these variables (positive likelihood ratio = 24.38) increased the probability of success with manipulation from 45% to 95%.

PMID: 12486357
Rating: 3b


CONCLUSION: Paravertebral administration of botulinum toxin A in patients with chronic low back pain relieved pain and improved function at 3 and 8 weeks after treatment.

PMID: 11376175
Rating: 2b, RCT, 31 cases


A combined multiple regression model of individual, psychosocial, and workplace risk factors demonstrated that severe leg pain (odds ratio [OR], 1.9), obesity (OR, 1.7), all three Oswestry Disability Index categories above minimal disability (OR, 3.1-4), a General Health Questionnaire score of at least 6 (OR, 1.9), unavailability of light duties on return to work (OR, 1.7), and a job requirement of lifting for three fourths of the day or more all were significant, independent determinants of chronicity (P < 0.05).

PMID: 11805644
Rating: 3b

IDET is not a substitute for spinal fusion in the treatment of chronic discogenic low back pain in active-duty soldiers. Our reasonable early results diminished with time and up to 20% of patients report worsening of baseline symptoms at final follow-up. IDET will prove its role in the treatment of chronic discogenic low back pain as more outcome data are obtained, but for now we consider it, at best, an antecedent rather than alternative to spinal fusion.

PMID: 14609696
Rating: 4b


This study demonstrates no significant benefit from IDET over placebo.

PMID: 16261111
Rating: 2a


The evidence for efficacy of IDET remains weak and has not passed the standard of scientific proof.

PMID: 16868786
Rating: 1b


There is moderate evidence in a small number of trials that heat wrap therapy provides a small short-term reduction in pain and disability in a population with a mix of acute and sub-acute low-back pain, and that the addition of exercise further reduces pain and improves function. The evidence for the application of cold treatment to low-back pain is even more limited, with only three poor quality studies located.

Although not recommended for low back pain, the efficacy of systemic corticosteroids has never been evaluated in a general low back pain population. Patients with non-traumatic low back pain were included if their straight leg raise test was negative. Corticosteroids do not seem to benefit patients with acute non-radicular low back pain.

Fritz JM, Wainner RS, Hicks GE. The use of nonorganic signs and symptoms as a screening tool for return-to-work in patients with acute low back pain, Spine 2000 Aug 1;25(15):1925-31

Because the nonorganic tests are purported to serve as screening tests, cut-off values were selected that minimized false-negative results. Even with optimal cut-off values, none of the nonorganic tests served as effective screening tools. Other screening tools may prove more effective for the early identification of patients at increased risk for delay in returning to work after an episode of acute low back pain.

Fritz JM, Childs JD, Flynn TW. Pragmatic application of a clinical prediction rule in primary care to identify patients with low back pain with a good prognosis following a brief spinal manipulation intervention. BMC Fam Pract. 2005 Jul 14;6(1):29.

The results of this study demonstrate that two factors; symptom duration of less than 16 days, and no symptoms extending distal to the knee, were associated with a good outcome with spinal manipulation.
Table 4

<table>
<thead>
<tr>
<th></th>
<th>Likely responder*</th>
<th>Likely non-responder*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both criteria present</td>
<td>32</td>
<td>7</td>
</tr>
<tr>
<td>Both criteria not present</td>
<td>16</td>
<td>86</td>
</tr>
</tbody>
</table>

Sensitivity = 0.67 (95% CI: 0.53, 0.78)  
Specificity = 0.93 (95% CI: 0.85, 0.96)

Positive Likelihood Ratio = 8.9 (95% CI: 4.2, 18.6)  
Negative Likelihood Ratio = 0.36 (95% CI: 0.24, 0.54)

* The reference standard was the categorization of the subject based on the original five criteria prediction rule.

Overall successful: 48/141, 34%, Both criteria present: 32/39, 82%, Both criteria absent: 16/102, 16%

Table 6

<table>
<thead>
<tr>
<th></th>
<th>Success*</th>
<th>Non-success*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both criteria present</td>
<td>35</td>
<td>6</td>
</tr>
<tr>
<td>Both criteria not present</td>
<td>28</td>
<td>72</td>
</tr>
</tbody>
</table>

Sensitivity = 0.56 (95% CI: 0.43, 0.67)  
Specificity = 0.92 (95% CI: 0.84, 0.96)

Positive Likelihood Ratio = 7.2 (95% CI: 3.2, 16.1)

*The reference standard was ≥50% reduction in Oswestry disability score.

Overall successful: 63/141, 45%; Both criteria present: 35/41, 85%; Both criteria absent: 28/100, 28%


Six variables were identified as being related to inability to improve with manipulation: longer symptom duration, having symptoms in the buttock or leg, absence of lumbar hypomobility, less hip rotation range of motion, less discrepancy in left-to-right hip medial rotation range of motion, and a negative Gaenslen sign.

PMID: 14744207

Rating: 3b

The work subscale of the Fear-Avoidance Beliefs Questionnaire was the strongest predictor of work status (negative likelihood ratio of 0.08 for scores less than 30, positive likelihood ratio of 3.33 for scores greater than 34).

PMID: 12350212
Rating: 4c


Screening for fear-avoidance beliefs may be useful for identifying patients at risk of prolonged disability and work absence.

PMID: 11576740
Rating: 3b


For patients with acute, work-related low back pain, the use of a classification-based approach resulted in improved disability and return to work status after 4 weeks, as compared with therapy based on clinical practice guidelines.

PMID: 12838091
Rating: 2b

<table>
<thead>
<tr>
<th>Table 1. Treatment Classifications Used for the Classification-Based Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Mobilization</th>
<th>Sacroiliac pattern</th>
<th>Lumbar pattern</th>
<th>Specific exercise</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unilateral symptoms without signs of nerve root compression, positive findings for sacroiliac region dysfunction (pelvic asymmetry, standing and seated flexion tests)</td>
<td>Unilateral symptoms without signs of nerve root compression, asymmetrical restrictions of lumbar side-bending motion, lumbar segmental hypomobility.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint mobilization or manipulation techniques and spinal active range of motion exercises</td>
<td>Joint mobilization or manipulation techniques and spinal active range of motion exercises</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specific exercise</th>
<th>Flexion pattern</th>
<th>Extension pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient preference for sitting versus standing, centralization with lumbar flexion motions.</td>
<td>Lumbar flexion exercises, avoidance of extension activities</td>
<td>Lumbar extension exercises, avoidance of flexion activities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other</th>
<th>Immobilization</th>
<th>Traction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequent previous episodes, positive response to prior manipulation or bracing as treatment, presence of “instability catch” or lumbar segmental hypermobility</td>
<td>Trunk strengthening and stabilization exercises</td>
<td>Radicular signs present, unable to centralize with movements, may have lateral shift deformity</td>
</tr>
</tbody>
</table>

Patients with signs and symptoms that suggest movement restrictions of the lumbar or sacroiliac region are treated with joint mobilization–manipulation techniques and range of motion exercises. Patients exhibiting the centralization phenomenon during lumbar range of motion testing are treated with the specific exercises (flexion or extension) that promote centralization of symptoms.


In this randomized controlled trial, it was not possible to demonstrate that BKP was cost-effective compared with standard medical treatment in patients treated for an acute/subacute vertebral fracture due to osteoporosis.

PMID: [21912321](https://pubmed.ncbi.nlm.nih.gov/21912321/)

Rating: 2b

CONCLUSIONS: Routine physiotherapy seemed to be no more effective than one session of assessment and advice from a physiotherapist.

PMID: 15377573
Rating: 2b


Patients reported lasting pain relief, better function, and improved quality of life with both treatments. The intraarticular treatment of facet joints (levels S1-L5, L5-L4, and L4-L3) with SH in patients with chronic nonradicular pain in the lumbar spine resulted in a marked reduction in pain with improved function and better quality of life, which was at least equal to the effect of a course of TA injections.

PMID: 16319156
Rating: 2c

The inclusion criteria were radiologic confirmation of facet joint osteoarthritis using the Kellgren grade. The patients were treated at weekly intervals with the first injection at L5-S1, second injection at L4-5 the next week, and L3-4 the third week. Both treatments produced a marked decrease in initial severity of pain that persisted.


Massage might be beneficial for patients with subacute and chronic non-specific low-back pain, especially when combined with exercises and education. The evidence suggest that acupuncture massage is more effective than classic massage, but this need confirmation.

PMID: 12076429

The data do not allow firm conclusions about the effectiveness of acupuncture for acute low-back pain. For chronic low-back pain, acupuncture is more effective for pain relief and functional improvement than no treatment or sham treatment immediately after treatment and in the short-term only. Acupuncture is not more effective than other conventional and "alternative" treatments.

PMID: 15674876

Rating: 1b


Massage might be beneficial for patients with subacute and chronic non-specific low-back pain, especially when combined with exercises and education. The evidence suggests that acupuncture massage is more effective than classic massage, but this need confirmation.

PMID: 18843627

Rating: 1b


Two high-quality trials utilizing Harpagophytum procumbens (Devil's claw) found strong evidence for short-term improvements in pain and rescue medication for daily doses standardized to 50 mg or 100 mg harpagoside with another high-quality trial demonstrating relative equivalence to 12.5 mg per day of rofecoxib. Two moderate-quality trials utilizing Salix alba (White willow bark) found moderate evidence for short-term improvements in pain and rescue medication for daily doses standardized to 120 mg or 240 mg salicin with an additional trial demonstrating relative equivalence to 12.5 mg per day of rofecoxib. Three low-quality trials using Capsicum frutescens (Cayenne) using various topical preparations found moderate
evidence for favorable results against placebo and one trial found equivalence to a homeopathic ointment.

PMID: 17202897

Rating: 1b

Short-term treatments with certain herbal medicines (including Devil's claw and willow bark) are effective for relief of acute low back pain, according to the results of a Cochrane review reported in the January 2007 issue of *Spine*. A variety of herbal medicines have been used for nonspecific low back pain, but quality evidence is available for only 3 categories: oral *Harpagophytum procumbens* (Devil's claw), oral *Salix alba* (White willow bark), and topical *Capsicum frutescens* (Cayenne). There is moderate evidence that 50 to 100 mg of harpagoside (*H. procumbens*) and 120 to 240 mg of salicin (*S. alba*) are useful in the treatment of acute nonspecific low back pain in the short term and limited evidence for efficacy of topical *C. frutescens*.

Gaines WG Jr, Hegmann KT, Effectiveness of Waddell's nonorganic signs in predicting a delayed return to regular work in patients experiencing acute occupational low back pain, *Spine* 1999 Feb 15;24(4):396-400; discussion 401

Patients with acute, occupational low back pain exhibiting Waddell's nonorganic signs had a four times lengthier time for return to unrestricted, regular work and a greater use of physical therapy and lumbar computed tomographic scans.

PMID: 10065525

Rating: 4b, 55 cases


A modified yoga-based intervention may benefit individuals with CLB, but a larger study is necessary to provide definitive evidence. Also, the impact on depression and disability could be considered as important outcomes for further study. Additional functional outcome measures should be explored. This pilot study supports the need for more research investigating the effect of yoga for this population.

PMID: 15055095

The IR therapy unit used was demonstrated to be effective in reducing chronic low back pain, and no adverse effects were observed.

PMID: 16960636


Note: Subjects with prior lumbar spine surgery were excluded in the study.

Garfin SR, Reilley MA, Minimally invasive treatment of osteoporotic *vertebral body compression fractures*, *Spine J.* 2002 Jan-Feb;2(1):76-80

Vertebroplasty and kyphoplasty both have roles in the treatment of painful osteoporotic compression fractures. Only kyphoplasty helps improve height and kyphosis, which should help prevent pulmonary and gastrointestinal complications.

PMID: 14588292


This study evaluated whether a comprehensive assessment of psychosocial measures is useful in characterizing those acute low back pain patients who subsequently develop chronic pain disability problems. Revealed the importance of 3 measures: self-reported pain and disability, the
presence of a personality disorder, and scores on Scale 3 of the Minnesota Multiphasic Personality Inventory.

PMID: 7498112
Rating: 3b, 324 cases


Despite widespread use, the efficacy of distraction manipulation is not well established.

PMID: 15883580
Rating: 5b


In this open, historical group controlled study, patients with severe sciatica had sustained improvement after a short treatment with etanercept that was better than standard care plus a short course of methylprednisolone. These results suggest that inhibition of TNFalpha is beneficial in the treatment of sciatica and support a pathological role for TNFalpha in the pathogenesis of sciatica.

PMID: 15115710
Rating: 2c


The addition of a short course of adalimumab to the treatment regimen of patients suffering from acute and severe sciatica resulted in a small decrease in leg pain and in significantly fewer surgical procedures.

PMID: 20506391
Rating: 2b

A short course of adalimumab in patients with severe acute sciatica significantly reduces the need for back surgery.

PMID: 21998121
Rating: 2c


Patients with elevated fear-avoidance beliefs appeared to have less disability from fear-avoidance-based physical therapy when compared to those receiving standard care physical therapy. Patients with lower fear-avoidance beliefs appeared to have more disability from fear-avoidance-based physical therapy, when compared to those receiving standard care physical therapy.

PMID: 14652471
Rating: 2b


Percutaneous minimally invasive neurolysis according to the Racz technique is increasingly applied and discussed controversially. So far there is no prospective randomized controlled study for evaluation of a possible treatment effect. In a prospective pilot study, 25 patients. The described technique is still a clinically experimental procedure.

PMID: 14579019
Rating: 4c

We conclude that there is moderate evidence that RF lumbar facet denervation is more effective for chronic low back pain than placebo. Limited evidence exists for efficacy of RF neurotomy in chronic cervical zygapophyseal joint pain after flexion-extension injury. There is limited evidence that RF heating of the dorsal root ganglion is more effective than placebo in chronic cervicobrachialgia.

PMID: 11561257
Rating: 5a


These results indicate that TFIS is more often successful in patients without significant compression of the nerve root and, therefore, in whom an inflammatory basis for radicular pain is most likely. In such patients, a success rate of 75% renders TFIS an attractive alternative to surgery. In patients with significant compression of the nerve root, the likelihood of benefiting from TFIS is low. The success rate may be no more than that of a placebo effect, and surgery may be a more appropriate consideration.

PMID: 21539702
Rating: 3b


This study found that PENS was significantly more effective than sham-PENS, TENS, and exercise therapies.

PMID: 10071003

TENS usually applied prn; this trial applied TENS on fixed schedule & does not constitute a valid comparison of PENS with actual TENS use

The frequency of electrical stimulation seems to be an important determinant of the analgesic efficacy of percutaneous electrical nerve stimulation. Mixed low- and high-frequency stimulation was more effective than either low or high frequencies alone in the treatment of patients with low back pain.

PMID: 10195535

Rating: 2c


Comfrey root extract showed a remarkably potent and clinically relevant effect in reducing acute back pain.

PMID: 19460762

Rating: 2b


Chemonucleolysis is more effective than placebo and it is less invasive, but less effective than surgical discectomy. Surgical discectomy for carefully selected patients with sciatica due to lumbar disc prolapse provides faster relief from the acute attack than conservative management, although any positive or negative effects on the lifetime natural history of the underlying disc disease are unclear.

PMID: 10908492

The early use of sophisticated imaging does not appear to affect management overall but does result in a slight improvement in clinical outcome at an estimated cost of 870 British pounds per QALY. Imaging was associated with an increase in clinicians' diagnostic confidence, particularly for non-specialists.

PMID: [15130462](https://www.ncbi.nlm.nih.gov/pubmed/15130462)

Rating: 1b


Early use of imaging does not appear to affect treatment overall.

PMID: [15031430](https://www.ncbi.nlm.nih.gov/pubmed/15031430)

Rating: 2a


The consistency of the results provides, despite some discussed shortcomings of this study, evidence that in patients with chronic spinal pain, manipulation, if not contraindicated, results in greater short-term improvement than acupuncture or medication. However, the data do not strongly support the use of only manipulation, only acupuncture, or only nonsteroidal antiinflammatory drugs for the treatment of chronic spinal pain.

PMID: [12865832](https://www.ncbi.nlm.nih.gov/pubmed/12865832)

Rating: 2b

Eighty patients. This suggests that electrical muscle stimulation can be an effective adjunctive treatment modality for nonacute low back pain. The effects of this combined therapy seem to last beyond the duration of electrical stimulation treatment.

PMID: 14622808

Rating: 2b

The Glaser study had a 50% drop out rate. The placebo units were comparable with TENS, so, in effect, this study compared Sympathetic therapy (RS Medical, Vancouver, WA) with TENS. Both groups received exercise therapy. 30 of 32 patients in the interferential treatment group showed improvement at months versus 13 of 23 in the placebo group.

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Rating: 6b

**Treatment Frequency and Duration:** A typical initial therapeutic trial of chiropractic care consists of 6-12 visits over a 2-4 week period, with the doctor monitoring the patient’s progress with each visit to ensure that acceptable clinical gains are realized.

**Initial Course of Treatments for Low Back Disorders**

Table 1: Frequency and Duration for Initial (Trial) Course of Chiropractic Treatments

<table>
<thead>
<tr>
<th>Stage of Condition</th>
<th>Frequency</th>
<th>Duration</th>
<th>Re-evaluate after:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute</td>
<td>3x weekly</td>
<td>2-4 weeks</td>
<td>2-4 weeks</td>
</tr>
<tr>
<td>Sub-Acute</td>
<td>3x weekly</td>
<td>2-4 weeks</td>
<td>2-4 weeks</td>
</tr>
<tr>
<td>Chronic</td>
<td>2-3x weekly</td>
<td>2-4 weeks</td>
<td>2-4 weeks</td>
</tr>
<tr>
<td>Recurrent / Flare-up</td>
<td>1-3x weekly</td>
<td>1-2 weeks</td>
<td>1-2 weeks</td>
</tr>
</tbody>
</table>

**Re-evaluation and Re-examination:** Near the midway point of a trial of care (i.e., end of the second week of a 4 week trial), the practitioner should reassess whether the current course of care is continuing to produce satisfactory clinical gains utilizing commonly accepted outcomes assessment methods (see Outcome Measurement). After an initial course of treatment has been concluded, a detailed or focused re-evaluation should be performed.

**Continuing Course of Treatments:** If the criteria to support continuing chiropractic care (substantive, measurable functional gains with remaining functional deficits) have been achieved, a follow-up course of treatment may be indicated. However, one of the goals of any
A treatment plan should be to reduce the frequency of treatments to the point where maximum therapeutic benefit continues to be achieved while encouraging more active self-therapy, such as independent strengthening and range of motion exercises, and rehabilitative exercises. Patients also need to be encouraged to return to usual activity levels despite residual pain, as well as to avoid catastrophizing and overdependence on physicians, including doctors of chiropractic. They need to be reassured that, “hurt is not the same thing as harm.”

Table 2: Frequency and Duration for Continuing Courses of Treatments

<table>
<thead>
<tr>
<th>Stage of Condition</th>
<th>Frequency</th>
<th>Duration</th>
<th>Re-evaluate after:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute</td>
<td>2-3x weekly</td>
<td>2-4 weeks</td>
<td>4-12 treatments</td>
</tr>
<tr>
<td>Sub-Acute</td>
<td>2-3x weekly</td>
<td>2-4 weeks</td>
<td>4-12 treatments</td>
</tr>
<tr>
<td>Chronic</td>
<td>1-3x weekly</td>
<td>2-4 weeks</td>
<td>2-12 treatments</td>
</tr>
<tr>
<td>Recurrence / Flare-up</td>
<td>1-3x weekly</td>
<td>1-2 weeks</td>
<td>1-6 treatments</td>
</tr>
</tbody>
</table>


Conclusion. We believe that the technique using "tunnel vision" with anatomically appropriate cannula placement and use of a large-bore, curved needle with a 10-mm active tip may improve the results of radiofrequency denervation of lumbar zygapophysial joints.

Rating: 5a


Of the 174 patients with complete data, 55 (31.6%) experienced no benefit from the procedure. One hundred and nineteen patients (68.4%) had good (> 50%) to excellent (> 80%) pain relief lasting from 6 to 24 months.

PMID: 17387351

Rating: 3a

As a component of musculoskeletal physiotherapy, the spinal stabilization program is more effective than manually applied therapy or an education booklet in treating chronic low back disorder over time.

PMID: 16648741
Rating: 2a

The spinal stabilization program evaluated consisted of "functionally progressive" exercises that emphasized strengthening of various muscles supporting the spine. By comparison, the manually applied therapy group received up to 10 standard physical therapy sessions in which no exercises were prescribed. For the control intervention, patients were given an educational booklet called "Back in Action," but no treatment or exercises were performed. With regard to manual therapy, the authors note that this approach "remains physiotherapists' preferred modality for chronic low back disorder" and "is appropriate to be used on these patients as a pain reducing modality, but the results of this study suggest that it should not be used as an isolated modality because it does not concomitantly reduce disability, handicap, or improve quality of life."


As many spinal surgeries continue to evolve along a pathway of minimal invasiveness, it is quite likely that the value of neuromonitoring will only continue to become more prominent.

PMID: 19795955
Rating: 5b

Gose EE, Naguszewski WK, Naguszewski RK, Vertebral axial decompression therapy for pain associated with herniated or degenerated discs or facet syndrome: an outcome study, Neurol Res 1998 Apr;20(3):186-90

The treatment was successful in 71% of the 778 cases, when success was defined as a reduction in pain to 0 or 1, on a 0 to 5 scale.

PMID: 9583577

Lack of control or comparison group makes it difficult to compare VAX-D to other conservative treatments; No follow-up data for duration of improvement; Methods section does not state how patients were selected, duration of symptoms, how diagnoses were established; Patient self-assessment only outcome; no examination by physician; data collection procedures not specified.

The use of yoga is consistent with recommendations for activity, as tolerated, for patients with low back pain. A large systematic review of yoga used for various medical conditions found over 120 studies. Anecdotal reports were excluded. In a survey of 3000 people receiving yoga for health ailments (1142 [38%] with back pain), 98% claimed that yoga benefited them. No reports of harm from yoga in low-back pain therapy were reported in the few studies found. Clinical commentary: Information suggests yoga—and all exercise—effective for low back pain. Recent studies in the rehabilitation and physical therapy literature have emphasized core stability exercises for acute and chronic back pain.

PMID: 15298844

Rating: 1c


47 men and 30 women. These data indicate that pelvic stabilization is required to effectively train the lumbar extensor muscles.

PMID: 8311680

Rating: 4b


Among workers with LBP, early MRI is not associated with better health outcomes and is associated with increased likelihood of disability and its duration. Our findings suggest that adherence to evidence-based guidelines is an important factor in ensuring that workers receive the highest quality care for occupational injuries.

PMID: 22415000

Because there is no difference in outcomes between surgical and conservative treatment after two years, patient preference and the severity of the disability from the pain should be considered when choosing treatment modalities. If a disk herniation is identified that correlates with physical findings, surgical diskectomy may improve symptoms more quickly than continued conservative management. Epidural steroid injections can also provide short-term relief.

PMID: [18841731](https://pubmed.ncbi.nlm.nih.gov/18841731/)

Rating: 5a

Other findings: Although not specific, the straight-leg raise is the most sensitive test for lumbar herniation, with a negative result indicating against lumbar disk herniation. Systemic steroids are no better than placebo in the treatment of lumbar disk herniation pain (evidence rating, A).


The sit-and-reach (S&R) test is often included in standard fitness tests on the assumption that it is an indicator of low back health. 72 asymptomatic (at test time) industrial workers. The S&R test was unable to distinguish between those with a history of LBD and those without. This study suggests that the value of S&R as an indicator of previous back discomfort is questionable.

PMID: [12825327](https://pubmed.ncbi.nlm.nih.gov/12825327/)

Rating: 4b


The results of the present study indicate that both back and leg pain are, on average, still moderately high 2 years after instrumentation with the Dynesys system. Only half of the patients
declared that the operation had helped and had improved their overall quality of life; less than half reported improvements in functional capacity. The reoperation rate after Dynesys was relatively high. The results provide no support for the notion that semirigid fixation of the lumbar spine results in better patient-oriented outcomes than those typical of fusion.

PMID: 15682014
Rating: 4b


It is possible that radiocontrast exposure may be contributing significantly to disc cell loss with subsequent progression of disc degeneration.

PMID: 22424848
Rating: 10a


The manual treatment concept used in this study in low back pain patients appears to reduce pain and disability rating better than the traditional stay-active concept.

PMID: 15389174
Rating: 2b


Continued significant symptomatic benefit was observed to long-term assessment and the health gains in this patient group compared favourably with other elective surgical procedures.

PMID: 17676460
Lumbar discectomy improved patient's self-reported overall physical health more than other elective surgeries, a British study found. The study showed that patients' pre-operative level of function doubled after three months and their general health perception rose above the normative perception within one to five years after the surgery. The study also noted that 86% of patients who experienced leg pain prior to surgery reported improvements in three months.


Practicing yoga at the workplace teaches employees to use relaxation techniques to reduce stress and risks of injury on the job.

PMID: [12454346](https://www.ncbi.nlm.nih.gov/pubmed/12454346)


Successful intervention in this difficult patient population requires a detailed history, precise physical examination, and carefully chosen diagnostic tests.

PMID: [16959891](https://www.ncbi.nlm.nih.gov/pubmed/16959891)


The reviewed trials provide evidence that intensive multidisciplinary bio-psycho-social rehabilitation with a functional restoration approach improves pain and function. Less intensive interventions did not show improvements in clinically relevant outcomes.

PMID: [11869581](https://www.ncbi.nlm.nih.gov/pubmed/11869581)
Effectiveness of acupuncture, either verum or sham, was almost twice that of conventional therapy.

PMID: 17893311
Rating: 2a

"Because they directly compared acupuncture and conventional therapy, the GERAC trials were the decisive trials on which the German Federal Joint Committee of Physicians and Health Insurance Plans, a body similar to the National Institute for Health and Clinical Excellence in the United Kingdom or the National Institutes of Health in the United States, based its decision to make acupuncture for chronic low back pain an insured benefit, for the first time putting acupuncture on an equal footing with conventional therapy," the study authors conclude.


There was a positive, clinically important effect of the number of chiropractic treatments for chronic low back pain on pain intensity and disability at 4 weeks. Relief was substantial for patients receiving care 3 to 4 times per week for 3 weeks.

PMID: 15363431
Rating: 2b


The advantage for DC care was prominent for chronic patients with leg pain below the knee (P<.001).

PMID: 15129198
Rating: 3a

Early intervention with examination, information, and recommendations to stay active showed significant effects in reducing sick leave for patients with low back pain.

PMID: 10908942
Rating: 2b, RCT, 457 cases


Bed rest compared to advice to stay active will at best have small effects, and at worst might have small harmful effects on acute LBP. Differences in effects of advice to stay in bed compared with advice to stay active are small for patients with low back pain with or without sciatica. There is not an important difference in the effects of bed rest compared with exercises in the treatment of acute low back pain, or seven days compared with two to three days of bed rest in patients with low back pain of different duration with and without radiating pain.

PMID: 10796429
Rating: 1b


For people with acute low back pain, advice to rest in bed is less effective than advice to stay active. For patients with sciatica, there is little or no difference between advice to rest in bed and advice to stay active.

PMID: 15738787

When studied for three months, bed rest in patients with uncomplicated low back pain causes more pain and slows return to function. Similarly, patients with sciatica experience, at best, no benefit with bed rest. (Level of Evidence: 1a)

Rating: 1b

There is in fact almost no literature to support the use of SEMG in the clinical diagnosis and management of nerve or muscle disease. There are no clinical indications for the use of SEMG in the diagnosis and treatment of disorders of nerve or muscle, but is unlikely to be useful without needle examination in this regard without substantial scientific breakthroughs and validating clinical research.

PMID: 8606710

Rating: 5a


This first masked study in the 60-year history of needle electromyography also introduces anatomically validated needle placement, quantified and reproducible examination of the paraspinal muscles, and dual control populations to EDX research in spinal disorders. EDX has statistically significant, clinically meaningful specificity for spinal stenosis and detects neuromuscular diseases that may masquerade as stenosis.

PMID: 16319753

Rating: 2b


Thus, dexamethasone is not superior to placebo for either early or long-term relief of lumbosacral radicular pain, but may reduce pain evoked by stretch of acutely inflamed spinal nerve roots.

PMID: 2946981

Rating: 2c

The absolute number of patients who returned to unrestricted work doubled in the study group.

PMID: 7825041

Rating: 3a

Return to work at regular duty at discharge from care may improve outcomes.


Patients with acute low back pain receiving recommended first-line care do not recover more quickly with the addition of diclofenac or spinal manipulative therapy.

PMID: 17993364

Rating: 2b

"These results are important because both diclofenac and spinal manipulative therapy have potential risks and additional cost for patients," the study authors conclude.


The current study suggests that back injury based on patient report is not an important predictor of future disc degeneration.

PMID: 20838276

Rating: 4b

##########

- In general, a grade I or mild sprain is caused by overstretching or slight tearing of the ligaments with no joint instability. A person with a mild sprain usually experiences minimal pain, swelling, and little or no loss of functional ability. Bruising is absent or slight, and the person is usually able to put weight on the affected joint.

- A grade II or moderate sprain is caused by further, but still incomplete, tearing of the ligament and is characterized by bruising, moderate pain, and swelling.

- People who sustain a grade III or severe sprain completely tear or rupture a ligament.

Rating: 5b


The traditional concept of low back pain having a favorable natural history paints an overly optimistic prognosis when considering recent epidemiological data. From a prognostic perspective, more than three quarters of individuals will have a recurrence of their symptoms within a year from the initial onset, and up to 40% report a permanent reduction in activity participation. Fear of movement and avoidance of physical activity participation have been associated with a less than desirable prognosis, often times leading to chronicity.

Rating: 5b


In this cohort of newly employed workers, from a range of occupations, several aspects of the work-place environment, other than mechanical factors, were important in predicting new-onset LBP.

PMID: [12730508](https://pubmed.ncbi.nlm.nih.gov/12730508/)

Rating: 3b


Herniated disc (HD), one of the major causes of low back pain, is often resolved spontaneously without surgical intervention.

PMID: 10642592

Rating: 5c


The evidence for the use of traction in LBP remains inconclusive.

PMID: 14586924

Rating: 1c


A clear advancement in spinal fusion in terms of a clinical benefit remains questionable.

PMID: 19949805

Rating: 3c


There is evidence for a dose-response relation between physical workload and LBP of longer duration.

PMID: 12554838

Exercise therapy that consists of individually designed programs, including stretching or strengthening, and is delivered with supervision may improve pain and function in chronic nonspecific low back pain.

PMID: 15867410

Rating: 1b

This Bayesian meta-regression of 43 trials suggests that the most effective exercises for improving pain and function in adults with chronic low back pain are stretching and strengthening, respectively. The most effective strategy seems to be individually designed exercise programs delivered in a supervised format (for example, home exercises with regular therapist follow-up) and encouraging adherence to achieve high dosage. Adding other conservative treatment, such as advice to stay active, NSAIDs, or manual therapy, also resulted in improved pain and function outcomes. We found that stretching and muscle-strengthening exercises were the best types of exercises for improving pain and function, respectively.


Exercise therapy seems to be slightly effective at decreasing pain and improving function in adults with chronic low back pain, particularly in health care populations. In subacute low back pain populations, some evidence suggests that a graded-activity program improves absenteeism outcomes, although evidence for other types of exercise is unclear. In acute low back pain populations, exercise therapy is as effective as either no treatment or other conservative treatments.

PMID: 15867409

Rating: 1b


Exercise therapy that consists of individually designed programs, including stretching or strengthening, and is delivered with supervision may improve pain and function in chronic nonspecific low back pain.

PMID: 15867410

Rating: 1b

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####

For the latest year where data is available in 2011, the year 2008, there were a total of 39,885,120 discharges, and $364,858,636,083 in aggregate hospital costs.

Rating: 4a


Percutaneous epidural neuroplasty, as part of an overall pain management strategy, reduces pain (sometimes for over one year) in 25% or more of subjects with radiculopathy plus low back pain refractory to conventional therapies.

PMID: 10338168

Rating: 2c

Note: Success rate of only 25%.


Twenty patients had provable effect of the treatment, 19 had no effect. Nineteen patients received dexamethasone (13 + effect), 20 received placebo (7 + effect). It is concluded that the effect of dexamethasone given intramuscularly does not seem to exceed that of placebo in the treatment of prolapsed lumbar disc.

PMID: 703921

Rating: 2c

HEDIS (Health-plan Employer Data Information Set) proposed report card on the use of imaging for low back, NCQA Health Services Research Conference, San Diego June, 2004

In other words, they are saying that in the set of young and middle-aged adults, with new episodes of mechanical LBP, without any indication of comorbid complications there is no indication for imaging and a perfect score would be 1. This interpretation is consistent with the literature on this issue and given the well defined and limited population that they are applying it to, entirely defensible. This new standard is the first one in which the issue is over utilization.
Their study found imaging rates to vary from about 23%-65% (of new cases that receive imaging) among various health plans, providers, etc. The rate that they feel is appropriate is under 10%. (Actually, their conclusion was that the real optimal rate should be about 2-3%, but realistically they didn't think most plans could get there.) They found DCs to be at about 28%. This standard will go into place on Jan 1, 2005.

Rating: 10b


Patients presenting with disabling back pain who had previously undergone surgical treatment for a herniated nucleus pulposus show a high (72%) incidence of concordant pain with discography of the previously operated level.

PMID: 9253096

Rating: 3b


Consistent with prior evidence, specific back strengthening does not seem to offer incremental benefits in LBP management compared with regular PT care that mainly consists of general exercise therapy.

PMID: 18675396

Rating: 2b


Information on development of guidelines for work hardening and conditioning.

Rating: 11b
The results show that exercise is effective in the primary and secondary prevention of low back pain. When used for curative treatment, exercise diminishes disability and pain severity while improving fitness and occupational status in patients who have subacute, recurrent, or chronic low back pain. Patients with acute low back pain are usually advised to continue their everyday activities to the greatest extent possible rather than to start an exercise program. Supervision is crucial to the efficacy of exercise programs.

PMID: 18801686
Rating: 5b


In patients presenting to a primary care provider with back pain, previously undiagnosed serious pathology is rare.

PMID: 19790051
Rating: 3a


Stretching before or after exercising does not confer protection from muscle soreness. Stretching before exercising does not seem to confer a practically useful reduction in the risk of injury.

PMID: 12202327
Rating: 1c

Under the experimental conditions of this trial, no additional benefits of TENS/CODETRON were detected when added to an active exercise regimen.

PMID: 8184351

Rating: 2b


The mean satisfaction score for chiropractic patients was greater than the score for medical patients (crude difference = 5.5; 95% confidence interval = 4.5, 6.5). Self-care advice and explanation of treatment predicted satisfaction and reduced the estimated difference between chiropractic and medical patients’ satisfaction.

PMID: 12356612


The detection of the manipulative lesion in the lumbo-pelvic spine depends on valid and reliable tests. Because such tests have not been established, the presence of the manipulative lesion remains hypothetical.

PMID: 10820299

Rating: 1c

It is often claimed that up to 90% of low back pain (LBP) episodes resolve spontaneously within 1 month. The results of the review show that, despite the methodological variations and the lack of comparable definitions, the overall picture is that LBP does not resolve itself when ignored.

PMID: 12709853
Rating: 1b

Presently, the literature in the area is confusing and in-conclusive. However, despite the large heterogeneity, the overall picture is clearly that LBP is not a self-limiting condition. There is no evidence supporting the claim that 80–90% of LBP patients become pain free within 1 month.


The low-intensity back school was most effective in reducing work absence, functional disability, and kinesiophobia, and more workers in this group scored a higher perceived recovery during the 6-month follow-up.

PMID: 16648740
Rating: 2b

The low-intensity back school consisted of 4 group sessions once a week for 4 consecutive weeks. During the session, participants received 30 minutes of education followed by 90 minutes of written work and standard strength-training exercises. Workers were told that working and other activities could be continued despite back pain and were instructed to perform exercises at home twice a day and again if they had any recurrences of back complaints.


The results indicate that there is moderate evidence suggesting that back schools have better short and intermediate-term effects on pain and functional status than other treatments for patients with recurrent and chronic LBP. There is moderate evidence suggesting that back schools for chronic LBP in an occupational setting, are more effective than other treatments and placebo or waiting list controls on pain, functional status and return to work during short and intermediate-term follow-up.

PMID: 15494995

A survey was done of 250 patients with low back pain and sciatica. Repeated injections improved the success rate.

PMID: 2967934

Rating: 2a

Hicks GE, Fritz JM, Delitto A, McGill SM. Preliminary development of a clinical prediction rule for determining which patients with low back pain will respond to a stabilization exercise program. *Arch Phys Med Rehabil.* 2005 Sep;86(9):1753-62.

It appears that the response to a stabilization exercise program in patients with LBP can be predicted from variables collected from the clinical examination. The prediction rules could be used to determine whether patients with LBP are likely to benefit from stabilization exercises.

PMID: 16181938

Rating: 4c


The best available evidence suggests that advice to stay active alone has small beneficial effects for patients with acute simple low back pain, and little or no effect for patients with sciatica. There is no evidence that advice to stay active is harmful for either acute low back pain or sciatica. If there is no major difference between advice to stay active and advice to rest in bed, and there is potential harmful effects of prolonged bed rest, then it is reasonable to advise people with acute low back pain and sciatica to stay active. These conclusions are based on single trials.

PMID: 12076492

Rating: 1b

The tool included 9 items: referred leg pain, comorbid pain, disability (2 items), bothersomeness, catastrophizing, fear, anxiety, and depression. The latter 5 items were identified as a psychosocial subscale. The tool demonstrated good reliability and validity and was acceptable to patients and clinicians. Patients scoring 0-3 were classified as low risk, and those scoring 4 or 5 on a psychosocial subscale were classified as high risk. The remainder were classified as medium risk.

PMID: 18438893

Rating: 3a


The results show that a stratified approach, by use of prognostic screening with matched pathways, will have important implications for the future management of back pain in primary care.

PMID: 21963002

Rating: 2a


It can be concluded that return-to-work interventions are equal or more effective regarding absence from work due to subacute low-back pain than usual care is.

PMID: 16161707

Rating: 1b

Three types of electrical stimulation, which is used to manage non-union in long bones, recently have been applied in an attempt to enhance the rate of spinal fusion. Direct current electrical stimulation is internal and thus eliminates dependence on patient compliance. Pulsed electromagnetic fields and capacitively coupled electrical stimulation are external techniques that require patient compliance but do not have the increased risk associated with implantable devices. Most data indicate a positive effect for use of direct current stimulation, but further studies are necessary to determine its appropriateness as an adjuvant to spinal fusion.

PMID: 12670134

Rating: 5b


A total of 205 effect sizes from 22 studies were pooled in 34 analyses. Cognitive-behavioral and self-regulatory treatments were specifically found to be efficacious. Multidisciplinary approaches that included a psychological component, when compared with active control conditions, were also noted to have positive short-term effects on pain interference and positive long-term effects on return to work.

PMID: 17209691

Rating: 1a


Statistical differences across groups were seen for pain, a primary outcome, (chiropractic group improved more than control group) and GIS (chiropractic group improved more than other groups). No significant differences were seen for disability, depression, flexibility, or acetaminophen usage across groups.

PMID: 15319761

Rating: 2b

Compared with controls, patients who received prednisone had more rapid rates of improvement from baseline in pain, mental well-being, and disability scores. These changes were subtle but statistically significant. Patients who received prednisone tended to receive fewer epidural injections for pain.

PMID: [18772303](https://pubmed.ncbi.nlm.nih.gov/18772303/)

Rating: 2c


Ninety-one percent (91.0%) of patients reported reduction in level of pain; 84.8% of patients reported improvement in activities of daily living, and 84.3% reported an improvement in ability to work. Women required on average, three more injections than men. Cervical spine response rates were lower than thoracic or lumbar spine. No complications from treatment were noted.

PMID: [15353024](https://pubmed.ncbi.nlm.nih.gov/15353024/)

Rating: 4b


Substantial procedural shortcomings were identified in all three RCTs. Analysis using likelihood ratios showed that screening criteria could increase the probability of zygapophysial joint pain before performing diagnostic blocks. Similar analysis showed that comparative medial branch blocks, rather than single blocks, must be used before RF neurotomy. Anatomical studies demonstrated that the shorter distal compared with the circumferential radius of the RF lesion necessitates placement of the electrode parallel to the course of the nerve along the base of the superior articular process.

PMID: [15773877](https://pubmed.ncbi.nlm.nih.gov/15773877/)

Rating: 5a

An increased risk of treatment failure was associated in univariate analysis with lower levels of education, smoking, lack of employment at start of treatment, constant pain, sleep disruption, nonradicular diagnosis, prolonged duration of pain, change in recreational activities, or extreme values on psychologic scales. Alcohol use was associated with decreased risk of treatment failure. With logistic regression analysis, only prolonged duration, nonradicular diagnosis, lack of employment, and smoking were independently associated with treatment outcome.

PMID: 8398958

Results support preferring radicular pain as indication for steroid injection

Rating: 4b, 209 cases


Among nonexpert physicians, physiatric or chiropractic, trigger point palpation is not reliable for detecting taut band and local twitch response, and only marginally reliable for referred pain after training.

PMID: 10724067

Rating: 4c, 52 cases


For subacute low back pain, combined joint manipulation and myofascial therapy was as effective as joint manipulation or myofascial therapy alone. Additionally, back school was as effective as three manual treatments.

PMID: 12045509

Rating: 2b, RCT, 200 cases

Acupressure conferred an 89% (95% confidence interval 61% to 97%) reduction in significant disability compared with physical therapy.

PMID: 16488895
Rating: 2c


Ice submersion with simultaneous exercises was significantly more effective than heat and contrast therapy plus simultaneous exercises at reducing swelling. Ice was reported to be no different from ice and low-frequency or high-frequency electric stimulation in effect on swelling, pain, and range of motion. Ice alone seemed to be more effective than applying no form of cryotherapy after minor knee surgery in terms of pain, but no differences were reported for range of motion and girth. Continuous cryotherapy was associated with a significantly greater decrease in pain and wrist circumference after surgery than intermittent cryotherapy. Evidence was marginal that a single simultaneous treatment with ice and compression is no more effective than no cryotherapy after an ankle sprain. The authors reported ice to be no more effective than rehabilitation only with regard to pain, swelling, and range of motion. Ice and compression seemed to be significantly more effective than ice alone in terms of decreasing pain. Additionally, ice, compression, and a placebo injection reduced pain more than a placebo injection alone. Lastly, in 8 studies, there seemed to be little difference in the effectiveness of ice and compression compared with compression alone.

PMID: 15496998
Rating: 1b

By careful interdisciplinary indication setting and a standardized treatment model, kyphoplasty presents a very safe and effective procedure for the treatment of vertebral osteolyses and fractures caused by MM.

PMID: 19858057
Rating: 3b


Electrical stimulation therapy had a small to moderate effect on outcomes for knee OA, all statistically significant with clinical benefit ranging from 13-23% greater with active treatment than with placebo. Only 2 outcomes for cervical OA were significantly different with PEMF treatment and no clinical benefit can be reported with changes of 12% or less.

PMID: 11869668
Rating: 1c


A large proportion of subjects had some pain relief, including 87% with vertebroplasty and 92% with kyphoplasty. Vertebral height restoration was possible using kyphoplasty (average 6.6 degrees) and for a subset of patients using vertebroplasty (average 6.6 degrees). Cement leaks occurred for 41% and 9% of treated vertebrae for vertebroplasty and kyphoplasty, respectively. New fractures of adjacent vertebrae occurred for both procedures at rates that are higher than the general osteoporotic population but approximately equivalent to the general osteoporotic population that had a previous vertebral fracture.

PMID: 16924218
Rating: 1b

Humana Coverage Issues, Neuromuscular Stimulator, 09/28/06

NMES for walking will be limited to SCI patients that meet ALL of the following criteria:
- Intact lower motor units (L1 and below) (both muscle and peripheral nerve); **AND**
• Muscle and joint stability for weight bearing at upper and lower extremities that can
demonstrate balance and control to maintain an upright support posture independently; AND
• Able to demonstrate brisk muscle contraction to NMES and have sensory perception of
electrical stimulation sufficient for muscle contraction; AND
• Possess high motivation, commitment and cognitive ability to use such devices for walking;
AND
• Have demonstrated a willingness to use the device long-term; AND
• Ability to transfer independently and can demonstrate independent standing tolerance for at
least three minutes; AND
• Ability to demonstrate hand and finger function to manipulate controls; AND
• Having at least six-month post recovery spinal cord injury and restorative surgery;
AND
• No hip and knee degenerative disease and no history of long bone fracture
secondary to osteoporosis

Rating: 7b

Humana Coverage Issues, Vertebral Decompression Therapy, 09/09/04

Although the American Medical Association (AMA), FDA and Centers for Medicare and
Medicaid Services (CMS) all consider decompression therapy to be a form of traction, the
manufacturers of these devices consider them different from traction devices in that they create
negative intradiscal pressure, thereby inducing disk and nerve root decompression. Humana
members would NOT be eligible under the Plan for vertebral decompression therapy. This
technology is considered experimental/investigational as it is not identified as widely used and
generally accepted for the proposed use as reported in nationally
recognized peer-reviewed medical literature published in the English language.

Rating: 7b

Huntoon EA, Schmidt CK, Sinaki M. Significantly fewer refractures after vertebroplasty
Jan;83(1):54-7.

This retrospective study showed that a targeted exercise program after PVP significantly
decreased fracture recurrence.

PMID: 18174007

Rating: 3a
After 6 months of follow-up, chiropractic care and medical care for low back pain were comparable in their effectiveness. Physical therapy may be marginally more effective than medical care alone for reducing disability in some patients, but the possible benefit is small.

PMID: 12394892
Rating: 2a

Clinically relevant improvements in average pain and disability were more likely in the modalities group at 2 and 6 weeks, but this apparent advantage disappeared at 6 months. Perceived treatment effectiveness was greater in the modalities group.

PMID: 11898014
Rating: 2b

Differences in outcomes between medical and chiropractic care without physical therapy or modalities are not clinically meaningful, although chiropractic may result in a greater likelihood of perceived improvement, perhaps reflecting satisfaction or lack of blinding. Physical therapy may be more effective than medical care alone for some patients, while physical modalities appear to have no benefit in chiropractic care.

PMID: 16540862
Rating: 2a

Participation in recreational physical activities was inversely associated--both cross-sectionally and longitudinally--with low back pain, related disability, and psychological distress. By contrast, back exercise was positively associated--both cross-sectionally and longitudinally--with low back pain and related disability.

PMID: 16186460
Rating: 4b


FJC strain magnitudes during SM were within the physiological range, suggesting that SM is biomechanically safe. Successful treatment of patients with LBP using SM may not require precise segmental specificity, because the strain magnitudes at a given FJC during SM do not depend upon manipulation site.

PMID: 15863084
Rating: 5c


Epiduroscopy may reduce low back and leg pain in elderly patients with degenerative lumbar spinal stenosis, particularly those with radiculopathy.

PMID: 15194631
Rating: 3b

This study provides no evidence for the adoption of this worksite prevention program for LBP.

PMID: 17414902

Rating: 2a

Intervention: The back pain prevention program consisted of an integrated approach of 3 preventive measures (based on the principles of the biopsychosocial model), i.e., combining individually tailored education and training, immediate treatment of (sub)acute LBP, and advice on ergonomic adjustment of the workplace. Because our study did not reveal any benefits in effects or costs savings of the intervention program, it cannot be recommended to implement this particular LBP prevention program.


This study indicates that low back pain treated as a benign, self limiting condition recommended to light mobilization gives superior results as compared to treatment within a conventional medical system.

PMID: 7747232

Intervention group was told, “light activity would not further injure their backs, and it is more likely that it would rather enhance the repair process.”

Rating: 2a

Indahl A, Haldorsen EH, Holm S, Reikeras O, Ursin H, Five-year follow-up study of a controlled clinical trial using light mobilization and an informative approach to low back pain, Spine 1998 Dec 1;23(23):2625-30

This study indicates that subchronic low back pain may be managed successfully with an approach that includes clinical examination combined with information for patients about the nature of the problem, provided in a manner designed to reduce fear and give them reason to resume light activity.

50% of workers had not returned to work after 112 days of follow up, and 11.3% still had not after 270 days. At the end of the study period (maximum follow up time was 1228 days), 230 workers (75.4%) had returned to work, 6.5% had not, and a similar percentage had retired, gone into vocational training, or returned to school.


Includes many recommendations. Among them: "Epidural steroid injections performed by an interlaminar approach or transforaminal approach done under fluoroscopically-guided contrast control may be a reasonable option for pain control in patients with chronic sciatica and MRI/CT findings that correlate with clinical symptoms."


Recommendations included the following: 1) “percutaneous radiofrequency ablation is a safe procedure for patients who are correctly diagnosed with facet joint pain; 2) “percutaneous radiofrequency ablation may be an alternative for the patient who has failed an adequate trial of conservative therapy.”
Precision spine injections are potentially powerful tools for both diagnosing and treating the anatomic source of chronic spinal pain.

Rating: 5b


Caudal epidural steroid or saline injections are not recommended for chronic lumbar radiculopathy.

PMID: [21914755](https://www.ncbi.nlm.nih.gov/pubmed/21914755)

Rating: 2a


It is argued that the clinical data do not support the Feldenkrais Method as being an effective way to improve motor performance. Further, it is argued that positive outcomes in pain and other wellness measures following Feldenkrais interventions can be ascribed to self-regulation.

PMID: [12848224](https://www.ncbi.nlm.nih.gov/pubmed/12848224)

Rating: 5c


In a double-blind, randomized, placebo-controlled study, administration of botulinum toxin A produced significant pain relief in 60% of patients with chronic, refractory low back pain. A similar yield of 53% was noted in a prospective, randomized, open-label study of 75 patients, with 14 months of follow-up.

PMID: [17894925](https://www.ncbi.nlm.nih.gov/pubmed/17894925)

Two-hundred and forty-nine chronic low back pain patients assessed their pain intensity before, 1 day after, and 2 weeks after receiving a LESI. One year after treatment, 62.6% felt that LESI was helpful. Nine patients (7%) felt that the treatment was harmful. Four factors were identified that best predicted poor outcome 2 weeks after LESI: (a) greater number of previous treatments for pain; (b) more medications taken; (c) pain not necessarily increased by activities, and (d) pain increased by coughing. Factors that predicted no benefit 1 year after treatment included (a) pain does not interfere with activities; (b) unemployment due to pain; (c) normal straight-leg raise test prior to treatment; and (d) pain not decreased by medication.

PMID: 1839719

Rating: 2b


Decompressive surgery is more effective than land based exercise in the management of LSS.

PMID: 22369653

Rating: 4a


The study concluded, “Rapid MRIs and radiographs resulted in nearly identical outcomes for primary care patients with low back pain. Although physicians and patients preferred the rapid MRI, substituting rapid MRI for radiographic evaluations in the primary care setting may offer little additional benefit to patients, and it may increase the costs of care because of the increased number of spine operations that patients are likely to undergo.”
MRI no better than x-rays in management of low back pain (LBP). Gary Greenberg
So MRI is as useless as plain X-rays. So if you need to amuse the patient, MRI offers the benefit of lower risk of iatrogenic cancer down the line. George P. White Jr., MD, MS, Occupational Health Logic
But the cost benefit analysis needs to include all the treatment that continues after the more sensitive MRI reveals the usual insignificant disc bulges and herniations that "encroach upon" or "narrow" the neuroforamen, or "abut" the spinal cord. Verne Backus, M.D., M.P.H., Occupational Consultations

There was moderate evidence that lumbar supports are not effective for primary prevention. No evidence was found on the effectiveness of lumbar supports for secondary prevention. The systematic review of therapeutic trials showed that there is limited evidence that lumbar supports are more effective than no treatment, whereas it is still unclear whether lumbar supports are more effective than other interventions for treatment of low back pain.

In the minimal intervention strategy (MIS) aimed at psychosocial factors (n = 142), the multivariable model included less somatizing symptoms, more solicitous responses by an important other, lower perceived risk for chronic LBP, more fear avoidance beliefs, higher level of education, and shorter duration of the LBP episode.

The risk of an unfavorable vocational prognosis was substantial.

PMID: 21224759

Rating: 3a

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Hospital-based multidisciplinary intervention may be no better than brief intervention to increase RTW and improve health in sick-listed employees with low back pain.

PMID: 21217456

Rating: 2b

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Important occupational risk factors such as lifting, awkward body posture and vibration, in addition to psychosocial, socio-economic and other factors are summarized.

PMID: 10573599

Rating: 5a

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PMID: 16902373

Rating: 5b
Recommends that the early establishment of the therapeutic alliance, ie, frequent, early rechecks have been shown to be very effective in determining patients that are at risk for delayed recovery, or patients that may progress in advancing activity restrictions or earlier return to work, all focused on the important concepts of disability management when you can have the biggest impact, early in the case.


Negative-pressure wound therapy has been employed as a treatment strategy for patients with complex postoperative spinal infections, but little is known of the complications associated with VAC in the spinal surgery patient population. Serious complications, including death, may be associated with use of the VAC system.

PMID: 17542505
Rating: 4c


After adjustment on the variable "workplace enrolled in an ergonomic program", the mean number of sick-leave days was significantly lower in the functional restoration group. There was no significant difference in the intensity of pain, the quality of life and functional indexes, the psychological characteristics, the number of contacts with the medical system, and the drug intake.

PMID: 15129059
Rating: 2b


Pain reductions were similar in experimental and control groups.
"SMT has a prominent, but inconsistent role in different treatment guidelines.”.


Currently available evidence is too limited in quality and quantity to allow for the formulation of evidence-based conclusions regarding the efficacy of decompression therapy as a therapy for chronic back pain when compared with other non-surgical treatment options.


The results of this study indicate that semilight outpatient multidisciplinary rehabilitation program for female chronic low back pain patients does not offer incremental benefits when compared with rehabilitation carried out by a physiotherapist having a cognitive-behavioral way of administering the treatment.


The results of this study suggest that patient expectations may influence clinical outcome independently of the treatment itself.

In the present study, we failed to find an association between FJ OA, identified by multidetector CT, at any spinal level and LBP in a community-based study population.

PMID: 18923337

Rating: 3a


Improvements in pain and pain-related disability associated with osteoporotic compression fractures in patients treated with vertebroplasty were similar to the improvements in a control group.

PMID: 19657122

Rating: 2a


These products may be involved intimately in the biochemistry of disc degeneration and the pathophysiology of radiculopathy.

PMID: 8742201

Rating: 5b

The 1,2-DDD patient group had a 2.5 +/- 2.4 VAS score at 12 mo after annuloplasty compared to 7.7 +/- 2 before the procedure. The MDDD VAS score was 4.9 +/- 2.9 at 12 mo compared to 7.4 +/- 1.8 before the procedure. We concluded that IDTA is an effective treatment of discogenic pain and that the number of discs affected by degeneration is an important determinant of the procedure outcome.

PMID: 15271727

Rating: 4b


In total 24 manuscripts were analyzed. In total, 671 patients with coccygodynia underwent coccygectomy following failed conservative management. Coccygectomy can provide pain relief to as high as 85% of the cases.

PMID: 21046173

Rating: 1b


There is moderate evidence showing that multidisciplinary rehabilitation for subacute low back pain is effective, and that work site visit increases the effectiveness.

PMID: 11224862

Rating: 1b, Meta Analysis

At 3 months, only one control patient obtained any significant degree of relief of pain, compared with 23 in the index group. Relief of pain was sustained at 6 and 12 months and was associated with improvement in disability, reduced drug use, and a return to work rate of 53%.

PMID: 11034644

IDET showed advantage over physical rehabilitation alone. IDET operator dependent and should not be considered ready for wholesale use for public. Early outcomes may exaggerate efficacy of IDET, since some who initially improved later deteriorated

Rating: 4b, 53 cases


A total of 164 patients with subacute low back pain were randomized to a mini-intervention group (A), a work site visit group (B), or a usual care group (C). Average days on sick leave were 19 in Group A, 28 in Group B, and 41 in Group C.

PMID: 12642757

Note: Mini intervention was “reassurance”

Rating: 2b


The authors conclude: (1) The individual surgeon was a more important correlate of the decision to perform arthrodesis than clinical variables such as spondylolisthesis. (2) Noninstrumented arthrodesis resulted in superior relief of back pain after 6 and 24 months. (3) Instrumented arthrodesis was the most costly option.

PMID: 9160471

Rating: 3b

PMID: [18287604]

Rating: 5b

Comments by Dr. Watts: Discectomy and laminectomy are truly different procedures. Two recent papers on the treatment of lumbar spinal stenosis explain why. The papers are: Katz and Harris, Lumbar spinal stenosis. NEJM 2008; 358: 818-825, and Weinstein, et al, Surgical versus nonsurgical therapy for lumbar spinal stenosis. NEJM 2008; 358: 794-810. Both these papers reveal the superiority of laminectomy alone for acquired spinal stenosis due to degenerative disease of the lumbar spine, to include lateral recess stenosis and the presence of "bulging" discs without radiculopathy. Discectomy is reserved for those conditions of disc herniation causing radiculopathy. Laminectomy is used for spinal stenosis secondary to degenerative processes exhibiting ligamental hypertrophy, facet hypertrophy, and disc protrusion, in addition to anatomical derrangements of the spinal column such as tumor, trauma, etc. Of course discectomy is performed in interbody fusions, not because of disc pathology but simply to complete the fusion, as one has to incise the skin in order to do the fusion.

Kell R. Employees who use weight training to ease their lower back pain are better off than those who choose other forms of exercise. Journal of Strength and Conditioning Research: Volume 23(1)February 2009

Employees who use weight training to ease their lower back pain are better off than those who choose other forms of exercise, according to a recent study by the University of Alberta in Edmonton, Canada. The study found a 60 percent improvement in pain and function levels for those who took part in a 16-week exercise program of resistance training using dumbbells, barbells, and other load-bearing exercise equipment. In contrast, individuals who chose aerobic training -- such as jogging, walking on a treadmill, or using an elliptical machine -- to ease their back pain only experienced a 12 percent improvement, according to Robert Kell, assistant professor of exercise physiology at the university.

Rating: 10b

Patients with chronic low back pain who followed cognitive intervention and exercise programs improved significantly in muscle strength compared with patients who underwent lumbar fusion.

PMID: 14699268
Rating: 2b


Lumbar spine radiography in primary care patients with low back pain of at least 6 weeks duration is not associated with improved functioning, severity of pain or overall health status, and is associated with an increase in GP workload. Participants receiving X-rays are more satisfied with their care, but are not less worried or more reassured about serious disease causing their low back pain. Guidelines on the management of low back pain in primary care should be consistent about not recommending lumbar spine radiography in patients with low back pain in the absence of red flags for serious spinal pathology, even if the pain has persisted for at least 6 weeks.

PMID: 11701101
Rating: 2a, RCT, 421 cases


There are few significant differences at 6 weeks or 1 year between patients who are referred for lumbar spine X-ray and those who are not. Patients who are referred appear to be in better mental health as measured within the SF-36 quality of life measure.

Implications for healthcare:
- Existing guidelines are sound. Early X-ray is not indicated, although it might still be considered when patient anxiety is a major feature.
- This reinforces the message that the benefit from early X-ray is negligible and that the X-ray dose is high.
- NHS costs at 6 weeks are higher among those referred for X-ray.
- This study suggests that there is little evidence that early X-ray referral leads to less morbidity reflected in time off work.

Rating: 2b, 153 cases

Turkey. ketenciaysegul@hotmail.com

This study showed that TCC is at least as effective as TZ in the treatment of acute LBP, while it appears devoid of any sedative effect in contrast to TZ.

PMID: [15963201](https://www.ncbi.nlm.nih.gov/pubmed/15963201)

Rating: 2b


Evidence for the efficacy of TENS as an isolated intervention in the management of chronic LBP is limited and inconsistent.

PMID: [16319752](https://www.ncbi.nlm.nih.gov/pubmed/16319752)

Rating: 1c


There is inconsistent evidence to support the use of TENS as a single treatment in the management of chronic LBP.

PMID: [16034883](https://www.ncbi.nlm.nih.gov/pubmed/16034883)

Rating: 2c

At this time, the evidence from the small number of placebo-controlled trials does not support the use of TENS in the routine management of chronic LBP.

PMID: 18843638

Rating: 1a


This study demonstrates that intradiscal steroid injections do not improve the clinical outcome in patients with discogenic back pain compared with placebo.

PMID: 15082979

Rating: 2b


Numerous new posterior dynamic stabilization (PDS) devices have been developed for the treatment of disorders of the lumbar spine. Devices include: Interspinous Spacer Devices; The Wallis System; The X STOP Device; The DIAM System; The Coflex, ExtendSure, and CoRoent Devices; Pedicle Screw/Rod-Based Stabilization Devices; The Graf System; The Dynesys System; The AccuFlex, PEEK, and Isobar Rods; Total Facet Replacement Systems; The TFAS Implant; The TOPS Implant; The Stabilimax NZ Implant.

Rating: 5b

CONCLUSIONS: Interexaminer reliability of the McKenzie lumbar spine assessment in performing clinical tests and classifying patients with low back pain into syndromes were good and statistically significant when the examiners had been trained in the McKenzie method.

PMID: [11935120](https://www.ncbi.nlm.nih.gov/pubmed/11935120)

Rating: 2c, CT, 39 cases


Evidence for the benefit of acupuncture is conflicting, with higher-quality trials showing no benefit.

PMID: [17477101](https://www.ncbi.nlm.nih.gov/pubmed/17477101)

Rating: 5a

LBP has a favorable natural history: 30% to 60% of patients recover in 1 week; 60% to 90%, in 6 weeks; and 95%, by 12 weeks. Vertebral compression fractures account for LBP in less than 5% of cases and herniated disks account for LBP in only 4% of cases. Relapses within 6 months occur in about 40% of patients.

**Study Highlights**

- Diagnostic imaging of the spine is associated with a high rate of abnormal findings in asymptomatic individuals. For example, herniated disk is found on magnetic resonance imaging in 9% to 76% of asymptomatic patients; bulging disks, in 20% to 81%; and degenerative disks, in 46% to 93%.
- Common oral medications such as acetaminophen and NSAIDs are associated with a number needed to treat of 2 to 3 for 50% pain improvement during 4 to 6 hours.
- Muscle relaxants are effective in acute LBP.
- Cyclobenzaprine is associated with a number needed to treat of 3 at 2 weeks for symptom improvement and is associated with drowsiness and dizziness.
- Carisoprodol is also effective but has abuse and dependency potential.
- Metaxalone and low-dose cyclobenzaprine have fewer adverse effects.
- No studies support the use of oral steroids in patients with acute LBP, although epidural steroid injections may be helpful with radicular symptoms not responsive to 2 to 6 weeks of conservative therapy.
- Bed rest provides no benefits, and staying active is recommended.
- There is limited evidence for the benefit of patient education, but a focus on maintaining activity and the natural history of LBP may improve time course for recovery and prevent chronicity.
- There is minimal evidence supporting the use of cold therapy, but heat therapy has been found to be helpful for pain reduction and return to normal function.
· Spinal manipulation has been reviewed in 4 good-quality systematic reviews, and short-term, but not long-term, improvements have been reported.
· The McKenzie method of physical therapy has been found to be superior to other treatments for short-term improvement of pain and disability, but long-term benefits have not been shown.
· Traction has not been shown to improve symptoms for patients with or without sciatica.
· Lumbar supports are not believed to prevent LBP.


On the basis of the scarce body of literature critically reviewed to date, the clinical efficacy of prolotherapy in treating osteoarthritis, low back pain, and other musculoskeletal conditions remains inconclusive.

PMID: 15100629
Rating: 1c


Chymopapain chemonucleolysis is a safe and effective procedure. Proper selection of patients is important for the success of treatment.

PMID: 12234439
Rating: 4a


Acute osteoporotic vertebral compression fracture management includes bracing, analgesics, and functional restoration. Patients with chronic pain beyond 2 months may be appropriate candidates for vertebral body augmentation, ie, vertebroplasty or balloon tamp reduction. Open surgical management with decompression and stabilization should be reserved for the rare patient with neural compression and progressive deformity with neurologic deficits.

A total of 41 patients were divided into two groups. In conclusion, tubular retractor assisted foraminotomy/discectomy should increase patient's compliance and is as clinically effective as much as the open foraminotomy/discectomy.


High fear-avoiders fared significantly better in the exercise program than in usual general practitioner care at 6 weeks and at 1 year. Low fear-avoiders did not.

**Kleinstück F, Dvorak J, Mannion AF.** Are "structural abnormalities" on magnetic resonance imaging a contraindication to the successful conservative treatment of chronic nonspecific low back pain? *Spine.* 2006 Sep 1;31(19):2250-7.

The presence of common "structural abnormalities" on MRI had no significant negative influence on the outcome after therapy.

There are 5 compulsory indications for use: 1) persistent axial low back pain +/- leg pain and non-responsive to > or = 6 weeks of conservative care; 2) history consistent with discogenic low back pain without marked lower extremity neurological deficit; 3) one to 3 desiccated discs with or without small, contained herniated nucleus pulposus by T2-weighted magnetic resonance imaging, with at least 50% remaining disc height; 4) concordant pain provocation by low pressure (< 50 psi above opening pressure) discography; and, 5) posterior annular disruption by post-discography computed tomography.

PMID: [18850030](https://www.ncbi.nlm.nih.gov/pubmed/18850030)

Rating: 5c

This study was sponsored by a manufacturer of an IDET catheter.

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Laser-assisted endoscopic foraminal decompression allows adequate resection with decompression and discectomy, without the need for open decompression and fusion, and targets the symptomatic level effectively in patients with Grade I-III isthmic spondylololisthesis.

Rating: 2c

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Epidural steroid injections and physical therapy both seem to be effective in LSS patients up to 6 months of follow-up.

PMID: [19404172](https://www.ncbi.nlm.nih.gov/pubmed/19404172)

Rating: 2c

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Koes BW, Sanders RJ, Tuut MK; Kwaliteitsinstituut voor de Gezondheidszorg CBO. The Dutch Institute for Health Care Improvement (CBO) guideline for the diagnosis and

Acute low-back pain (0-12 weeks) is treated in a time-contingent manner. Staying active is better than bed rest. If chronicity threatens, exercise therapy can be advised. As part of an activating management, manipulation can be used. For pain relief, paracetamol is the drug of choice. The treatment of chronic low-back pain is aimed at the optimisation of the patients' functionality. Staying active is preferred here as well. Varied exercise therapy is advised. Back training may be considered. Manipulation can be used as part of an activating management. Paracetamol is preferred for pain relief. There is a limited role for percutaneous lumbar facet denervation. Behaviour therapy can be employed and there is a place for multidisciplinary programmes if other methods of treatment have proved insufficiently effective.

PMID: [15015247](https://www.ncbi.nlm.nih.gov/pubmed/15015247)

Rating: 6b


Evidence for the effectiveness of these protocols remains largely anecdotal, based on case series.

PMID: [14589481](https://www.ncbi.nlm.nih.gov/pubmed/14589481)

Rating: 1c


Medication-assisted manipulation appears to offer some patients increased improvement in low back pain and disability. Further investigation of these apparent benefits in a randomized clinical trial is warranted.

PMID: [15883577](https://www.ncbi.nlm.nih.gov/pubmed/15883577)

Rating: 3b

Note: There was no difference in overall pain and disability ratings by three months, and they remained the same through the one year follow-up period.

This study is the first randomized trial to show higher costs for chiropractic care without producing better clinical outcomes, but our findings are likely to understate the costs of medical care with or without physical therapy because of the absence of pharmaceutical data. Physical therapy provided in combination with medical care and physical modalities provided in combination with chiropractic care do not appear to be cost-effective strategies for treatment of LBP; they produce higher costs without clinically significant improvements in outcome.

PMID: 15838406
Rating: 2b
(Study quality would have been better if it had not excluded pharmaceuticals.)


The qualitative and the quantitative analysis showed strong evidence that exercise reduces sick days during the first follow-up year, the effect size was -0.24. In a subgroup of studies on the treatment of severely disabled patients (> 90 sick days under usual care) the effect size was -0.30.

PMID: 15180219
Rating: 1b


Function-centered rehabilitation increases the number of work days, self-efficacy, and lifting capacity in patients with nonacute nonspecific LBP.

PMID: 15895328
Rating: 2b
Some excerpts:

Meta-analyses show strong evidence that exercise and multidisciplinary rehabilitation reduce disability and pain in patients with nonacute LBP. Work absenteeism is reduced by exercise, in comparison with usual care. Several investigators found no evidence that favored 1 particular type of exercise over other types. Pain intensity is used to determine the intensity of the exercises and leads to restrictive recommendations regarding activity and work. This approach seems to increase behaviors such as taking pain-killers, seeking health care, stopping work, limping, guarding, and talking about pain. So far, it appears that the key to success in the treatment of nonspecific nonacute LBP is physical activity in any form, rather than through any specific activity. Function-Centered Treatment: The primary goal of the FCT group during its 4 hours of treatment a day was to increase workrelated capacity. All team members emphasized that patients should continue therapeutic activities even if their pain increased. Pain-Centered Treatment: Unlike with the FCT group, patients in the PCT group were told to stop activities when pain increased. At the onset of the study, physicians and therapists criticized the FCT because they feared that encouraging the patients to move regardless of pain would lead to an increase in pain intensity. The pain reduction experienced by the FCT group supports the hypothesis that fear of pain may be more disabling than pain itself.


Referral to neuroreflexotherapy intervention improves the effectiveness and cost-effectiveness of the management of nonspecific low back pain.

PMID: 12045510

Rating: 2c, 104 cases


Neuroreflexotherapy intervention seems to be a simple and effective treatment for rapid amelioration of pain episodes in patients with chronic low back pain.

PMID: 9106321

Rating: 2c, 78 cases


A mattress of medium firmness improves pain and disability among patients with chronic non-specific low-back pain.

PMID: 14630439

Rating: 2b

About 80 percent of the nearly 12,000 participants reported a decrease in discomfort, including those who had previously undergone back surgery. A decrease in pain correlated with adherence to the program and with measured improvement in strength and flexibility.

PMID: 6225322
Rating: 4a


Adverse effects of corticosteroids and withdrawal are discussed.
Rating: 9b


Fusion success was 95.6% in the stimulated group compared with 87% in the nonstimulated group (P = 0.05). Clinical success was 91% in the stimulated group and 79% in the nonstimulated group (P = 0.02). In a workers' compensation subset, fusion success was 93% in the stimulated group and 81% in the nonstimulated group. Clinical success was 57% in the stimulated group and 46% in the nonstimulated group.

PMID: 10084185
Rating: 2b


PMID: 2935132
Rating: 5c

Over 1 year, the cognitive behavioural intervention had a sustained effect on troublesome subacute and chronic low-back pain at a low cost to the health-care provider.

PMID: 20189241
Rating: 2a


The median duration until sustainable return to work was 88 days in the integrated care group compared with 208 days in the usual care group (P=0.003).

PMID: 20234040
Rating: 2b


MRP is promising to improve health-related quality of life for patients with chronic back pain in the community.

PMID: 14589185
Rating: 2b

Significant reductions in mean visual analog scale scores for buttock and hip pain were noted at weeks 4, 12, and 16 and for low back pain at weeks 2, 12, and 16. Visual analog scale scores for general and low back pain, pain radiating into lower limbs, and tingling were significantly lower at week 2 after injection, suggesting early onset. A total of 95% of patients reported fair to excellent improvement in pain.

PMID: 15043354
Rating: 4b


This study shows that it may be possible to prevent certain musculoskeletal problems in the back or lower extremities among military conscripts by using custom-made biomechanic shoe orthoses.

PMID: 12072853
Rating: 2b


PMID: 22879740
Rating: 4c


While overall the LiftTrainer program was not effective, those with twisting moments below 30 Nm reported fewer injuries, suggesting a shift in focus for "safe" lifting programs.

PMID: 17304142

Rating: 1b

(I) For patients with low back pain of less than 6 weeks duration: Rating A (supported by good evidence from relevant studies), with 23 separate clinical trials, of which 9 rated as high; (II) For patients with low back pain of 6-12 weeks duration. Rating A (supported by good evidence from relevant studies), with 6 separate clinical trials, of which 3 rated as high; (III) For patients with chronic low back pain of greater than 12 weeks duration: Rating A (supported by good evidence from relevant studies), with 29 separate clinical trials, of which 18 rated as high; & (IV) For patients with low back pain and radiating leg pain, sciatica or radiculopathy. Rating C (Supported by limited evidence from studies or reviews), with 6 separate clinical trials, of which 0 rated as high.

Rating: 1a


Twelve studies of work hardening and work conditioning programs in the United States and abroad were reviewed. One study produced convincing evidence in a randomized study that a work conditioning program was useful in producing a higher percentage of return to work and an earlier return to work in a group of patients off work for at least 2 months. Another study demonstrated that a work hardening program increased the rate of return to work by 52% in patients off work for greater than 4 months. Most of the other studies reviewed suggested positive results.

PMID: 8171109

Rating: 1c

Although radiofrequency facet joint denervation may provide some short-term improvement in functional disability among patients with chronic low back pain, the efficacy of this treatment has not been established.

PMID: 11458140
Rating: 2c, 70 cases

Note: Subjects with prior lumbar spine surgery were excluded in the study.


Kyphoplasty markedly improves clinical outcome and results in significant vertebral height restoration and normalization of morphologic shape indices that remain stable for at least two years following treatment.

PMID: 16395177
Rating: 4a


Research studies focusing on the fear-avoidance model have expanded considerably since the review by Vlaeyen and Linton. The fear-avoidance model is a cognitive-behavioral account that explains why a minority of acute low back pain sufferers develop a chronic pain problem.

PMID: 17180640
Rating: 5b


Standardized protocols using specific strength and measurement equipment can achieve similar benefits at different sites.

Access to managed chiropractic care may reduce overall health care expenditures through several effects, including (1) positive risk selection; (2) substitution of chiropractic for traditional medical care, particularly for spine conditions; (3) more conservative, less invasive treatment profiles; and (4) lower health service costs associated with managed chiropractic care. Systematic access to managed chiropractic care not only may prove to be clinically beneficial but also may reduce overall health care costs.


There is moderate quality evidence that spinal manipulation is effective for the treatment of acute lumbar radiculopathy. At present, no evidence exists for the treatment of thoracic radiculopathy.


Up to 80 percent of patients with pain unresponsive to correct medical treatment experience a significant degree of pain relief, and few serious complications have been reported.

Osteopathic manipulative treatment and sham manipulation both appear to provide some benefits when used in addition to usual care for the treatment of chronic nonspecific low back pain. It remains unclear whether the benefits of osteopathic manipulative treatment can be attributed to the manipulative techniques themselves or whether they are related to other aspects of osteopathic manipulative treatment, such as range of motion activities or time spent interacting with patients, which may represent placebo effects.


OMT significantly reduces low back pain. The level of pain reduction is greater than expected from placebo effects alone and persists for at least three months.


In patients with osteolytic fractures secondary to multiple myeloma, kyphoplasty yields quick pain relief, and is associated with a statistically significant improvement in generic health outcome measures.

PMID: 14600608

Rating: 5b


We conclude that facet joint injection is a non-specific method of treatment and the good results depend on a tendency to spontaneous regression and to the psychosocial aspects of back pain.

PMID: 2527856

Rating 2c

Boswell et al. noted that the diagnosis was not confirmed, patients with neurological deficits where included and 3-8 ml of volume was used. (Boswell2, 2007)


Most studies found that interdisciplinary rehabilitation, exercise, acupuncture, spinal manipulation or cognitive-behavioural therapy were cost-effective in people with sub-acute or chronic LBP.

PMID: 21229367

Rating: 1b

CONCLUSIONS: Despite the lack of definite evidence, we found sufficient reasons for the reduction of whole-body vibration-exposure to the lowest possible level.

PMID: 10963411


CONCLUSIONS: The results concerning prevention for subjects not seeking medical care are sobering. Only exercises provided sufficient evidence to conclude that they are an effective preventive intervention.

PMID: 11295900

Nineteen RCTs (7,502 participants) and 7 CCTs were included.

Lumbar supports (4 RCTs and 2 CCTs): There was strong and consistent evidence that lumbar supports were not effective in preventing neck and back pain.
Back schools and education (9 RCTs and 5 CCTs): There was consistent evidence that back and neck schools were not effective in preventing back and neck pain.
Exercises (6 RCTs): There was consistent evidence that exercises may be effective in preventing neck and back pain.
Ergonomics and risk factor modification: There was no good-quality evidence on the effectiveness of ergonomics or modification of risk factors: no RCTs or CCTs were identified.

Rating: 1b


A cognitive-behavioral group intervention produces long-term health and economic benefits. Usual medical care might be improved considerably by implementing these psychologic methods.

PMID: 16622371

Rating: 2a
Linz DH; Shepherd CD; Ford LF; Ringley LL; Klekamp J; Duncan JM. Effectiveness of occupational medicine center-based physical therapy. *Journal of Occupational and Environmental Medicine.* 01-Jan-2002; 44(1): 48-53.

This study concluded, “the program saved employers approximately $1.4 million, or $2000 per client. The authors attribute the improved outcomes to early therapy using active rather than passive techniques and an emphasis on patient education and home exercise programs.”

PMID: [11802465](https://link.doaj.org/fulltext/11802465)
Rating: 4b, CT, 699 cases


The decision to use SPECT in most patients with low back pain cannot be supported by clinical trials. Its effect on clinical management and cost-effectiveness are unknown.

PMID: [7658235](https://link.doaj.org/fulltext/7658235)
Rating: 1b


Fifty-four relevant RCTs were identified, of which 51 were scored for methodological quality. Sixteen RCTs involving 1730 patients qualified for inclusion in this review based upon their methodological quality, and chronicity of symptoms; exercise had a positive effect in all 16 trials. Twelve out of 16 programmes incorporated strengthening exercise, of which 10 maintained their positive results at follow-up.

PMID: [14715404](https://link.doaj.org/fulltext/14715404)
Rating: 1b


One to one lessons in the Alexander technique from registered teachers have long term benefits for patients with chronic back pain. Six lessons followed by exercise prescription were nearly as effective as 24 lessons.

PMID: 18713809

Rating: 2b


In terms of clinical outcome there was little difference between the treatment groups. Thus, with the higher cost of the kyphotic balloon procedure, we recommend vertebroplasty over kyphoplasty for the treatment of osteoporotic VCFs.

PMID: 19513578

Rating: 2b


Successful treatment was reported by 57% of patients treated with heat wrap therapy, 26% treated with paracetamol and 18% treated with ibuprofen.

PMID: 15449633

Rating: 2b


Exercises matching subjects' DP significantly and rapidly decreased pain and medication use and improved in all other outcomes.
This study demonstrated better symptom relief with directional preference exercise.


There was a significant difference on perceived recovery at 1-year follow-up in favor of the physical therapy group. The additional physical therapy did not have an incremental effect on quality of life.


Because several trials indicated no evidence of an effect it is not recommended to use corticosteroid injections and traction as treatment option. Whether clinicians should prescribe physical therapy, bed rest, manipulation or medication could not be concluded from this review.


In 1998, total health care expenditures incurred by individuals with back pain in the United States reached 90.7 billion dollars, and per-capita expenditures were generally higher for those who were older, female, white, medically insured, or suffered from disc disorders.

The study results show that use of the heatwrap therapy significantly reduced pain intensity and impact of pain on everyday activities.

PMID: [12724551](https://www.ncbi.nlm.nih.gov/pubmed/12724551)

Rating: 4c


75.4% of patients had a successful long-term outcome, reporting at least a >50% reduction between preinjection and postinjection pain scores, as well as an ability to return to or near their previous levels of functioning after only 1.8 injections per patient (range, 1 to 4 injections). Of our patients, 78.3% were satisfied with their final outcomes.

PMID: [9821894](https://www.ncbi.nlm.nih.gov/pubmed/9821894)

Rating: 4a


These data suggest that the efficacy of spinal decompression achieved with motorized traction for chronic discogenic low back pain remains unproved.

PMID: [17147594](https://www.ncbi.nlm.nih.gov/pubmed/17147594)

Rating: 1b

This retrospective chart audit provides preliminary data that chronic LBP may improve with DRX9000 spinal decompression. Randomized double-blind trials are needed to measure the efficacy of such systems.

PMID: 18211590
Rating: 4b


Eleven trials of mostly high quality were included. McKenzie reduced pain and disability at 1 week follow-up when compared with passive therapy for acute LBP. When McKenzie was compared with advice to stay active, a reduction in disability favored advice.

PMID: 16641766
Rating: 1c


For all outcomes at each time point, the exercise group showed greater improvements than psychotherapy.

PMID: 17371412
Rating: 2c

In this study, provocative discography screening did not improve surgical outcomes after circumferential fusion for lumbar discogenic back pain.

PMID: 12131428
Rating: 4b


In most patients with low back pain, symptoms resolve without surgical intervention.

PMID: 19202123
Rating: 5b


Surface electrical stimulation, electromyography, and ultrasonography can be used in conjunction with isometric muscle testing for the identification of neuromuscular factors influencing muscle force generation.

PMID: 20048117
Rating: 5c


The evidence-based primary care options are exercise, laser, massage, and spinal manipulation; however, the latter three have small or transient effects that limit their value as therapies for chronic LBP. In contrast, exercise produces large reductions in pain and disability, a feature that suggests that exercise should play a major role in the management of chronic LBP. Outside of primary care, multidisciplinary treatment or functional restoration is effective; however, the high cost probably means that these programs should be reserved for patients who do not respond to cheaper treatment options for chronic LBP.

PMID: 15062718

Clinical management information was obtained for 98 randomly selected, workers' compensation claimants with acute, uncomplicated, disabling work-related LBP. Disability was significantly associated with increased utilization of specialty referrals (P = 0.013) and provider visits (P < 0.001), use of magnetic resonance imaging (P = 0.003), and use of opioids for more than 7 days (P = 0.013).

PMID: 11125681
Rating: 3b


These patients were randomly allocated into two groups: Group I receiving therapeutic injections with local anesthetic and Sarapin®, and Group II receiving therapeutic injections with a mixture of local anesthetic, Sarapin, and methyl prednisolone. A total of 73 patients were treated with medial branch blocks under fluoroscopy. Results showed that patients underwent multiple procedures over a period of 2½ years. The mean number of procedures or interventions was 2.5 ± 0.09 from 1 to 3 months, whereas it was 4 ± 0.13 for 4 to 6 months, 6.1 ± 0.21 for 7 to 12 months, and 8.4 ± 0.31 for 13 to 32 months. Cumulative significant relief with one to three injections was 100% up to 1 to 3 months, 82% for 4 to 6 months, 21% for 7 to 12 months, and 10% after 12 months, with a mean relief of 6.5 ± 0.76 months.

PMID 15333159
Rating: 10c

The prevalence of facet joint pain in patients with chronic cervical spine pain was 55%, with thoracic spine pain was 42%, and in with lumbar spine pain was 31%. The false-positive rate with single blocks with lidocaine was 63% in the cervical spine, 55% in the thoracic spine, and 27% in the lumbar spine.

PMID: 15169547
Rating: 4b


Among the 50 patients in the treatment group receiving spinal endoscopic adhesiolysis, significant improvement without adverse effects was shown in 80% at 3 months, 56% at 6 months, and 48% at 12 months. The control group showed improvement in 33% of the patients at one month and none thereafter.

PMID: 16000173
Rating: 2b


Seventy-two percent of patients in Group III (adhesiolysis and hypertonic neurolysis), 60% of patients in Group II (adhesiolysis only), compared to 0% in Group I (control) showed significant improvement at 12-month follow up. The average number of treatments for one year were 2.76 in Group II and 2.16 in Group III. Duration of significant relief with the first procedure was 2.8 ± 1.49 months in Group II and 3.8 ± 3.37 months in Group III.

Rating: 2b

Note: Repeat procedures were allowed and the control group received one caudal epidural injection at S2 or S3.

#%%%%%%%

Significant improvement in pain and functional status were observed at 3 months, 6 months, and 12 months, compared to baseline measurements. The average number of treatments for 1 year was 3.7 with no significant differences among the groups.

PMID: 17525777
Rating: 2c

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The precise cause of low back pain based on clinical history, physical examination, radiological imaging, and electrophysiological testing can be identified in only 15% of patients in the absence of disc herniation and neurological deficit. The prevalence of chronic lumbar zygapophysial (facet) joint pain ranges from 15% to 45%. Since we are unable to apply reference standards of biopsy, surgery, or autopsy, and pain relief has been argued as an inconsistent feature, long-term follow-up has been considered as the best indicator. This study was undertaken to evaluate stability of the diagnosis of lumbar facet joint pain following comparative local anesthetic blocks at a follow-up after 2 years. The results showed that 85% of the patients available for follow-up withstood the diagnosis of facet joint pain at the end of 2 years, whereas this proportion decreased to 75%, if all the patients in the study were included in the analysis.

PMID: 16883373
Rating: 3c

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CONCLUSION: Caudal epidural injection with local anesthetic with or without steroids might be effective in patients with disc herniation.

PMID: 21897343
Rating: 2b

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A total of 438 patients met inclusion criteria. The prevalence of facet joint pain was 39% in the cervical spine [95% confidence interval (CI), 32%-45%]; 34% (95% CI, 22%-47%) in the thoracic pain; and 27% (95% CI, 22%-33%) in the lumbar spine. The false-positive rate with a single block in the cervical region was 45%, in the thoracic region was 42%, and in the lumbar region 45%.

PMID: [17912133](https://www.ncbi.nlm.nih.gov/pubmed/17912133)

Rating: 3a

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Rating: 9b

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Although few significant differences between the three treatment groups the BAT and FK seemed to improve health-related quality of life and self-efficacy of pain to a somewhat higher degree than the conventional physiotherapy. SOC seemed to be a stable trait measure over time.

PMID: [12017464](https://www.ncbi.nlm.nih.gov/pubmed/12017464)

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Among patients with acute low back pain, continuing ordinary activities within the limits permitted by the pain leads to more rapid recovery than either bed rest or back-mobilizing exercises.
The median duration of absence from work was six days in the bed rest group, five days in the exercise group and four days in the control group. No one was still absent from work at 12 weeks of follow-up.

Clinical conclusions: As little as two days of bed rest may lead to a slower recovery than the avoidance of bed rest, as well as to longer sick leaves. Light exercise resulted in a slower recovery after three weeks. Avoiding bed rest and maintaining ordinary activity as tolerated lead to the most rapid recovery.

Rating: 2b, RCT, 186 cases


Although patients improved over the 2-year follow-up regardless of initial treatment, those undergoing decompressive surgery reported greater improvement regarding leg pain, back pain, and overall disability. The relative benefit of initial surgical treatment diminished over time, but outcomes of surgery remained favorable at 2 years.

Rating: 2b

Malter AD, Larson EB, Urban N, Deyo RA. Cost-effectiveness of lumbar discectomy for the treatment of herniated intervertebral disc, Spine 1996 May 1;21(9):1048-54; discussion 1055

For carefully selected patients with herniated discs, surgical discectomy is a cost-effective treatment. Discectomy's favorable cost-effectiveness results from its substantial effect on quality of life and moderate costs.

Rating: 3a

**MAJOR RECOMMENDATIONS**

Comment: This guideline tends to be liberal in recommending unproven techniques. The authors also do not differentiate the cervical and lumbar studies, clumping them together for analysis.

Rating: 6b


PMID: 10553871

Rating: 5c


Acupuncture effectively relieves chronic low back pain. No evidence suggests that acupuncture is more effective than other active therapies.

PMID: 15838072

Rating: 1a


The introduction of low-impact aerobic exercise programmes for patients with chronic low back pain may reduce the enormous costs associated with its treatment.

PMID: 11477282

Rating: 2b
Marks RA, Spine fusion for discogenic low back pain: outcomes in patients treated with or without **pulsed electromagnetic field stimulation**, *Adv Ther* 2000 Mar-Apr;17(2):57-67

Sixty-one randomly selected patients were retrospectively studied. The use of PEMF stimulation enhances bony bridging in lumbar spinal fusions.

PMID: [11010056](https://doi.org/10.1016/S0897-4113(00)80005-1)

Rating: 3c


Facet joint injections and facet nerve blocks may be of equal value as diagnostic tests, but neither is a satisfactory treatment for chronic back pain.

PMID: [1408298](https://www.sciencedirect.com/science/article/pii/030439599290242L)

Rating: 2c

Boswell et al. noted that the diagnosis was not confirmed with controlled blocks, the evaluation was not blinded, and the authors used “poor assessment tools.” (Boswell2, 2007)


There is limited to moderate evidence that MMH advice and training with or without assistive devices do not prevent back pain, back pain-related disability or reduce sick leave when compared to no intervention or alternative interventions.

PMID: [17636814](https://www.ncbi.nlm.nih.gov/pubmed/17636814)

Rating: 1b

In conclusion, training workers about proper material handling techniques or providing them with assistive devices are not effective interventions by themselves in preventing back pain.

Martino CW. Vertebral Axial Decompression For Low Back Pain. *WCB Evidence Based Practice Group*. Craig W. Martin, Senior Medical Advisor. February 2005
To date there is no evidence that the VAX-D system is effective in treating chronic LBP associated with herniated disc, degenerative disc, posterior facet syndrome, sciatica or radiculopathy.

Rating: 7b


These spine-related expenditures have increased substantially from 1997 to 2005, without evidence of corresponding improvement in self-assessed health status.

PMID: 18270354
Rating: 5a

New research shows that healthcare expenditures for back and neck problems have increased substantially over time, but with little bang for the healthcare buck.


Work hardening, presented in this paper as a "new" service for the industrially injured, is actually well grounded in the traditional models and practices of occupational therapy.

PMID: 4014411
Rating: 5b

Mathis JM, Percutaneous vertebroplasty, JBR-BTR. 2003 Sep-Oct;86(5):299-301

Percutaneous vertebroplasty (PV) is a safe and effective treatment for relieving pain in patients complaining of severe back pain induced by osteoporotic or neoplastic compression fractures. The success rate exceeds 90% and the complication rate is lower than 1%.

PMID: 14651089
Rating: 5a

Degenerative changes in the thoracic spine on MRI was observed in approximately half of the asymptomatic subjects.

PMID: [20505574](https://www.ncbi.nlm.nih.gov/pubmed/20505574)
Rating: 3b


Combining continuous low-level heat wrap therapy with directional preference-based exercise during the treatment of acute low back pain significantly improves functional outcomes compared with either intervention alone or control. Either intervention alone tends to be more effective than control.

PMID: [15996609](https://www.ncbi.nlm.nih.gov/pubmed/15996609)
Rating: 2b


A simple physical examination technique for assessing lumbar spine segmental rigidity was used in this preliminary study to select patients and levels for combined facet injection and stretching exercise, with resultant improvements in mobility and self-reported pain/disability that may extend beyond the pharmacologic duration of the corticosteroid.

PMID: [10987151](https://www.ncbi.nlm.nih.gov/pubmed/10987151)
Rating: 4c

Lumbar SR may be found whether or not pain of facet joint origin is present. In the randomized trial, facet injections significantly increased the percentage of patients with SR showing ROM improvement, as well as the degree of improvement in lumbar mobility after treatment.

PMID: 15480128
Rating: 2b


Although evidence suggests that physical disability, general health, and pain relief are better with VP and KP than those with medical management within the first 3 months after intervention, high-quality randomized trials with 2-year follow-up are needed to confirm this.

PMID: 19251485
Rating: 1c


MAIN RESULTS: We identified 18 trials of support surfaces for pressure ulcer treatment, involving 1309 participants.

PMID: 22161450
Rating: 1c

Multivariable Cox proportional hazards regression (forward stepwise) showed eight significant predictors; five were associated with increased time receiving benefits compared with their reference groups: 1) working in the construction industry, 2) older age, 3) lag time from injury to treatment, 4) pain referred into the leg, and 5) three or more positive Waddell nonorganic signs. Three predictors were associated with reduced time receiving benefits: 1) higher values of questionnaire score, 2) intermittent pain, and 3) a previous episode of back pain.

PMID: 10685477
Rating: 3b


RESULTS: We found 49 systematic reviews, RCTs, or observational studies that met our inclusion criteria.

PMID: 21549023
Rating: 1b

“Compared with no lumbar support, an elastic lumbar belt may be more effective than no belt at improving pain (measured by visual analogue scale) and at improving functional capacity (measured by EIFEL score) at 30 and 90 days in people with subacute low back pain lasting 1 to 3 months. However, evidence was weak (very low-quality evidence).”


This study concluded that exercise therapy should be prescribed for the treatment of adults with acute low back pain to expedite recovery. The results of this study allow the health care provider to confidently prescribe exercise therapy for acute low back pain. This study can be used to support exercise therapy as an evidence based care protocol for health care providers.

PMID: 12870095

Randomized, controlled trials are needed. Until then, **epidural steroids provide a reasonable alternative to surgical intervention** in selected patients with back and/or leg pain, whose symptoms are functionally limiting.

PMID: [15749619](#)

Rating: 5b

MDConsult, Patient Handouts: Low Back Pain and Sciatica, Recommendations regarding manipulation. 2003

Experts now recognize that at least one spinal manipulation within the first four weeks of the onset of uncomplicated acute back pain may be a useful treatment. Controversy exists over whether on-going manipulations after a first visit work any better for relieving pain than leaving the back alone and gradually resuming normal activity. Some patients consider spinal manipulation to be highly effective for chronic low back pain as well, although evidence in this case is much weaker. Methodological problems have clouded the results of many studies on manipulation techniques, and it is difficult to draw valid conclusions from most of them.

Rating: 5a

Medicare, Indications and Limitations of Coverage and/or Medical Necessity, Percutaneous Intradiscal Treatment for Low Back Pain, “Medicare B News,” Issue 210, dated February 27, 2004

Benefits are not available for NUCLEOPLASTY®, IDET (ANNULOPLASTY®) or other similar minimally-invasive ablative procedures - using either radiofrequency, laser or direct heat energy source - as these are not considered reasonable and necessary for the diagnosis or treatment of an injury or disease. Currently, these procedures are considered non-covered by NAS, due to the fact that current peer-reviewed literature does not support the efficacy of the services. Claims will be denied as not yet proven effective.

Rating: 6b


Patients in the Bureau of Workers Compensation (BWC) group had a higher VAS score but showed the same level of improvement in ADLs as compared to commercial insurance or self-
pay patients. In the non-BWC patient group an average VAS pain score decrease of more than 6 points on a 10-point scale was reported at 6 to 12 months following IDTA.

PMID: 17166191

Rating: 4c

Significant difference was found between pain relief in patients who had private insurance or self-pay for the procedure vs. those who received workers’ compensation. The average percentage decrease in VAS pain scores was 78% for non workers’ comp and 53% for workers’ comp, respectively.

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Rating: 10a

[Note: This journal has not been accepted into Medline, necessitating a lower ranking.] Non-medical factors are recognized as playing a significant role in determining RTW outcomes after sustaining a work-related, compensable low back injury. Non-medical factors identified as being potentially associated with poorer RTW outcomes include: low worker educational levels, a pre-injury heavy manual job, older than 45 years, smoking, positive Waddell’s signs, less life satisfaction, receiving compensation, workplace climate (including bullying), prior absence history, abuse of drugs and alcohol, long commuting distance to/from work, attorney involvement, long hours worked, work overload and pressure, high unpaid workload (particularly with women), obesity, and blaming others for the injury.

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The results of the meta-analysis present no evidence to support the use of TENS in the treatment of chronic low back pain. This meta-analysis lacked data on how TENS effectiveness is affected by four important factors: type of applications, site of application, treatment duration of TENS, optimal frequencies and intensities.

PMID: 11406059

Rating: 1b

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These adverse radiological findings correlated closely with increased low back pain during the first one to two years after operation and a poorer overall outcome. We conclude that percutaneous nucleotomy is most likely to be successful when the central area of the disc is preserved.

PMID: 11380118
Rating: 4b


Although there were methodological flaws, which precluded strong conclusions, it appears that manipulation may be more effective than other interventions in the treatment of LBP, both in short- and long-terms effects. This finding is based on limited data at this time.

Rating: 1b


For patients with subacute low back pain, a brief and simple early intervention with examination, information, reassurance, and encouragement to engage in physical activity as normal as possible had economic gains for the society.

PMID: 14560075
Rating: 2a

In this study, we found no effect of nonspecific physical exercise on recovery from LBP in men and women.

PMID: 17173002
Rating: 3a

The exercises measured were not specific back strengthening or stretching exercises.


In patients with chronic spinal pain syndromes, spinal manipulation, if not contraindicated, may be the only treatment modality of the assessed regimens that provides broad and significant long-term benefit.

PMID: 15726029
Rating: 2b


Routine use of contrast-enhanced examinations in patients who have had prior lumbar surgery probably adds little diagnostic value and may be confusing.

PMID: 10851097
Rating: 4b, 156 cases

Nadler SF, Steiner DJ, Erasala GN, Hengehold DA, Hinkle RT, Beth Goodale M, Abeln SB, Weingand KW, Continuous low-level heat wrap therapy provides more efficacy than Ibuprofen and acetaminophen for acute low back pain, *Spine* 2002 May 15;27(10):1012-7

Continuous low-level heat wrap therapy was superior to both acetaminophen and ibuprofen for treating low back pain.

PMID: 12004166

Overnight use of heatwrap therapy provided effective pain relief throughout the next day, reduced muscle stiffness and disability, and improved trunk flexibility.

PMID: 12638100
Rating: 2b


Our midterm results showed that PGE1 was useful for treating intermittent claudication in patients with lumbar spinal canal stenosis.

PMID: 18520942
Rating: 4b


The active treatment group showed statistically significant improvement not only in back and leg pain but also back and hip movement as well as the sacro-iliac joint test. Pre operative sensory deficit and weak or absent ankle reflex normalized (P < 0.01) and (P < 0.05), respectively. There was significant improvement in quality of life variables, global perception of improvement, and generalized pain. The improvement seen in the active group was significantly greater than that seen in the placebo group with regard to all the above-mentioned variables.

PMID: 18496338
Rating: 2c
For patients like those in the present study, RF neurotomy is not a total treatment. It provided relief for only one component of the patients' pain. Nevertheless, this relief was substantial and considered worthwhile by the patients who received it.


NCCI has performed a series of studies comparing medical costs between workers compensation (WC) and employer-sponsored group health (GH) insurance. WC costs were 71% more than GH across the 12 injuries analyzed. In looking at WC cost by injury, costs for spinal and back disorders were 120% higher in WC compared to GH (220% Expressed as Percent of GH), almost all of which was caused by increased utilization, including spinal fusion.

Rating: 10a


Convincing evidence is lacking on the effects of injection therapies for low back pain.

PMID: 10796449

Rating: 1b

Facet joint, epidural and local injection therapy has not yet shown to be effective, nor has it been shown to be ineffective. Because of the tendency towards positive results favouring injection therapy and the minor side effects reported by the reviewed studies, there is at the moment no justification for abandoning injection therapy in patients with low back pain.


Convincing evidence is lacking regarding the effects of injection therapy on low back pain.

PMID: 11242378

Rating: 1b

Convincing evidence is lacking on the effects of injection therapies for low back pain. There is a need for more, well designed explanatory trials in this field.

PMID: 17636686

Rating: 1c (withdrawn)

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Analyses of variance for repeated measures revealed mood improvement following Feldenkrais, swimming, and yoga but not following aerobic dance and computer lessons. The authors suggest that more studies assessing the mood-enhancing benefits of mindful activities such as Feldenkrais and yoga are needed.

PMID: 14629072

Rating: 2c

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**New Zealand** Accident Compensation Corporation, *New Zealand Acute Low Back Pain Guide 2003 edition*, Accident Compensation Corporation (ACC), Shamrock House, 81-83 Molesworth St, PO Box 242, Wellington, New Zealand

The evidence for activity has strengthened. This means staying or becoming physically active and resuming usual activities, including work.

Rating: 8b

#####


As many as 90 percent of persons with occupational nonspecific low back pain are able to return to work in a relatively short period of time.

Rating: 5a

The manipulative treatment with stabilizing exercises was more effective in reducing pain intensity and disability than the physician consultation alone. The present study showed that short, specific treatment programs with proper patient information may alter the course of chronic low back pain.

PMID: [14520029](https://www.ncbi.nlm.nih.gov/pubmed/14520029)
Rating: 2b


There is limited evidence that radiofrequency denervation offers short-term relief for chronic neck pain of zygapophysial joint origin and for chronic cervicobrachial pain, and conflicting evidence for its effectiveness for lumbar zygapophysial joint pain. There is limited evidence suggesting that intradiscal radiofrequency may not be effective in relieving discogenic low back pain.

PMID: [12923479](https://www.ncbi.nlm.nih.gov/pubmed/12923479)
Rating: 1b


Severe affective distress (OR 3.81; 95% CI 1.3-10.8) predicted poor response to the manipulative treatment.

PMID: [15209452](https://www.ncbi.nlm.nih.gov/pubmed/15209452)
Rating: 2b

Physician consultation alone was more cost-effective for both health care use and work absenteeism, and led to equal improvement in disability and health-related quality of life. It seems obvious that encouraging information and advice are major elements for the treatment of patients with cLBP.

PMID: 15897822

Rating: 2b

Note: This study did not compare manipulation without physician consultation to physician consultation alone.


Radiofrequency denervation can relieve pain from neck joints, but may not relieve pain originating from lumbar discs, and its impact on low-back joint pain is uncertain. There is conflicting evidence about effects for low-back joint pain, and some evidence that it does not relieve pain from low-back disc problems.

Rating: 1a


There does not appear to be any evidence to support the current common practice of a series of injections.

Rating: 5a

**Active warming reduces acute low back pain during rescue transport.**

PMID: [15247569](https://www.ncbi.nlm.nih.gov/pubmed/15247569)

Rating: 2b


A mean reduction (P<0.001) of 62.6% in the VAS score and 69.3% in the Oswestry scores was noted after IDET. The patient's initial VAS and Oswestry scores (P<0.05) significantly affected the final outcomes. About 47.2% of the patients had some degree of economic productivity and only 7 (initial 26) consumed narcotic analgesics.

PMID: [18418130](https://www.ncbi.nlm.nih.gov/pubmed/18418130)

Rating: 4c


IOM is established as effective to predict an increased risk of the adverse outcomes of paraparesis, paraplegia, and quadriplegia in spinal surgery (4 Class I and 7 Class II studies).

PMID: [22351796](https://www.ncbi.nlm.nih.gov/pubmed/22351796)

Rating: 1b

Early start of rehabilitation (6 wk vs. 12 wk) after lumbar spinal fusion resulted in inferior outcomes. The improvements in the 12-week group were 4 times better than that in the 6-week group, indicating that the start-up time of rehabilitation is an important contributing factor for the overall outcome.

PMID: 22565381
Rating: 2b


Pain relief after injection of a small amount of bupivacaine into the painful disc was a useful tool for the diagnosis of discogenic LBP compared with discography.

PMID: 19440168
Rating: 2c


Epidural administration of etanercept was more effective than dexamethasone for leg pain, low back pain, and leg numbness.

PMID: 22020607
Rating: 2b

The patients with chronic low back pain did not show a significant difference when compared with the volunteers.

PMID: **9728375**
Rating: 3c


The trend appears to show no benefit to the use of etanercept over placebo in the pharmacologic treatment of sciatica.

PMID: **20072036**
Rating: 2c


Interventions aimed at increasing exercise and decreasing stress should also be considered as a part of rehabilitation in employed persons with low levels of disability.

PMID: **15295767**
Rating: 4a


The apparent safety of spinal manipulation, especially when compared with other "medically accepted" treatments for LDH, should stimulate its use in the conservative treatment plan of LDH.

This study concluded, “In a multivariate logistic regression model, being out of work was significantly associated with older age, language barriers, earlier referral to NCM, and neutral or negative attorney attitude toward return to work.”


The data clearly indicate that tumor necrosis factor-alpha is involved in the basic pathophysiologic events leading to nerve root structural and functional changes after local application of nucleus pulposus. The study therefore provides a basic scientific platform with potential clinical implications regarding the use of anti-tumor necrosis factor-alpha medication as treatment in patients with disc herniation and sciatica.


At six months an improvement of more than 50% was recorded in 35 of the experimental group versus 16 of the control group and the numbers free from disability were 15 and 4, respectively.

IDET continues to be excluded from compensability as "not proven."


CONCLUSIONS: MSC therapy may be a valid alternative treatment for chronic back pain caused by degenerative disc disease.


From the clinical history and physical examination, the pain referred to the extremity showed the highest sensitivity (80.89%), but its specificity was the lowest. This contrasted with the other clinical findings which, in general, showed high specificity (between 82.6% for hypaesthesia in the L5 dermatome and 97.5% for the weakness of the plantarflexors), but low sensitivity (from 6.37% for the weakness of the quadriceps to 35.67% for hypaesthesia in the L5 dermatome). Achilles areflexia showed the highest positive predictive value (85%) and the highest probability ratio (7.47), while the highest negative predictive value was found in pain referred to the extremity (68.75%).

PMID: 2439856
Rating: 2b, 81 cases

PMID: 21792091
Rating: 4c

PMID: 12938067
Rating: 4a
There is no evidence that patients need to have their activities restricted after first time lumbar disc surgery. There is strong evidence for intensive exercise programs (at least if started about 4-6 weeks post-operative) on short term for functional status and faster return to work and there is no evidence they increase the re-operation rate.

Rating: 1b, Meta-Analysis

Combined respondent-cognitive therapy and progressive relaxation therapy are more effective than WLC on short-term pain relief. However, it is unknown whether these results sustain in the long term. No significant differences could be detected between behavioural treatment and exercise therapy. Whether clinicians should refer patients with CLBP to behavioural treatment programs or to active conservative treatment cannot be concluded from this review.

PMID: 15674889

Exercise programs starting 4 to 6 weeks postsurgery seem to lead to a faster decrease in pain and disability than no treatment. High intensity exercise programs seem to lead to a faster decrease in pain and disability than low intensity programs. There were no significant differences between supervised and home exercises for pain relief, disability, or global perceived effect. There is no evidence that active programs increase the reoperation rate after first-time lumbar surgery.

PMID: 19602996

Discectomy seemed to be associated with a more rapid initial recovery. In a subgroup analysis, discectomy was superior to conservative treatment when the herniation was at L4-L5. CONCLUSIONS: Lumbar microdiscectomy offered only modest short-term benefits in patients with sciatica due to disc extrusion or sequester.

PMID: 17023847

Rating: 2b

This study of conservative care vs discectomy showed similar outcomes if no significant neuro deficit or uncontrollable pain but better initial pain control with surgery. There was significant cross over for Osterman (39% to surgery).


Although the natural history of acute LBP is often self-limiting, conservative therapies are not always effective; in such cases, O2O3 intramuscular lumbar paravertebral injections, which are minimally invasive, seem to safely and effectively relieve pain, as well as reduce both disability and the intake of analgesic drugs.

PMID: 19478653

Rating: 2c


The use of tubular retractors for microsurgical decompression of degenerative spinal disease is a safe and effective treatment modality. As with other techniques, minimally invasive procedures are associated with a significant learning curve.

PMID: 18673043

The relation between lumbar range of motion measures and functional ability is weak or nonexistent. This has implications for clinical practice as it relates to disability determination for patients with chronic low back pain, and perhaps for the current impairment guidelines of the American Medical Association.

PMID: 12590215

Rating: 4b


Nonspecific factors associated with the procedure account for a proportion of the apparent efficacy of IDET, but its efficacy cannot be attributed wholly to a placebo effect. The results of this trial cannot be generalized to patients who do not fit the strict inclusion criteria of this study, but IDET appears to provide worthwhile relief in a small proportion of strictly defined patients undergoing this treatment for intractable low back pain.

PMID: 14749191

Rating: 2b


This review, based solely on the very limited number of available comparative studies, shows no relevant benefit from minimally invasive techniques, and a tendency for more safety in open procedures in lumbar disc herniation, TLIF and PLIF.

PMID: 21533888

Rating: 1b

METHODS: The DS cohort included 601 patients (369 [61%] underwent surgery), and the SPS cohort included 634 patients (394 [62%] underwent surgery). CONCLUSION: DS patients improved more with surgery than SPS patients. Future studies should probably not combine these heterogeneous patient populations.

PMID: [20075768](https://www.ncbi.nlm.nih.gov/pubmed/20075768)
Rating: 3a


Thirteen trials were located, evaluating the following interventions: manipulation, back school, exercise, advice, transcutaneous electrical nerve stimulation (TENS), hydrotherapy, massage, corset, cognitive behavioural treatment and co-ordination of primary health care. Furthermore, there is evidence that when a broader view is taken of the duration of subacute low back pain (seven days to six months), other treatments (e.g. manipulation, exercise, TENS) may be effective.

Rating: 1c


People with acute low back pain and associated disability usually improve rapidly within weeks. None the less, pain and disability are typically ongoing, and recurrences are common.

PMID: [12907487](https://www.ncbi.nlm.nih.gov/pubmed/12907487)
Rating: 1b

PERI Manual Pushes Early Intervention. The SIA and peri study assessed the relationship between employer actions on the day an employee was injured and workers' compensation costs. The study focused on injury reporting, directing medical care, and early return to work initiatives.

Rating: 10b


Our review of the literature highlights the need for further, well-designed clinical studies of the use of antidepressants to treat painful rheumatological conditions.

PMID: [16490727](https://pubmed.ncbi.nlm.nih.gov/16490727/)

Rating: 6a


Compared with no incentives, clinical quality-based incentives were associated with less advanced imaging (10.5% vs 1.4% for within 28 days; P < .001), whereas incentive combinations including satisfaction measures were associated with more rapid and advanced imaging.

PMID: [19468091](https://pubmed.ncbi.nlm.nih.gov/19468091/)


PMID: [19468081](https://pubmed.ncbi.nlm.nih.gov/19468081/)

Rating: 3a

Therapeutic exercises were found to be beneficial for chronic, subacute, and postsurgery low back pain. Continuation of normal activities was the only intervention with beneficial effects for acute low back pain. For several interventions and indications (eg, thermotherapy, therapeutic ultrasound, massage, electrical stimulation), there was a lack of evidence regarding efficacy.

PMID: 11589642
Rating: 1b


The available evidence suggests that epidural corticosteroid injections offer only short-term relief of leg pain and disability for patients with sciatica. The small size of the treatment effects, however, raises questions about the clinical utility of this procedure.

Rating: 1a


PMID: 23535882
Rating: 2c


Bone scintigraphy with SPECT can help identify patients with low back pain who would benefit from facet joint injections.

PMID: 16436824
This trial showed a 87% success rate when indicated by SPECT versus 13% when not indicated by SPECT. Without SPECT the success rate of facet injections was 31%.

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Diskography is the only test that seeks to provoke a pain response during the study. However, the efficacy of using this potential correlation is dependent on the technical application and interpretation. The validity of diskography remains controversial, in part because postdiskography surgical outcomes have been inconsistent.

**PMID:** 16394167

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Bone scintigraphy with SPECT can help identify patients with low back pain who would benefit from facet joint injections.

**PMID:** 16436824

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Articles in this special focus issue were contributed by leading spine practitioners and researchers, who were invited to summarize the best available evidence.

**PMID:** 18164470

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Rating: 2b

Rating: 5b

Rating: 2c

Rating: 5b
Summary [excerpts]: Although electrotherapeutic modalities are frequently used in the management of CLBP, few studies were found to support their use. Most studies on TENS can be considered of relatively poor methodological quality... TENS does not appear to have an impact on perceived disability or long-term pain... TENS appears to have immediate impacts, but [not] short-term impact... Highfrequency TENS appears to be more effective on pain intensity when compared with low frequency, but this has to be confirmed in future comparative trials... It is also not known if adding TENS to an evidence-based intervention, such as exercise, improves even more outcomes. However, one of the studies did assess the interactions between exercise and TENS and found no cumulative impact...


Therefore, although Waddell signs may be predictive of treatment outcome in less intensive rehabilitation programs, they do not provide any predictive power in a comprehensive functional restoration program, which has a basic goal of managing barriers to recovery in a clinically efficacious manner.

PMID: 9253098
Rating: 4c, 50 cases


52 patients were included in the study. We were not able to demonstrate any effect of dexamethasone phosphate.

PMID: 38649
Rating: 2b

In a multivariate model, prolonged LOD was associated with older age, shorter job tenure, female gender, presence of language barriers, comorbidity, prior work absence, delayed referral, attorney involvement nonsupportive of return to work (RTW), and low RTW motivation.

PMID: 16540875

Rating: 3a

The post injury factors that were found to be important included attorney involvement not supportive of RTW, low motivation to RTW, and delayed referral to NCM but not availability of modified duty. The overall predictive power of the model was relatively low, explaining slightly more than 12% of the variance in rates of RTW.


Although ESIs appear relatively safe, it was found that they confer only transient benefit in symptoms and self-reported function in a small group of patients with sciatica at substantial costs.

PMID: 16095548

Rating: 2a


PMID: 22814304

Rating: 3a


PMID: 23238485

Exercise is safe for individuals with back pain, because it does not increase the risk of future back injuries or work absence. Substantial evidence exists supporting the use of exercise as a therapeutic tool to improve impairments in back flexibility and strength. Most studies have observed improvements in global pain ratings after exercise programs, and many have observed that exercise can lessen the behavioral, cognitive, affect and disability aspects of back pain syndromes.

PMID: 14749199

Rating: 5a


Anticipated and induced pain with physical activities was lessened after physical therapy using exercise. Anticipated and induced pain with physical activities related to physical performance levels, global pain and disability ratings. These findings may help explain how exercise exerts a positive influence on chronic back pain and disability.

PMID: 15016395

Rating: 2b


Similar outcomes were obtained from aggressive spine rehabilitation occurring two versus three times per week in patients presenting with moderate levels of chronic spinal pain. Reduction in physical therapy services and therefore cost did not adversely affect clinical outcomes in the treatment of this patient population.

PMID: 14589260

The purpose of this study was to compare the effects of two dosage regimens of VAX-D treatments on the level of low back pain in patients who were referred to a neurosurgical practice after failing standard medical therapy.

PMID: 15142327


Among employees with relatively mild LBP, both interventions reduced pain, but the effects on SA and PI were minor. Exercise improved HRQoL. The effect sizes were rather small.

PMID: 21602539


CONCLUSION: Epidural methylprednisolone enhances recovery after discectomy for herniated disc disease without apparent side effects.

PMID: 18758356

Previous studies on the effect of epidural steroid following discectomy for herniated lumbar disc disease have been inconclusive and without long-term follow-up. In summary, epidural steroid administration during lumbar discectomy reduces early neurologic impairment, pain, and convalescence and enhances recovery without increasing risks of complications.

**CONCLUSION:** A short course of traditional acupuncture for persistent non-specific low back pain in primary care confers a modest health benefit for minor extra cost to the NHS compared with usual care.

PMID: [16980315](#)

Rating: 2b

Acupuncture for low back pain is cost effective when assessed using a threshold of £20,000 for 1 QALY.

The Regence Group. Surgery Section - Lysis of Epidural Adhesions. Policy No: 94. Effective Date: 10/04/05

Catheter-based techniques for lysis of epidural adhesions, with or without endoscopic guidance, are considered investigational.

Rating: 7b


According to multiple Cox regression analyses, age of 40 to 49 years (HR, 0.52; 95% confidence interval [95%CI], 0.29-0.94), high pain intensity (HR, 0.30; 95%CI, 0.17-0.55), low self-assessed work ability (HR, 0.43; 95%CI, 0.25-0.73), and a self-predicted absence status of not returning to work (HR, 0.31; 95%CI, 0.17-0.54) predicted longer time until return to work.

PMID: [12838108](#)

Rating: 4b

Resnick DK, Malone DG, Ryken TC. Guidelines for the Use of Discography for the Diagnosis of Painful Degenerative Lumbar Disc Disease, from *Neurosurgical Focus*, Posted 10/30/2002
In patients with a positive discography finding and equivocal MR imaging or plain radiographic findings, a thorough psychological evaluation is recommended. A diagnosis of a somatization disorder, or the presence of hysteria or hypochondriasis, are relative contraindications to surgical intervention of any type.

Rating: 7b


All of the published studies have methodological flaws that prevent the studies from providing Class I medical evidence. There is, however, Class II and III evidence to support the use of direct current stimulation or CCS for enhancing fusion rates in high-risk patients undergoing lumbar PLF. A beneficial effect on fusion rates in patients not at "high risk" has not been convincingly demonstrated. There is no consistent medical evidence to support or refute use of these devices for improving patient outcomes.

PMID: 16028745

Rating: 7a


In summary, there is no meaningful evidence in the medical literature that the use of epidural injections is of any long-term value in the treatment of patients with chronic low-back pain. The literature does indicate that the use of lumbar epidural injections can provide short-term relief in selected patients with chronic low-back pain. There is evidence that suggests that facet joint injections can be used to predict outcome after RF ablation of a facet joint. The predictive ability of facet joint injections does not appear to apply to lumbar fusion surgery. No evidence exists to support the effectiveness of facet injections in the treatment of patients with chronic low-back pain. There is conflicting evidence suggesting that the use of local TPIs can be effective for the short-term relief of low-back pain. There are no data to suggest that TPIs with either steroids or anesthetics alone provide lasting benefit for patients suffering from chronic low-back pain.

Although conflicting reports have been presented in the literature regarding the utility of lumbar braces for the prevention of low-back pain, most Class III medical evidence suggests that these supports used prophylactically do not reduce the incidence of low-back pain or decrease the amount of time lost from work in the general working population. There are no data to suggest that relief of low-back pain with preoperative external bracing predicts a favorable outcome following lumbar spinal fusion. No information is available on the benefit of bracing for improving fusion rates or clinical outcomes following instrumented lumbar fusion for degenerative disease.


There is no substantial evidence to indicate that the use of intraoperative monitoring of any kind provides useful information to the surgeon in terms of assessing the adequacy of nerve root decompression at the time of surgery.

Revel M, Poiraudoeau S, Auleley GR, Payan C, Denke A, Nguyen M, Chevrot A, Fermanian J. Capacity of the clinical picture to characterize low back pain relieved by facet joint
anesthesia. **Proposed criteria to identify patients with painful facet joints.** *Spine.* 1998 Sep 15;23(18):1972-6

**RESULTS:** The presence of five among seven variables (age greater than 65 years and pain that was not exacerbated by coughing, not worsened by hyperextension, not worsened by forward flexion, not worsened when rising from flexion, not worsened by extension-rotation, and well-relieved by recumbency), always including the last item, distinguished 92% of patients responding to lidocaine injection and 80% of those not responding in the lidocaine group.

PMID: 9779530

Rating: 5c


Our data demonstrate that **selective nerve-root injections of corticosteroids are significantly more effective than those of bupivacaine alone in obviating the need for a decompression** for up to thirteen to twenty-eight months following the injections in operative candidates.

PMID: 11097449

Rating: 2b


Patients with lumbar disc herniation who wait more than 6 months before they seek treatment have worse outcomes after both operative and nonoperative procedures than patients who seek treatment earlier, researchers reported at the AAOS Annual Meeting.

Rating: 10a

 Increased symptom duration due to lumbar disc herniation is related to worse outcomes following both operative and nonoperative treatment.

PMID: 22012528
Rating: 3a


We suggest that dysfunctional profile patients are more sensitive to respond even to treatment without any specific psychosocial elements. This should be considered when evaluating any treatment effects. Among dysfunctional profile patients, pain-related anxiety and decreased acceptance of pain may contribute to their sensitivity to treatment.

PMID: 16040472
Rating: 2b


The purpose of this study was to “investigate back surgery outcome differences based on Minnesota Multiphasic Personality Inventory-2 (MMPI-2) profile types. Four homogenous subgroups were found from a hierarchical cluster analysis of 201 MMPI-2 profiles. These four clusters consisted of a Depressed-pathological profile, a conversion V profile (V-type), a neurotic Triad profile, and a within normal limit (WNL) profile. Patients in the WNL and Triad subgroups reported significantly more satisfaction with postsurgical improvement”

PMID: 7670212
Rating: 3b, 201 cases

54 chronic low-back pain patients. Results indicated a significant increase in isometric lumbar extension strength for the treatment group and a significant reduction in reported pain compared with the control group (P < 0.05). These results show that lumbar extension exercise is beneficial for strengthening the lumbar extensors and results in decreased pain and improved perceptions of physical and psychosocial functioning in chronic back pain patients.

PMID: 8185727

Rating: 2c

The intervention involved a protocol with the MedX machine.


There was little evidence that active therapeutic ultrasound is more effective than placebo ultrasound for treating people with pain or a range of musculoskeletal injuries or for promoting soft tissue healing.

PMID: 11444997

Rating: 1b


Adding patient-directed use of lumbar supports to a short course on healthy working methods may reduce the number of days when low back pain occurs, but not overall work absenteeism, among home care workers with previous low back pain.

PMID: 18025444

Rating: 2b

The evidence from the 65 trials included in this review suggests that NSAIDs are effective for short-term symptomatic relief in patients with acute and chronic low-back pain without sciatica. However, effect sizes are small. Furthermore, there does not seem to be a specific type of NSAID which is clearly more effective than others. The selective COX-2 inhibitors showed fewer side effects compared to traditional NSAIDs in the RCTs included in this review. However, recent studies have shown that COX-2 inhibitors are associated with increased cardiovascular risks in specific patient populations.

PMID: 18253976
Rating: 1a

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Lumbar support seems to be a cost-effective addition to usual care for home care workers with recurrent LBP.

PMID: 20823783
Rating: 2b

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The studies reviewed did not support a causal association between workplace manual handling or assisting patients and LBP in a Bradford-Hill framework. Conflicting evidence in specific subcategories of assisting patients was identified, suggesting that tasks such as assisting patients with ambulation may possibly contribute to LBP. It appears unlikely that workplace manual handling or assisting patients is independently causative of LBP in the populations of workers studied.

PMID: 20537959
Rating: 1b

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Based on these results, **it is unlikely that occupational sitting is independently causative of LBP in the populations of workers studied.**

PMID: 20097618

Rating: 1b


For occupational standing and LBP, there was moderate to strong evidence against the association criterion. For occupational walking and LBP, there was moderate evidence against a causal relationship with respect to the association.

PMID: 20207335

Rating: 1b


Based on the evidence reviewed, **it is unlikely that occupational pushing or pulling is independently causative of LBP in the populations of workers studied.**

PMID: 20494815

Rating: 1b

It is therefore unlikely that awkward occupational postures are independently causative of LBP in the populations of workers studied.

PMID: 19910263
Rating: 1b


Implanted bone growth stimulation can improve fusion results in patients with instrumented lumbosacral fusion as has been demonstrated in in situ fusions. Patients in high-risk categories (smokers, those with multiple back surgeries, and multilevel fusions) also are demonstrated to have higher fusion rates with implanted bone growth stimulation than those without benefit of stimulation.

PMID: 8923635
Rating: 2b


Patients undergoing lumbar disc herniation surgery are mostly satisfied with provided care before and after surgery, however, less satisfied with information provided. Further, patients with preoperative positive expectations on work return and realistic expectations on pain and physical recovery have a greater chance to be satisfied with the surgical results.

PMID: 17224823
Rating: 4a


Genetics had a dominant role in isokinetic lifting and unique environmental factors in isometric trunk extensor endurance. The relatively high role of genetics in lifting force suggests the
potential to increase and sustain changes in back muscle force in the general population may be particularly challenging.

PMID: 15225080
Rating: 3b


Whether epidural steroids are effective in common low back pain and sciatica cannot be determined based on our review.

PMID: 10084166
Rating: 1c


We included 26 RCTs (total participants = 6070). There is a high-quality evidence that SMT has a small, significant, but not clinically relevant, short-term effect on pain relief and functional status.

PMID: 21593658
Rating: 1b


Sixteen RCTs (1336 participants) from 11 countries were included. Inconclusive evidence exists for the effectiveness of outpatient physiotherapy post first lumbar discectomy. Best practice remains unclear.

PMID: 21224754

A statistically significant improvement in functional outcome was obtained in patients with chronic discogenic low back pain treated thermally by the SpineCath.

PMID: 10703114

IDET success rate comparable to fusion at lower cost ($8000 vs. $45,000). Uncontrolled case series with outcomes assessed by authors is interesting pilot study, but looks at self-selected group of patients. “Conflict of interest category” of 17 decodes (per journal editor) as authors receiving benefits from a commercial party involved in study.

Rating: 4c, 15 cases


PMID: 11034647

Conflict of interest category ambiguous; code of ‘12’ translates as ‘no funds received for study’ but not clear if authors self-funded study in which they have ownership rights of device used.

Rating: 4c, 62 cases

Saal JA, Saal JS, Intradiscal electrothermal treatment for chronic discogenic low back pain: prospective outcome study with a minimum 2-year follow-up, Spine 2002 May 1;27(9):966-73; discussion 973-4

PMID: 11979172

Rating: 4c, 58 cases

There is strong evidence that insoles are not effective for the prevention of back pain. The current evidence on insoles as treatment for low-back pain does not allow any conclusions.

PMID: 17943845

Rating: 1b

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There is strong evidence that insoles are not effective for the prevention of back pain. The current evidence on insoles as treatment for low back pain does not allow any conclusions.

PMID: 19359999

Rating: 1b

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Epidural injection therapy has not yet been shown to be effective, nor has it been shown to be ineffective. Side effects are relatively minor, and a tendency exists towards an outcome favouring injection therapy. On the basis of our longstanding clinical experience we suggest that epidural steroid injection may have a role in specific clinical situations. Low back pain that has not resolved within three months leads to greater long term morbidity. Epidural injection therapy may provide a useful adjunct to recovery in patients whose symptoms have extended beyond three months in the absence of recognised indicators of chronicity ("yellow flags"), and who may have radicular symptoms.

PMID: 15217844

Rating: 5b

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Our findings, in one of the largest studies to systematically assess lumbar disc degeneration on MRI, indicated a significant association between the presence, extent, and global severity of disc degeneration with weight in overweight and obese adults.

PMID: 22287295

Rating: 3a


There are few studies evaluating the relative utilization of various CAM therapies for back pain.

Rating: 1c


Active manipulations have more effect than simulated manipulations on pain relief for acute back pain and sciatica with disc protrusion.

PMID: 16517383

Rating: 2a

CEI containing local anesthetic and steroids or WFI seems to be effective when treating patients with LBP and sciatica. CEI containing steroid preparations demonstrated better and faster efficacy.

PMID: 19525834
Rating: 2b


The role of Waddell's nonorganic signs test as a screening tool for psychological factors in the examination of patients with low back problems has been described.

PMID: 9062572
Rating: 5b


In elderly patients with spinal stenosis and degenerative spondylolisthesis, decompression and dynamic stabilization lead to excellent clinical and radiologic results. It maintains enough stability to prevent progression of spondylolisthesis. Because no bone grafting is necessary, donor site morbidity, which is one of the main drawbacks of fusion is eliminated. However, the degenerative disease still is progressive and degeneration at adjacent motion segments remains a problem.

PMID: 18708915
Rating: 4b


This paper focuses on the 10 articles relating to interventions for acute (less than 4 weeks) LBP, and considers bed rest, exercise, spinal manipulation, back school, and case management.

PMID: 8931535

Intradiscal chymopapain: 2 of the 3 studies showed chymopapain to be statistically significantly better than placebo in affecting return to work rate.

Rating: 1b


This review focuses on the 12 studies utilizing nonsurgical interventions for subacute and chronic LBP, including multidisciplinary pain clinics, exercise, cognitive-behavioral strategies, and others.

PMID: 9111463

Rating: 1b


This pilot study suggests that spinal manipulative therapy has greater benefits than placebo treatment. The sample size was small, therefore the findings of this trial study should not be considered conclusive but rather should be used as a foundation for planning future studies.

PMID: 11514816

Rating: 2c

The added axial, intermittent, mechanical traction of IDD Therapy to a standard graded activity program has been shown not to be effective.

PMID: 19484433
Rating: 2b


We combined these six interview questions and ten physical tests in a pain assessment tool that we named Standardized Evaluation of Pain (StEP). We validated StEP for the distinction between radicular and axial LBP in an independent group of 137 patients. StEP identified patients with radicular pain with high sensitivity (92%; 95% confidence interval [CI] 83%-97%) and specificity (97%; 95% CI 89%-100%). The diagnostic accuracy of StEP exceeded that of a dedicated screening tool for neuropathic pain and spinal magnetic resonance imaging.

PMID: 19360087
Rting: 3b


The authors concluded that employees with access to modified work programs returned to work about twice as often as employees not offered modified duties. That lost work days were halved by the availability of modified duties.

Rating: 5c

Physical conditioning programs that include a cognitive-behavioural approach plus intensive physical training (specific to the job or not) that includes aerobic capacity, muscle strength and endurance, and coordination; are in some way work-related; and are given and supervised by a physiotherapist or a multidisciplinary team, seem to be effective in reducing the number of sick days for some workers with chronic back pain, when compared to usual care. However, there is no evidence of their efficacy for acute back pain.

PMID: 12535416
Rating: 1b


Physical conditioning programs that incorporate a cognitive-behavioral approach reduce the number of sick days for workers with chronic back pain when compared to usual care.

PMID: 14520051
Rating: 1c


Among patients who tolerated it well, tramadol was effective for the treatment of chronic low back pain.

PMID: 10743823
Rating: 2b, RCT, 380 cases
Available evidence supported the effectiveness of non-selective nonsteroidal anti-inflammatory drugs (NSAIDs) in acute and chronic LBP, of muscle relaxants in acute LBP, and of antidepressants in chronic LBP.

PMID: 15223086
Rating: 1b


Repeated radiofrequency neurotomies are an effective long-term palliative management of lumbar facet pain. Each radiofrequency neurotomy had a mean duration of relief of 10.5 months and was successful more than 85% of the time.

PMID: 15507813
Rating: 5c


Facet joint injection therapy using a standardized protocol is safe, effective, and easy to perform. The clinical effect is limited, and we recommend repetitive injection according to this protocol after 3 months.

PMID: 17039302
Rating: 3c

This was a prospective study. The diagnosis of lumbar facet syndrome was made with the following inclusion criteria: “pseudoradicular” lumbar pain; absence of neurological deficits; increase of pain in the morning and with excessive stress and exercise.

Our experience with DYNESYS has shown that this method has limitations in elderly patients with osteoporotic bone or in patients with a severe segmental macro-instability combined with degenerative olisthesis and advanced disc degeneration. The few posterior dynamic stabilization systems that have had clinical applications so far have produced clinical outcomes comparable with fusion.

PMID: 15950696
Rating: 5b


Low to moderate aerobic exercise appears to improve mood states and work status and reduce the need for physical therapy referrals and pain medication prescriptions for LBPP in the care of a neurosurgeon.

PMID: 14588388
Rating: 2b


Thirteen studies were identified. The four RCTs complying with the inclusion criteria included 252 patients. The available evidence does not support the effectiveness of ultrasound or shock wave for treating LBP. In the absence of such evidence, the clinical use of these forms of treatment is not justified and should be discouraged.

PMID: 21482199
Rating: 1b

In the patient with traumatic myelopathy, the first priority for the spine is mechanical stability. It is generally accepted that plain radiographs are invaluable for this purpose. Computed tomography may be useful when plain radiographs raise questions of bony injury or inferred ligamentous injury. Magnetic resonance imaging is widely considered the study of choice when paralysis is incomplete or under other circumstances where direct visualization of neural or ligamentous structures is clinically necessary. Magnetic resonance imaging has largely replaced computed tomography scanning in the noninvasive evaluation of patients with painful myelopathy because of superior soft tissue resolution and multiplanar capability. Invasive evaluation by means of myelography and computed tomography myelography may be supplemental when visualization of neural structures is required for surgical planning or other specific problem solving. Although most commonly due to spondylosis and disc herniation, a significant proportion of painful myelopathy is caused by tumor or infection. An important limitation of magnetic resonance imaging in the diagnosis of myelopathy is its high sensitivity. The ease with which the study depicts expansion and compression of the spinal cord in the myelopathic patient may lead to false positive examinations and inappropriately aggressive therapy if findings are interpreted incorrectly.

Rating: 6b


This reasonable correspondence between desired and evoked movements suggests that this approach might serve as a useful strategy to control neuroprosthetic systems that aim to restore movement to paralyzed individuals.

PMID: 12417671

Rating: 2c


This paper analyses MMPI-2 protocols of 2080 cases derived from a forensic psychiatric practice in Brisbane, Australia.

PMID: 11790905

Rating: 5b

This study demonstrates that the low back pain decreased significantly after the use of real insoles compared to placebo ones.

PMID: 15668775

Rating: 2b


Industry funded studies demonstrated a statistically greater likelihood to report positive results than studies with other funding sources. Potential explanations for this are biased study design, biased experimental technique, biased result interpretation, or publication bias.

PMID: 15864166

Rating: 5b


In summary, the new ACP/APS guideline as compared to the old AHCPR guideline: Is a bit stronger on emphasizing the need for psychosocial assessment to help predict potentially delayed recovery; Is similarly cautious about the use of plain x-ray imaging, but now more strongly supported by the availability of randomized trials showing no benefit for early x-ray imaging; Is more forceful about the need to avoid specialized diagnostic imaging such as magnetic resonance imaging (MRI) or computed tomography (CT) without a clear rationale for doing so; So what's missing? Most of the money, and most of the controversy, concerns the use of surgical procedures (fusion, artificial discs) and non-surgical invasive interventions (mostly needling procedures, but also including radiofrequency denervation and intradiscal electrothermal therapy) for patients with chronic back pain and no evidence of a herniated disc or spinal stenosis (commonly classified as "discogenic disease"). For many of these conditions, the evidence is
either scant or poor quality or both. The new ACP/APS guideline does not deal with surgery or other invasive interventions.

Rating: 6b


Chiropractic and massage had been used by the largest fractions of respondents (54% and 38%, respectively), mostly for back pain (45% and 24%, respectively). Among prior users of specific CAM therapies for back pain, massage was rated most helpful. Users of chiropractic reported treatment-related "significant discomfort, pain or harm" more often (23%) than users of other therapies (5-16%). Respondents expected massage would be most helpful (median of 7 on a 0 to 10 scale) and meditation least helpful (median of 3) in relieving their current pain.

PMID: 15260884
Rating: 5b


Yoga was more effective than a self-care book for improving function and reducing chronic low back pain, and the benefits persisted for at least several months.

PMID: 16365466
Rating: 2b

It is important to note that some styles, such as Bikram and vinyasa, may be too vigorous for patients with back pain who are unfamiliar with yoga whereas other styles (for example, Iyengar) may need modification from normal practice to be appropriate for patients with back pain. This study suggests that viniyoga is a safe and effective treatment for chronic back pain and provides physicians with a rationale for recommending it (and possibly other therapeutically oriented styles of yoga as well) to their patients.

Yoga classes were more effective than a self-care book, but not more effective than stretching classes, in improving function and reducing symptoms due to chronic low back pain, with benefits lasting at least several months.

PMID: 22025101

Rating: 2a


The TENS treatment demonstrated a success rate of 0%, while VAX-D demonstrated a success rate of 68.4% (p < 0.001). A statistically significant reduction in pain and improvement in functional outcome was obtained in patients with chronic low back pain treated with VAX-D.
How does this compare to percent improving with no Tx?

Conflict of interest: Dr Russell Smart is contracted to and a shareholder in VAX-D Australasia Pty Ltd, a private company that delivers VAX-D service in Australia.

Rating: 2c, 40 cases


Findings. In the first stage, acquisition of MRI equipment is a strongly correlated with patients receiving MRI scans. Among patients of orthopedists, receipt of an MRI scan increases the probability of having surgery by 34 percentage points.

PMID: 21517834

Rating: 3b


An acute bout of stretching does not improve force or jump height, and the results for running speed are contradictory. Regular stretching improves force, jump height, and speed, although there is no evidence that it improves running economy.

PMID: 15377965

Rating: 1b


PMID: 21434811

Rating: 3b

For patients with symptomatic pseudarthrosis after lumbar spine fusion, pulsed electromagnetic field stimulation is an effective nonoperative salvage approach to achieving fusion.

PMID: 14763594
Rating: 2b


Insurers, employers, and policy makers can significantly reduce chronic disability if controls are adopted to reduce administrative and treatment delays and to direct workers to experienced clinicians.

PMID: 19430316
Rating: 3b


Effectiveness and costs of chiropractic or physiotherapy as primary treatment were similar for the total population, but some differences were seen according to subgroups. Implications of the result are that treatment policy and clinical decision models must consider subgroups and that the problem often is recurrent.

PMID: 9762745
Rating: 2a
Conclusions: There is limited scientific data available on the accuracy and diagnostic utility of standing, upright, weight-bearing or positional MRI. Well-designed clinical trials are necessary to effectively determine the potential benefits and value of this diagnostic imaging method. Conventional imaging of the lumbar remains the appropriate choice for assessment of degenerative disc disease.

Rating: 5a

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Trunk strengthening appears effective compared with no exercise. Increasing exercise intensity and adding motivation increase treatment effects.

PMID: 16461178

Rating: 1b

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One hundred and nine patients. In cases of spinal stenosis and previous disc surgery both computer-tomography and myelography have to be performed.

PMID: 3213632

The probability that a true lumbar disc herniation will be detected on imaging is 77 percent if one test is done and 91 percent if both tests are done. Therefore, CT myelogram ok for pre-op test if inconclusive neurocompression from MRI. Other issue is that the section on myelogram indicates ok.

Rating: 4b

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Current studies fail to give more than sparse evidence to support the use of interventional techniques in the treatment of lumbar zygapophysial joint-mediated low back pain.

PMID: 14589192

Rating: 5b


The use of degenerative terms such as wear and tear by patients is associated with a poor perceived prognosis. The explanation of radiological findings to patients presents an opportunity to challenge unhelpful beliefs, thus facilitating uptake of active treatment strategies.

PMID: 20838269

Rating: 4b


PMID: 15767994

No review is provided. The authors state that the natural history of low back pain tends to be one of recovery.

Rating: 5b


All three active treatments were effective in comparison to no treatment, but no clinically relevant differences between the combined and the single component treatments were found.

Re-analysis using our conclusions showed a significant relationship between OPVS score and trial finding, with higher validity scores associated with negative findings. With acupuncture for chronic back and neck pain, we found that the most valid trials tended to be negative. There is no convincing evidence for the analgesic efficacy of acupuncture for back or neck pain.


Medical providers are encouraged to become pro-active disability management specialists for each workers' compensation case.


Based on these results, we conclude that IDET is not effective in reducing pain and improving functional performance in a sample of 20 patients treated for chronic discogenic low back pain after 6 months follow-up.
One of the top 5 recommendations was "Don't do imaging for low back pain within the first 6 weeks unless red flags are present." This article presents data that support this recommendation.

PMID: 22664775
Rating: 1b


Graded activity was more effective than usual care in reducing the number of days of absence from work because of low back pain.

PMID: 14734329
Rating: 2b


The guidelines agreed on advice that low back pain is a self limiting condition and, importantly, that remaining at work or an early (gradual) return to work, if necessary with modified duties, should be encouraged and supported.

PMID: 12937181
Rating: 5b


There is insufficient evidence to support the use of injection therapy in subacute and chronic low-back pain. However, it cannot be ruled out that specific subgroups of patients may respond to a specific type of injection therapy.

Based on a small number of studies, tricyclic and tetracyclic antidepressants appear to produce moderate symptom reductions for patients with chronic low back pain. This benefit appears to be independent of depression status. SSRIs do not appear to be beneficial for patients with chronic low back pain. There is conflicting evidence whether antidepressants improve functional status of patients with chronic low back pain.

PMID: 14624092
Rating: 1b


It was stated that there was insufficient evidence to adequately evaluate the benefits of epidural steroid injections, IDET, therapeutic medial branch blocks, radiofrequency denervation, SI joint injections or intrathecal therapy for non-specific low back pain.


209 participants. At one month those in the vertebroplasty group were more likely to be using opioids. Individual patient data meta-analysis from two blinded trials of vertebroplasty, powered for subgroup analyses, failed to show an advantage of vertebroplasty over placebo for participants with recent onset fracture or severe pain. These results do not support the hypothesis that selected subgroups would benefit from vertebroplasty.

PMID: 21750078
Rating: 2b

Specific LBP, higher disability levels, older age, female gender, more social dysfunction and more social isolation, heavier work, and receiving higher compensation were identified as predictors for a longer duration of sick leave. A history of LBP, job satisfaction, educational level, marital status, number of dependants, smoking, working more than 8 hour shifts, occupation, and size of industry or company do not influence duration of sick leave due to LBP.

PMID: 16299094
Rating: 1c


Based on our results, we postulate that a course of nonoperative treatment including manipulation may be effective and safe for the treatment of back and radiating leg pain.

PMID: 7595106
Rating: 5a


Though incomplete, the existing evidence indicates that open discectomy shortens the duration of discogenic sciatica in selected patients. Neurologic outcomes are similar in operated and unoperated patients. Predominant leg pain, evidence of nerve root tension and concordant symptoms and imaging findings, are associated with favorable surgical results.

PMID: 9499468

Open discectomy was more effective than chemonucleolysis, which was more effective than percutaneous discectomy. In general, less invasive procedures were less likely to succeed.

Rating: 1c

There is a large group of chiropractic patients with relatively long-lasting or recurrent low back pain who report “improvement” early in the course of treatment.

PMID: 11353940
Rating: 4c


Cognitive intervention improved disability and may be feasible for most patients sick-listed in the sub-acute phase. Physical exercise reduced patients' symptoms, but requires high motivation by patients.

PMID: 12809196
Rating: 2c


Predictors of long-term disability included delay between injury and first medical treatment.

PMID: 17215711
Rating: 3a


In this prospective randomised controlled clinical and radiological trial, adding PRP in posterior lumbar interbody fusion did not lead to a substantial improvement or deterioration when compared with autologous bone only.

Anti-inflammatories delay healing, pain is part of healing: medication selection
Some activity is good for healing

Taylor J, Pupin P, Delajoux S, Palmer S. Device for Intervertebral Assisted Motion: Technique and Initial Results. Neurosurg Focus. 2007;22(1)

Object: The DIAM is a polyester-encased silicone interspinous dynamic stabilization device that can unload the anterior column and reestablish the functional integrity of the posterior column.

Rating: 4b

Dissatisfaction with the results of fusion has led to the development of alternative treatments for degenerative spinal disease. One area for development has been posterior dynamic stabilization. Several devices have been designed for this purpose. The understanding of the indications for placement of dynamic stabilization technology is in its infancy.


The study population includes 329,986 workers injured in 2001-2005 who also received Temporary Income Benefits (TIBs). Less than 1% of workers return to work if they have been off work for 2 years.
Percentage of Injured Workers Back At Work

Rating: 10a


Percutaneous intradiscal radiofrequency thermocoagulation for chronic discogenic low back pain does not meet the TEC criteria.

PMID: 15241900

Rating: 8b

More evidence is needed from high-quality multicenter, randomized, controlled trials reporting on large numbers of patients to provide estimates of treatment outcomes of this highly prevalent condition. The evidence does not permit conclusions as to whether percutaneous intradiscal radiofrequency thermocoagulation for chronic discogenic low back pain improves health outcomes or is as beneficial as established alternatives. Whether percutaneous intradiscal radiofrequency thermocoagulation improves the net health outcome has not been established in investigational settings. Therefore, based on the above, percutaneous intradiscal radiofrequency thermocoagulation for chronic discogenic low back pain does not meet the TEC criteria.


There is not sufficient evidence to endorse or discontinue routine stretching before or after exercise to prevent injury among competitive or recreational athletes.
Traditional acupuncture care delivered in a primary care setting was safe and acceptable to patients with non-specific low back pain. Acupuncture care and usual care were both associated with clinically significant improvement at 12- and 24-month follow-up. Acupuncture care was significantly more effective in reducing bodily pain than usual care at 24-month follow-up. No benefits relating to function or disability were identified.

For chronic low back pain there is evidence of short term pain relief and functional improvement using acupuncture compared with no treatment or sham therapy, but evidence for long term effectiveness is sparse.

Hyperbaric oxygen treatment appears to be successful in relieving neuropathic pain for an extended period of time, and future research should be aimed at investigating the precise mechanisms underlying this positive effect.

PMID: 19951724
Rating: 5c

Thuile Ch, Walzl M, Evaluation of electromagnetic fields in the treatment of pain in patients with lumbar radiculopathy or the whiplash syndrome, NeuroRehabilitation 2002;17(1):63-7

In patients suffering from radiculopathy, the average time until pain relief and painless walking was 8.2 +/- 0.5 days in the magnetic field group, and 11.7 +/- 0.5 days in controls p < 0.04). Hence, magnetic fields appear to have a considerable and statistically significant potential for reducing pain in cases of lumbar radiculopathy and the whiplash syndrome.

PMID: 12016348
Rating: 2b


Offering a 12-week yoga program to adults with chronic or recurrent low back pain led to greater improvements in back function than did usual care. Primary Funding Source: Arthritis Research UK.

PMID: 22041945
Rating: 2a


Clinically, low-tech exercise may be the treatment method of choice for the effective management of chronic low back pain.
There were no statistically significant increases in the scores for the physical agents and joint manipulation groups compared to the control group for either lumbar flexion, extension ROM, or lifting capability nor were there statistically significant decreases in their disability scores.

Rating: 2b, RCT, 250 cases


Perispinal etanercept is a new treatment modality which can lead to significant clinical improvement in selected patients with chronic, treatment-refractory disc-related pain.

Rating: 4b


Surgery for IDH was moderately cost-effective when evaluated over 2 years.

Rating: 3a


Greater improvement was noted in pain and activity tolerance in the manipulation group. Immediate benefit from pain relief continued to accrue after manipulation, even for the last encounter at the end of the 2-week treatment interval.

Rating: 2b, RCT, 1267 cases
Triano J, Rogers C, Diederich J, Hochschuler S, Discopathy With Leg Pain: A Randomized Controlled Trial Of Orthotrac Vs EZ Brace, Peer Reviewed and Accepted: Podium presentation - North American Spine Society - San Diego, Ca 2003, Paper in submission.

This study is designed to evaluate the results of using the Orthotrac Pneumatic Vest versus an EZ form brace in patients with radiating leg pain from disc bulge / protrusion / herniation.

Figure 1. Comparison of the pre- to post-treatment change in VAS scores in the two treatment groups

Results from this study demonstrate significant benefit in relieving both back and leg pain, improving functionality and decreasing emotional stress. A therapeutic method that can reduce axial loading while weight bearing has the potential of providing significant symptomatic relief while retaining functionality. Early results strongly favor use of the OPV for patients who have failed 4 weeks of conservative treatment and are carefully selected for showing relief from spine unloading.

Rating: 2c


Chronic complaints required the most care, with a mean of 8.2 sessions. Cases reached resolution well within 6 wk, requiring a mean of 3.8 additional treatment sessions.

PMID: 1740650

Rating: 4b

The ThermaCare HeatWrap is more effective at increasing temperature at a 2-cm depth with less perceived heat compared to the Johnson & Johnson Back Plaster and the ABC Warme-Pflaster.

PMID: [15493522](https://doi.org/10.2577/jospt.2004.9.34549)

Rating: 2c


In association with fear of work, 2 factors from the adapted stress process model are significantly useful for predicting LBP related long-term disability outcomes.

PMID: [20461038](https://doi.org/10.1097/BRS.0b013e3181e6e016)

Rating: 3b


The evidence summarised in this systematic review does not indicate that acupuncture is effective for the treatment of back pain.

PMID: [10796434](https://doi.org/10.1097/00124304-200006020-00009)

Rating: 1b, Meta Analysis


Little is known about the adverse effects of traction. Only a few case reports are available, which suggest that there is some danger for nerve impingement in heavy traction, i.e. lumbar traction forces exceeding 50% of the total body weight. Lumbar traction forces below 25% of the total
body weight do not seem to increase intervertebral distances, and can therefore be regarded as a placebo (sham or low dose) traction.

Rating: 5c


Among workers with new lost work-time back injury claims, risk factors for chronic disability include radiculopathy, substantial functional disability, and to a lesser extent, more widespread pain and previous injury with extended time off work.

PMID: 19050587

Rating: 3a

Risk factors for chronic disability after back injuries include factors that are independent of injury severity, but not necessarily psychological factors. The researchers combined all of the significant factors into a statistical model for use in predicting which employees were at the highest risk of long-term disability after a back injury. Turner said the model was 88 percent accurate in identifying workers who would and would not be disabled after one year. Researchers said that current approaches to chronic pain emphasize the interrelationships between biological and psychological factors. However, in the new study, Turner said that most of the psychological factors thought to contribute to chronic pain were not significant risk factors for disability.


Twice daily administration of 4 mg thiocolchicoside for 5 days provides an efficient and safe treatment for patients with acute low back pain accompanied by muscle spasm.

PMID: 14563464

Rating: 2a

The results show that there is good reason to be careful when considering interventions aiming to prevent LBP among employees. Of all the workplace interventions only exercise and the comprehensive multidisciplinary and treatment interventions have a documented effect on LBP.

PMID: 14963248
Rating: 1c


Percutaneous radiofrequency facet denervation is simple and safe, still worth considering in patients with disabling spinal pain that fails to respond to conservative treatment. The use of general anaesthesia shortens the operating time and the patient's discomfort without impairing success rate.

PMID: 10830345
Rating: 2c


Relative to "best care" in general practice, manipulation followed by exercise achieved a moderate benefit at three months and a small benefit at 12 months; spinal manipulation achieved a small to moderate benefit at three months and a small benefit at 12 months; and exercise achieved a small benefit at three months but not 12 months. Spinal manipulation is a cost effective addition to "best care" for back pain in general practice. Manipulation alone probably gives better value for money than manipulation followed by exercise.

PMID: 15556954
Rating: 2a

Unicare Medical Policy 3.07.06, Percutaneous Intradiscal Electrothermal Coagulation (IDET Procedure), Orthopedic Latest Review: 09/23/04, Publishing Date: 10/22/04
Percutaneous intradiscal electrothermal coagulation is considered INVESTIGATIONAL/ NOT MEDICALLY NECESSARY.

Rating: 6b


Clinical trials on neureflexotherapy show surprisingly favourable results.

Rating: 5c


NRT appears to be a safe and effective intervention for the treatment of chronic non-specific LBP. The efficacy is less clear for sub-acute LBP. However, these results are limited to three trials conducted by a small number of specifically trained and experienced clinicians, in a limited geographical location. No data are available on the ease and time-frame needed to achieve that level of expertise. RCTs by other practitioners, in other locations, that replicate the effects reported in this review are needed before recommending a broader practice.

PMID: 15106186

Rating: 1c


After an average follow-up period of 1.4 years, the group receiving transforaminal epidural steroid injections had a success rate of 84%, as compared with 48% for the group receiving trigger-point injections.

PMID: 11805628

Rating: 2b

To date, no conclusions can be drawn about whether a specific traction modality for back or neck pain is effective, or more efficacious than other treatments. There are no clear indications, however, that traction is an ineffective therapy for back and neck pain.

PMID: 7846138

These trials compared continuous motorised traction with a sham for chronic lower-back pain, continuous motorised traction with infra-red heat for acute lower-back pain, and intermittent motorised traction with either isometric exercise or no intervention for chronic cervical pain. Four of the 17 RCTs reported some favourable effects of traction. These trials, which all had methodological scores lower than 40, compared the following: autotraction plus corset with corset alone for acute lower-back pain; hot packs, neck school, mobilising and isometric exercises alone, and with manual traction, intermittent motorised traction or continuous motorised traction, for subacute cervical pain; intermittent motorised traction and isometric abdominal exercises with hot packs, and either rest or massage and mobilising, for chronic lower-back pain; and autotraction with isometric abdominal exercises for chronic lower-back pain.

Rating: 1b


There was moderate evidence that lumbar supports are not more effective than no intervention or training in preventing low-back pain. It is still unclear if lumbar supports are more effective than no or other interventions for the treatment of low-back pain.

PMID: 18425875

Rating: 1b


Eight weeks after treatment, there were 10 success patients in the radiofrequency group (n = 15) and 6 in the sham group (n = 16).
Note: Subjects with prior lumbar spine surgery were excluded in the study.


In total 83 randomized controlled trials met the inclusion criteria: exercise therapy (n = 37).


This study showed that, in a population of young workers with no or limited antecedents of LBP at baseline, physical examinations, as routinely assessed in occupational medicine, are not useful to predict workers at risk for the development of back disorders one year later.


The review showed that there is limited evidence that exercise has some effect in the prevention of back pain and that education is not effective. No conclusive evidence was found for or against the effectiveness of lumbar supports.

There is no evidence for the effectiveness of lumbar supports or education in the primary prevention of low back pain at the workplace. There is limited evidence for the efficacy of exercise, and the effect that can be obtained is moderate.

PMID: [15289592](#)


Strong evidence was found for the effectiveness of muscle relaxants and nonsteroidal anti-inflammatory drugs and the ineffectiveness of exercise therapy for acute low back pain; strong evidence also was found for the effectiveness of manipulation, back schools, and exercise therapy for chronic low back pain, especially for short-term effects.

PMID: [9322325](#)


Because this systematic review did not clearly indicate that acupuncture is effective in the management of back pain, the authors would not recommend acupuncture as a regular treatment for patients with low back pain.

PMID: [10361661](#)

Rating: 1b, Meta Analysis

Behavioral treatment seems to be an effective treatment for patients with chronic low back pain, but it is still unknown what type of patients benefit most from what type of behavioral treatment.

PMID: 11224863
Rating: 1b, Meta Analysis


There is strong evidence that exercise therapy is not more effective for acute low back pain than inactive or other active treatments with which it has been compared. There is conflicting evidence on the effectiveness of exercise therapy compared with inactive treatments for chronic low back pain. Exercise therapy was more effective than usual care by the general practitioner and just as effective as conventional physiotherapy for chronic low back pain.

PMID: 11064524
Rating: 1b, Meta Analysis


The evidence from the 51 trials included in this review suggests that nonsteroidal anti-inflammatory drugs are effective for short-term symptomatic relief in patients with acute low back pain. Furthermore, there does not seem to be a specific type of nonsteroidal anti-inflammatory drug that is clearly more effective than others.

PMID: 11013503
Rating: 1a, Meta Analysis

Fifteen RCTs were included in our systematic review. Overall, the methodological quality was low. Only 3 trials were considered high quality. The results indicate that there is moderate evidence that back schools have better short-term effects than other treatments for chronic low back pain, and that there is moderate evidence that back schools in an occupational setting are more effective compared to 'placebo' or waiting list controls.

PMID: 10796335
Rating: 1b

van Tulder MW, Koes BW, Assendelft WJ, Bouter LM, Maljers LD, Driessen AP, Chronic low back pain: exercise therapy, multidisciplinary programs, NSAID's, back schools and behavioral therapy effective; traction not effective; results of systematic reviews, Ned Tijdschr Geneeskd 2000 Jul 29;144(31):1489-94

There was strong evidence that exercise therapy and multidisciplinary treatment programmes were effective in chronic low back pain, and moderate evidence that non-steroidal anti-inflammatory drugs (NSAIDs), back schools and behavioural therapy were effective in chronic low back pain. There was also strong evidence that traction was not effective in chronic low back pain.

PMID: 10941436
Rating: 1c


There was strong evidence that advice to stay active, non-steroidal anti-inflammatory drugs (NSAIDs) and muscle relaxants were effective in acute low back pain. There was also strong evidence that bed rest and specific exercises were not effective in acute low back pain.

PMID: 10941435
Rating: 1c

Facet joint, epidural, trigger point and sclerosant injections have not clearly been shown to be effective and can consequently not be recommended. Surgical discectomy may be considered for selected patients with sciatica due to lumbar disc prolapses that fail to resolve with the conservative management. Cognitive intervention Combined with exercises is recommended for chronic low back pain, and fusion surgery may be considered only in carefully selected patients after active rehabilitation programmes during 2 years time have failed. Demanding surgical fusion techniques are not better than the traditional posterolateral fusion without internal fixation.

PMID: 16320030

Rating: 5a


The results showed that acupuncture is more effective than no treatment or sham treatment for chronic LBP but that there are no differences in effectiveness compared with other conventional therapies. Specific botanical medicines can be effective for acute episodes of chronic non-specific LBP in terms of short-term improvement in pain and functional status; long-term efficacy was not assessed. Massage seems more beneficial than sham treatment for chronic non-specific LBP but effectiveness compared with other conventional therapies is inconclusive. Neuroreflexotherapy appears to be more effective than sham treatment or standard care for chronic non-specific LBP. Spinal manipulation was more effective than sham manipulation or ineffective therapies, and equally effective as other conventional therapies.

PMID: 15949781

Rating: 5a

**TENS was not recommended for acute non-specific low back pain. Insufficient evidence was found in systematic reviews and a general consensus of guidelines led to the recommendation.**

PMID: 16550447

Rating: 2c


The combined outcome measure and VAS showed no difference between radiofrequency and sham, though in both groups, significant VAS improvement occurred. The global perceived effect was in favor of radiofrequency. In selected patients, radiofrequency facet joint denervation appears to be more effective than sham treatment.

PMID: 15951652

Rating: 2c


Epidural neuroplasty results in significant alleviation of pain and functional disability in patients with chronic low back pain and sciatica based on disc protrusion/prolapse or failed back surgery on a short-term basis as well as at 12 months of follow-up.

PMID: 16897200

Rating: 2c

Note: Only 27 of the 52 patients in the conservatively treated group could be investigated at 6 and 12 months. The authors state that because of this and due to statistical reasons, the data for the 6- and 12-month follow-ups could not be used for statistical testing. Therefore the conservative group was not compared to the ENP group at 6 and 12 months.

Three prognostic variables proved to be significant negative predictors of return to work: time off work, previous spinal surgery, and a clinically elevated (preprogram) score on the MMPI-2 scale Lassitude-Malaise (Hy3).

PMID: [10422615](https://doi.org/10.1023/A:1013805716474)
Rating: 4b, 143 cases


Vacuum assisted wound closure appears as an excellent option in the treatment of deep wound infections after spinal instrumentation in patients with spinal cord injury.

PMID: [17441666](https://doi.org/10.1080/03010360701275757)
Rating: 11c


These findings raise new questions about the underlying mechanisms of LBP. The sensitivities of the only significant MRI parameters, disc height narrowing and anular tears, are poor, and these findings alone are of limited clinical importance.

PMID: [12642766](https://doi.org/10.1097/01.brs.0000052010.71985.44)
Rating: 3a

Body weight, lifting strength, and axial disc area were more highly associated with disc degeneration than occupational and leisure physical activity histories, although all had modest influences. Furthermore, higher body mass, greater lifting strength, and heavier work were all associated with more disc height narrowing but less disc desiccation contrary to current views.

PMID: 17545908
Rating: 3a

Conclusion. Anthropometric parameters were found to be more important in disc degeneration than physical activity at work and leisure time, which had little or no influence on disc narrowing and signal. Unlike current views that all loading is detrimental to the spine, routine or repetitive loading may actually have a beneficial effect, delaying disc desiccation associated with aging.

Viscogliosi MR. Building a New Model for Spine Care, When the dust settles, technologies and procedures for treating spine conditions will look very different. MX January/February 2005

Medtronic Sofamor Danek controls 35% of the spine market, while DePuy Spine, a Johnson & Johnson company, controls another 20%. Synthes-Stratec (13%), Stryker Corp. (8%), and Zimmer Holdings (5%). Also battling for a share of the spine market are Biomet and Smith & Nephew. The market-leading companies in the spine segment achieved their dominance by focusing almost exclusively on the development and refinement of surgical procedures and products for spinal fusion. Industry thought leaders and clinical researchers are turning away from their focus on fusion and are 'thinking arthroplasty' now more than ever before.

Rating 5c


Findings included the following: compared with the (no opioid) reference group, odds of chronic work loss were six times greater for claimants with schedule II ("strong") opioids; compared with the reference group, odds of chronic work loss were 11-14 times greater for claimants with opioid prescriptions of any type during a period of >or=90 days; and three years after injury, costs of claimants with schedule II opioids averaged $19,453 higher than costs of claimants in the reference group.

PMID: 19181448
Rating: 4b

A simple but fundamental change from the traditional prescription of bed rest to positive advice about staying active could improve clinical outcomes and reduce the personal and social impact of back pain.

PMID: 9474831
Rating: 1b


The prevalence of degenerative changes is similar to other studies involving normal asymptomatic subjects. Furthermore, the majority of degenerative changes seen occurred over multiple levels or at levels not adjacent to the fusion, suggesting that changes seen may be more likely related to constitutional factors as opposed to the increased stresses arising from the original fusion.

PMID: 16924212
Rating: 3c


A summary of existing studies was not able to find high-quality studies that satisfied more than three of the Bradford-Hill criteria for causation for either occupational bending or twisting and LBP. Conflicting evidence in multiple criteria was identified. This suggests that specific subcategories could contribute to LBP. However, the evidence suggests that occupational bending or twisting in general is unlikely to be independently causative of LBP.

PMID: 19631589
Rating: 1b

There was moderate evidence of an association for specific types of lifting and LBP. Based on these results, it is unlikely that occupational lifting is independently causative of LBP in the populations of workers studied.

PMID: 20494816
Rating: 1b


Based on these results, it is unlikely that occupational carrying is independently causative of LBP in the populations of workers studied.

PMID: 20447872
Rating: 1b


One machine, the MedX, has a complex pelvic stabilization mechanism. The other machine, the Cybex, has a relatively simple pelvic stabilization mechanism. There was no significant difference between lumbar paraspinal electromyographic activity during trunk extension on the MedX compared to the Cybex dynamic variable resistance trunk extension machine.

PMID: 15224814
Rating: 4c


Epidural administration of glucocorticoid results in potent suppression of insulin action and this should be taken into account when patients with diabetes require treatment for sciatica.

Our findings suggest that balloon kyphoplasty is an effective and safe procedure for patients with acute vertebral fractures and will help to inform decisions regarding its use as an early treatment option.


Psychiatric comorbidity is associated with diminished pain relief after a MBB injection performed with steroid at one-month follow-up.
The chances of an injured worker being off of disability time loss 2 years after fusion are 32%. More than 50% of workers who received lumbar fusion, in Washington Workers’ Compensation, felt that both pain and functional recovery were no better or worse after lumbar fusion. The overall rate of re-operation within 2 years, for all fusions, is approximately 23%. The use of instrumentation in Washington workers nearly doubled the risk for re-operation. Pain relief after fusion, even when it occurs, is not likely to be complete.

Insufficient evidence exists to determine Dynatron STS’ effectiveness in the treatment of chronic pain.

Rating: 7b

The evidence suggests that MedX may help to increase lumbar muscle strength. However, studies do not clearly show MedX’s efficacy over other exercise programs.

Rating: 7a

The department does not cover intradiscal heating techniques. We have found no substantial scientific evidence documenting the long-term safety and efficacy of intradiscal heating, particularly in the injured worker population.

Rating: 7a
Washington State Department of Labor and Industries, Lifting Hazards and Some Ideas on How to Reduce Your Risk of Lifting Injury, 2006

http://wisha-training.lni.wa.gov/training/presentations/Lifting%20Hazards.ppt

Rating: 7b


Rating: 7a

Washington State Dept. of Labor and Industries. Work Hardening Program Standards. 2006

Rating: 7a


Rating: 7a


There is no published and peer-reviewed scientific evidence from studies designed to minimize potential biases showing how weight-bearing MRI contributes to the planning and delivery of therapy (therapeutic impact) or to improved health outcomes (impact on health) among patients generally or among injured workers.

Rating: 7b

Our findings did not support a benefit of longer chiropractic care in preventing work-disability recurrence or reducing work-disability duration in OLBP.

PMID: 18000417
Rating: 3b


The results suggest that a considerable proportion of patients may be classified incorrectly by MRI for HNP and spinal stenosis.

PMID: 21922287
Rating: 1b

WCRI. Study Suggests Delayed Treatment Increases Costs. 07/22/05.

A study by the Workers' Compensation Research Institute bolsters arguments that prompt and appropriate medical care controls claims costs. The research organization found that the workers' compensation systems in California and Texas experienced far more "adverse surprises" -- meaning cases that ended up costing far more than initially expected -- than other benchmark states, and the result was far higher medical costs. The researchers found that the surprise cases tended to involve back pain and multiple surgeries, mental health treatment or long chiropractic or physical therapy treatments. "Both the initial surgery and the initial chiropractic visit are more likely to come later in the adverse surprise cases than in cases that do not have adverse surprises," the researchers said. The study said that such surprise cases accounted for 57 percent of all medical costs in California in 2000, but made up only 18 percent of claims. Source: WCC

Rating: 4b

The surgery being studied was standard open discectomy. The study concluded, “Patients with persistent sciatica from lumbar disk herniation improved in both operated and usual care groups. Those who chose operative intervention reported greater improvements than patients who elected nonoperative care.” At three months, the mean improvement in bodily pain was 40.9 for surgery versus 26.0 for nonoperative care; in physical function it was 40.7 for surgery versus 25.3 for nonoperative care; and for Oswestry Disability Index it was -36.1 for surgery versus –20.9 for nonoperative care. At two years these differences narrowed somewhat. See also (Weinstein2, 2006).

PMID: 17119141

Rating: 3a

There was significant cross over for Weinstein (40% declined surgery, 55% cross to surgery).

About 300,000 Americans have discectomy each year for herniated disks. With total hospital, anesthesia and surgery costs running around $10,000 to $15,000 per operation, that equals $4.5 billion annually. "It's clearly a patient's choice," says the lead author of both studies, Dr. James Weinstein of Dartmouth Medical School. With either approach, "patients got remarkably better," says Dr. David Flum, director of the Surgical Outcomes Research Center at the University of Washington and author of one of the editorials accompanying the studies. "Both approaches are reasonable." In an accompanying editorial, Eugene Carragee, MD, of the Stanford University Medical Center in California, notes that "these findings suggest that in most cases there is no clear reason to advocate strongly for surgery apart from patient preference. For the patient with emotional, family, and economic resources to handle mild or moderate sciatica, surgery may have little to offer." Adherence to assigned treatment was limited with 50% of patients assigned to discectomy receiving surgery within 3 months of enrollment, while 30% of those assigned to nonoperative treatment receiving surgery in the same period. Because of the large numbers of patients who crossed over in both directions, conclusions are not warranted based on the intent-to-treat analysis. Other study limitations include strict eligibility criteria limiting generalizability, lack of masking through the use of sham procedures, and choice of nonoperative treatments at the discretion of the treating clinician and patient. The open trial of operative vs nonoperative care for radicular back pain in SPORT demonstrated that patients choosing surgery tended to be younger and more likely to receive disability compensation. Patients receiving surgery reported better outcomes in terms of pain, disability, and physical function at 3 months and 2 years. The randomized component of SPORT was limited by significant treatment crossover by study subjects. Only results of patient self-reports of symptom improvement were different between the discectomy and nonoperative care groups, and this result favored the discectomy cohort.

This RCT with 743 patients concluded that lumbar discectomy and nonoperative treatment groups both resulted in substantial improvement after 2 years, but, because of large numbers of patients who crossed over, conclusions about the relative superiority of each are not possible. See also (Weinstein, 2006).

PMID: 17119140

Rating: 2a

Comments by William C. Watters III, MD, FAAOS, FACSS:
The Spine Patient Outcomes Research Trial (SPORT) is the largest prospective study of surgical versus non-surgical spinal care ever performed. It was funded by no less than 5 US Government agencies for a total of $13.5 million and is under the direction of Jim Weinstein, DO, MSc and his research staff at the Dartmouth Medical School. The study took place between March of 2000 and November of 2004 with data supplied by over 140 surgeons at 13 US study centers in 11 different US states. Surgical treatment was by microdiscectomy without curettage through a midline incision. Conservative care was defined as “usual care” but was required to include some active physical therapy, education with home exercise instruction and NSAIDS. This paper contains a lot of data, but the following are the high points of their analysis: (1) The results of the RCT are potentially compromised in that non-adherence rates were high for both groups. At 2-year follow-up 45% of the non-surgically assigned patients had switched groups and had surgery and 40% of the patients assigned to the surgery group had not had surgery. Thus, the conclusions of the intent-to-treat analysis are potentially compromised. (2) For the primary outcome measures at 3 months, 1 and 2 years, the data showed improvement for both groups and favored surgery but was not significantly different. (3) For the secondary outcome measure of Sciatica Bothersomeness, there was a significant difference (p<.003) in favor of surgery. (4) Most of the other outcomes measures showed small but insignificant findings in favor of surgical treatment. The data were also re-calculated as an “as-treated analysis” based on treatment received with adjustments made for missing data as opposed to the intent-to-treat analysis. When this was done, far different results compared to the intent-to-treat analysis were obtained with virtually every outcome measure now showing a strong, statistically significant advantage in favor of surgical treatment at all follow-up points up to 2 years. As in the Maine Lumbar Study and Weber’s classic studies, these significant differences in favor of surgery narrowed somewhat over the remaining 1 year and 9 months of follow-up but in this study still remained significant. From an evidence-based perspective, I would interpret these papers as showing the following: (1) There is Level I data that suggests essentially an equivalence (with the exception for relief of sciatica) between surgical and non-surgical treatment of lumbar IDH at up to 2 years when analyzed with an intent-to-treat analysis but which shows striking superiority on almost all outcomes for surgical treatment of lumbar IDH when analyzed with an as-treated analysis. This suggests that, in spite of the rigor and expense of this study, that in fact this in not Level I data.
There is Level II data that shows a clear superiority for most outcomes measures including the primary measures for surgical treatment of lumbar IDH at up to 2 years of follow-up.


CONCLUSIONS: In the combined as-treated analysis, patients who underwent surgery showed significantly more improvement in all primary outcomes than did patients who were treated nonsurgically.

PMID: 18287602
Rating: 2a

Surgery is more effective than nonsurgical therapy for the relief of symptoms associated with lumbar spinal stenosis, a new study suggests. Study interventions included standard posterior decompressive laminectomy or "usual care," which was recommended to include, at least, active physical therapy, education or counseling with home exercise instruction, and the administration of nonsteroidal anti-inflammatory drugs (NSAIDs) if possible. The investigators note that there was little evidence of harm for either treatment. "Often, patients fear they will get worse without surgery, but this was not the case for the majority of patients in the nonsurgical group, who, on average, showed small improvements in all outcomes," they write.


In a combined as-treated analysis at 4 years, patients who underwent surgery for a lumbar disc herniation achieved greater improvement than nonoperatively treated patients in all primary and secondary outcomes except work status.

PMID: 19018250
Rating: 2a

The procedure may be less effective when performed by a variety of providers than suggested by initial case series performed by single providers or practices in work-related LBP cases. Provider self-referral and narcotic use before IDET are significant risk factors for poor outcomes.

PMID: 15094540
Rating: 4b


Results suggest that iatrogenic effects of early MRI are worse disability and increased medical costs and surgery, unrelated to severity.

PMID: 20798647
Rating: 5a


This preliminary study suggests that PENS may be a promising treatment modality for community-dwelling older adults with CLBP.

PMID: 12752833
Rating: 2c


PMID: 22187493

In selected cases, weight-bearing MRI of the spine may demonstrate clinically relevant neural compromise or foraminal stenosis, which may be occult on conventional MR images obtained in the supine position.

PMID: 14735426

Rating: 5b


DHEA supplementation in older women, but not in men, improves spine BMD when co-administered with vitamin D and calcium.

PMID: 19321570

Rating: 2b


Dynesys may be preferable to fusion for surgical treatment of degenerative spondylolisthesis and stenosis because it decreases back and leg pain while avoiding the relatively greater tissue destruction and the morbidity of donor site problems encountered in fusion. However, long-term follow-up care is still recommended.

PMID: 17608342

Rating: 4b
Wellmark Medical Policy, **Intradiscal Electrothermal Annuloplasty**, Section: Surgery, Policy #: Sur05, Reviewed: December 2004

Percutaneous intradiscal electrothermal annuloplasty and percutaneous intradiscal radiofrequency thermocoagulation are not covered services because they are considered **investigational**. Similarly, all related procedures and materials, e.g. diskography, fluoroscopy and supplies are not covered services.

Rating: 6b

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**Werners R, Pynsent PB, Bulstrode CJ, Randomized trial comparing interferential therapy with motorized lumbar traction and massage in the management of low back pain in a primary care setting, Spine 1999 Aug 1;24(15):1579-84**

This study shows a progressive fall in Oswestry Disability Index and pain visual analog scale scores in patients with low back pain treated with either-interferential therapy or motorized lumbar traction and massage. There was no difference in the improvement between the two groups at the end of treatment. Although there is evidence from several trials that traction alone is ineffective in the management of low back pain, this study could not exclude some effect from the concomitant massage.

PMID: 10457578

Note: Interferential therapy had slightly worse outcomes than traction, but, “Traction has not been proved effective for lasting relief in the treatment of low back pain.”

Rating: 2c, 152 cases

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**West DT, Mathews RS, Miller MR, Kent GM, Effective management of spinal pain in one hundred seventy-seven patients evaluated for manipulation under anesthesia, J Manipulative Physiol Ther 1999 Jun;22(5):299-308**

To demonstrate that manipulation under anesthesia (MUA), a conservative treatment modality, is both safe and efficacious in the treatment of both acute and chronic spinal pain disorders in appropriately selected patients.

PMID: 10395432

The study is not high quality (conflict of interest, no control group, outcome of 60% improvement after 6 months not compare well with no treatment, plus the procedure is expensive and has risks. There is a need for high quality studies before recommending this.

The utility of the MMPI as a predictor of outcome after surgical intervention is quite limited.

PMID: 11411873
Rating: 3b, 60 cases


Ablative spinal techniques offer pain relief for many patients, but the use of these methods should be considered carefully in the light of available nondestructive procedures that may achieve similar goals with potentially lower morbidities.

PMID: 12436001
Rating: 5b


Two cross-sections of data representing 33,910 workers' compensation claims. For patients with back sprain, the reduction in disability days was 29.5%.

PMID: 22015667
Rating: 3a

In a selected patient population, only small changes in the sagittal diameter of the dural sac and foraminal size can be expected between various body positions, and the information gained in addition to that from standard MR imaging is limited.

PMID: 9577486

Rating: 4c


Among patients with chronic LBP and degenerative lumbar OA, 6-month treatment with oral glucosamine compared with placebo did not result in reduced pain-related disability after the 6-month intervention and after 1-year follow-up.

PMID: 20606148

Rating: 2a


Multivariate analyses of outcomes in the categories of medical, functional, psychological and behavioral factors indicated that significant differences between groups existed in functional and medical outcomes but not for the psychological or behavioral outcomes. Univariate analyses of medical and functional outcomes revealed significant reductions in pain intensity (64%), functional disability (77%) and pain medication usage (88%) in the yoga group at the post and 3-month follow-up assessments. These preliminary data indicate that the majority of self-referred persons with mild chronic low back pain will comply to and report improvement on medical and functional pain-related outcomes from Iyengar yoga therapy.

PMID: 15836974

Rating: 2b

All the patients had been categorised as potential candidates for surgery. There was a significant reduction in pain early on in those having an epidural steroid injection but no difference in the long term between the two groups. The rate of subsequent operation in the groups was similar.

PMID: [15773645](https://www.ncbi.nlm.nih.gov/pubmed/15773645)
Rating: 2b


On average, those receiving the individual treatment and group exercise took 7 days less off work. This represented a 35% reduction in the amount of time taken off work since study entry. The estimated cost saving of providing the extra service of a simple back program ranged between 250 pound (367 US dollars, 300 euro) and 578 pound (850 US dollars, 694 euro) for each patient. CONCLUSION: The results indicate that the costs of this active back program are more than reimbursed as a consequence of earlier return to work.

PMID: [15928545](https://www.ncbi.nlm.nih.gov/pubmed/15928545)
Rating: 2b (119 patients)

Group 1 patients received The Back Book, a 23 page booklet designed to change beliefs and behavior in relation to back pain, and verbal advice, and they continued their normal route of care as directed by their general practitioners. Group 2 received The Back Book and advice regarding work modification as for group 1. The patients were assessed by a musculoskeletal physician or a senior physiotherapist and received one treatment. Treatment varied depending on the assessment findings. The specific exercises were for lumbar flexion and/or extension (McKenzie technique), carried out for an average of 10 repetitions, three or four times daily. Subsequently, patients attended group exercise sessions for 1 hour, three times a week in a gym. The group exercises comprised a circuit of nine stations, providing aerobic exercise and a focus on proprioception, spinal stability, strengthening of quadriceps, glutei, abdominals, and other spine stabilizing muscles based on the routine described by Moffett and Frost.

The results demonstrate the tremendous growth of the involvement of occupational therapy in work hardening.

PMID: 2035586
Rating: 4b


The "composite load" (object weight x activity repetitiveness) had a significant adverse effect on LBP.

PMID: 15076652
Rating: 4b


Gabapentin treatment resulted in an increase in the walking distance better.

PMID: 17450066
Rating: 2c


The "no strenuous lifting" program, which combined training with assured availability of mechanical and other assistive patient handling equipment, most effectively improved comfort with patient handling, decreased staff fatigue, and decreased physical demands. The fact that injury rates were not statistically significantly reduced may reflect the less sensitive nature of this indicator compared with the subjective indicators.

PMID: 11493843
Rating: 3b

Ligament injections, with exercises and with normal activity, resulted in significant and sustained reductions in pain and disability throughout the trial, but no attributable effect was found for prolotherapy injections over saline injections or for exercises over normal activity.

PMID: [14699269](https://www.ncbi.nlm.nih.gov/pubmed/14699269)
Rating: 2b


There is conflicting evidence regarding the efficacy of prolotherapy injections in reducing pain and disability in patients with chronic low-back pain. There was no evidence that prolotherapy injections alone were more effective than control injections alone. However, in the presence of co-interventions, prolotherapy injections were more effective than control injections, more so when both injections and co-interventions were controlled concurrently.

PMID: [15106234](https://www.ncbi.nlm.nih.gov/pubmed/15106234)
Rating: 1b


There was no evidence that prolotherapy injections alone were more effective than control injections alone.

PMID: [15454703](https://www.ncbi.nlm.nih.gov/pubmed/15454703)
Rating: 1b

X-rays make no difference to outcomes for back pain and related disability. For the exclusion of serious causes of back pain, the accuracy of X-rays and CT scans is limited. Most positive findings on radiological investigations, particularly degenerative findings, have little or no association with back pain. A history that includes the key features of serious causes will detect all patients requiring imaging. Care is required in explaining results of radiological investigations to patients to reassure about the absence of serious causes and to put incidental findings into perspective.

PMID: 15253602
Rating: 5a

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Our results indicate that repeated PENS is more effective than TENS for chronic LBP but must be continued to sustain the analgesic effect. Results indicate that although PENS is effective for chronic LBP, treatments need to be continued to sustain analgesia.

PMID: 15155304
Rating: 2b

Note: Not a “curative” treatment.

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Department of Rehabilitation Medicine, University of Washington, WA, USA.

Few prospective randomized controlled trials have clearly demonstrated the efficacy of epidural steroid injections; many have shown conflicting results. Several studies show favorable short-term outcomes with epidural steroid injection for radicular pain, but less conclusive results are achieved >6 months. Despite inconclusive evidence, when weighing the surgical alternatives and associated risk, cost, and outcomes, lumbar epidural steroid injections are a reasonable nonsurgical option in select patients.

PMID: 17426294
Young et al make the following conclusions:
1. Serious adverse events are rare, but ESIs are not without risk.
2. Fluoroscopic guidance is recommended.
3. The transforaminal approach is more selective and can provide better diagnostic information and symptom relief.
4. Epidural steroids may provide adequate, albeit temporary, symptomatic relief while awaiting the natural resolution of sciatica.
5. In many patients the use of ESIs can obviate the need for surgery.
6. There is no need for a “series of injections.”
7. Repeat injections should be performed on an individual basis.


Acupuncture versus no treatment, and as an adjunct to conventional care, should be advocated in the European Guidelines for the treatment of chronic LBP.

PMID: 18978583
Rating: 1b


Significant pain reduction was found after each week of treatment in the experimental group (P < .05).

PMID: 19674721
Rating: 2c


Concentra Health Services, Inc., Addison, Texas 75001, USA.
Specifically, patients in the early intervention group had fewer physician visits, fewer restricted workdays, fewer days away from work, and shorter case duration. These results provide a strong indication for the effectiveness of early therapy intervention.

PMID: 10652686
Rating: 4a, 3867 cases


kMRI is a useful tool to quantify the kinematic behavior of degenerative intervertebral discs.

PMID: 19841611
Rating: 4a


A significant increase in the degree of lumbar disc herniation was found by examining flexion and extension views when compared with neutral views alone. kMRI views provide valuable added information, especially in situations where symptomatic radiculopathy is present without any abnormalities demonstrated on conventional MRI.

PMID: 18317181
Rating: 4a