

**Low Back Injury  
Medical Treatment Guidelines**

**Proposed by the  
State of New York  
Department of Insurance  
to the  
Workers' Compensation Board**



Low Back Injury

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## A. GENERAL SUMMARY OF RECOMMENDATIONS

The following is a general summary of the Low Back Pain (“LBP”) recommendations contained in this chapter:

- The initial assessment of patients with low back problems focuses on detecting indications of potentially serious disease, termed “red flags” (i.e., fever or major trauma).
- In the absence of red flags, imaging and other tests are not recommended in the first 4 to 6 weeks of low back symptoms as they almost never result in a meaningful change in clinical management. Nonprescription medication or an appropriately selected nonsteroidal anti-inflammatory drug (NSAID), appropriate adjustment of physical activity, and use of thermal modalities such as ice and/or heat can safely relieve discomfort.
- In the absence of red flags, low back problems can be effectively managed low conservatively.
- At the first visit, the physician should assure the patient that LBP is common, has a good prognosis, and is not debilitating in most cases on a long-term basis.
- To avoid undue back irritation and debilitation from inactivity, some activity or job modification may be helpful in the acute period. Bed rest is not generally recommended for patients with LB and radicular pain other than those with unstable fractures of cauda equine syndrome with pending neurological catastrophe. Maintaining ordinary activity, as tolerated, leads to the most rapid recovery.
- All patients should be encouraged to return to work as soon as possible, as evidence suggests this leads to the best outcomes. This process may be best facilitated with modified duty particularly when the job demands exceed the patient’s capabilities. Full-duty work is a reasonable option for those with low physical job demands, and the ability to control their job demands and frequently alternate their posture, as well as for those with less severe presentations.
- Aerobic exercise has the best evidence of efficacy among the exercise regimens, whether for acute, subacute, or chronic LBP patients.
- Specific types of stretching appear helpful while non-specific stretching is not recommended as it is not helpful. Strengthening exercises including lumbar stabilization exercises are recommended, but not until the acute period of LBP has subsided.
- Manipulation for treatment of non-specific LBP may have some efficacy.

- Many invasive and noninvasive therapies are intended to cure or manage LBP, but no strong evidence exists that they accomplish this as successfully as therapies that focus on restoring functional ability without focusing on pain. Furthermore, patients should be aware that returning to normal activities most often aids functional recovery.
- Patients should be encouraged to accept responsibility for managing their recovery rather than expecting the provider to provide an easy “cure.” This process will promote using activity rather than pain as a guide, and it will make the treatment goal of return to occupational and non-occupational activities more obvious.
- If symptoms persist without improvement, further evaluation is recommended.
- Within the first three months of low back symptoms, only patients with evidence of severe spinal disease or severe, debilitating symptoms, and physiologic evidence of specific nerve root compromise confirmed by appropriate imaging studies, can be expected to potentially benefit from surgery.
- The vast majority of patients with symptoms of lumbosacral nerve root irritation due to herniated discs (nucleus pulposus) eventually recover with or without surgery. Quality evidence is present that those more severely affected and with sequestered disc fragments also benefit from conservative management.
- Nonphysical factors (such as psychiatric, psychosocial, workplace or socioeconomic problems) can be investigated and should be addressed in cases of delayed recovery or delayed return to work.
- Physicians can greatly improve patient response to back symptoms by providing assurance, encouraging activity, and emphasizing that more than 90% of LBP complaints resolve without any specific therapies. While patients may be looking for a clear-cut diagnosis for their LBP, the risk to them of a suggested “cure” for this assumed diagnosis, resulting in failed expectations, may be worse than their symptoms.
- Physicians should be aware that “abnormal” findings on x-rays, magnetic resonance images, and other diagnostic tests are frequently seen by age 40 even in asymptomatic individuals. Bulging discs continue to increase after that point and by approximately age 60, will be encountered in a majority of patients. This requires that a careful history and physical examination be conducted by a physician in order to correlate historical, clinical, and imaging findings prior to diagnosing and assigning the finding on imaging to a patient’s complaints. The focus of treatment should be improving symptoms and function, and not the correction of abnormalities on imaging studies.

Strength of evidence recommended in these guidelines reflect the following ACOEM categories:

- Strongly Recommended, “A” Level
- Moderately Recommended, “B” Level
- Recommended, “C” Level
- Insufficient-Recommended (Consensus-based), “I” Level
- Insufficient-No Recommendation (Consensus-based), “I” Level
- Insufficient-Not Recommended (Consensus-based), “I” Level
- Not Recommended, “C” Level
- Moderately Not Recommended, “B” Level
- Strongly Not Recommended, “A” Level

## **B. ANATOMICAL TESTS**

### **Roentgenograms (X-Rays)**

#### *1. Recommendation: Acute non-specific LBP*

Routine x-rays are not recommended for acute non-specific LBP.

Strength of Evidence: Not Recommended, Evidence (C)

#### *2. Recommendation: Acute, Subacute and Chronic LBP*

X-rays are recommended for acute LBP with red flags for fracture or serious systemic illness, subacute LBP that is not improving, or chronic LBP as an option to rule out other possible conditions.

Indications: X-rays are an option to rule out other possible conditions. If MRI is used as imaging, plain x-ray may not be needed. MRI is a more sensitive and more specific test, which is much more costly, but which avoids gonadal radiation, which for those still in the age group to potentially reproduce is a significant consideration.

Frequency/Duration: Obtaining x-rays once is generally sufficient. For patients with chronic LBP, it may be reasonable to obtain a second set months or years subsequently to re-evaluate the patient's condition, particularly if symptoms change.

Strength of Evidence: Recommended, Insufficient Evidence (I)

#### *3. Recommendation: Symptomatic Spondylolisthesis*

Flexion and extension views are recommended for evaluating symptomatic spondylolisthesis in which there is consideration for surgery or other invasive treatment or occasionally in the setting of trauma.

Indications: Chronic mechanical pain suspected to be due to instability is another reason for x-rays.

Frequency/Duration: Obtaining flexion and extension views are generally needed no more frequently than every few years.

Strength of Evidence: Recommended, Insufficient Evidence (I)



## **Magnetic Resonance Imaging**

### *1. Recommendation: Red Flag Conditions*

MRI is recommended for patients with acute LBP during the first 6 weeks if they have demonstrated progressive neurologic deficit, cauda equina syndrome, significant trauma with no improvement in atypical symptoms, a history of neoplasia (cancer), or atypical presentation (e.g., clinical picture suggests multiple nerve root involvement).

Strength of Evidence: Recommended, Insufficient Evidence (I)

### *2. Recommendation: Radicular Syndrome, Early MRI*

MRI is not recommended for acute radicular pain syndromes in the first 6 weeks, unless they are severe and not trending towards improvement and both the patient and the physician are willing to consider prompt surgical treatment, assuming the MRI confirms ongoing nerve root compression. Repeat MRI imaging without significant clinical deterioration in symptoms and/or signs is not recommended.

Strength of Evidence: Not Recommended, Evidence (C)

### *3. Recommendation: Subacute and Chronic Radicular Syndromes*

MRI is recommended for patients with subacute or chronic radicular pain syndromes lasting at least 4 to 6 weeks, in whom the symptoms are not trending towards improvement, if both the patient and surgeon are considering prompt surgical treatment, assuming the MRI confirms ongoing nerve root compression. In cases where an epidural glucocorticosteroid injection is being considered for temporary relief of acute or subacute radiculopathy, MRI at 3 to 4 weeks (before the epidural steroid injection) may be reasonable (see Epidural Glucocorticosteroid Injections).

Strength of Evidence: Moderately Recommended, Evidence (B)

### *4. Recommendation: Non-Specific Back Pain*

MRI is recommended as an option for the evaluation of select chronic LBP patients in order to rule out concurrent pathology unrelated to injury. This should rarely be considered before 3 months and failure of several treatment modalities (including NSAIDs, aerobic exercise, other exercise, and considerations for manipulation, acupuncture).

Strength of Evidence: Recommended, Insufficient Evidence (I)

### *5. Recommendation: Standing or Weight-bearing MRI*

Standing or weight-bearing MRI is not indicated for any back or radicular pain syndrome or condition as in the absence of studies demonstrating improved patient outcomes, this technology is experimental.

Strength of Evidence: Not recommended, Insufficient Evidence (I)

### **Computerized Tomography (CT)**

#### *1. Recommendation: Acute, Subacute or Chronic Non-Specific LBP*

Routine CT is not recommended for acute, subacute, or chronic non-specific LBP or for radicular pain syndromes.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

#### *2. Recommendation: Acute or Subacute Radicular Pain Syndrome*

Indications: CT (or MRI) is recommended for those with an acute or subacute radicular pain syndrome that has failed to improve within 4 to 6 weeks and there is consideration for an epidural glucocorticoid injection or surgical discectomy (See Epidural Steroid Injection). CT is useful in patients with an indication for MRI who cannot complete the MRI due to contraindications such as implanted metallic-ferrous device or significant claustrophobia. CT is not invasive (minimally invasive when contrast is needed), has low potential adverse effects, but is costly.

Frequency/Duration: Obtaining serial CT exams is not recommended, although if there has been a significant worsening in the patient's history of examination, repeat imaging may be recommended.

Strength of Evidence: Recommended, Evidence (C)

### **Myelography (Including CT Myelography and MRI Myelography)**

#### *1. Recommendation: Uncommon Specific Situation*

Myelography, including CT myelography, is recommended only in uncommon specific situations (e.g., implanted metal that preclude MRI, equivocal findings of disc herniation on MRI suspected of being false positives, spinal stenosis, and/or a post-surgical situation that requires myelography).

Strength of Evidence: Recommended, Insufficient Evidence (I)

## **Bone Scans**

### *1. Recommendation: Routine Use*

Bone scanning is not recommended for routine use in LBP patients.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **Single Proton Emission Computed Tomography (SPECT)**

### *1. Recommendation: Inflammatory Arthropathies*

Aside from cases of suspected inflammatory arthropathies not diagnosed by more common tests, there is no current literature that shows SPECT has a role in the evaluation of patients with back pain and related disorders.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **Electrodiagnostic Studies**

### *1. Recommendation: CT or MRI Equivocal*

Needle EMG is recommended where a CT or MRI is equivocal and there are ongoing pain complaints that raise questions about whether there may be a neurological compromise that may be identifiable. This means leg symptoms consistent with radiculopathy, spinal stenosis, peripheral neuropathy, etc. EMG is not recommended for patients with acute, subacute, or chronic back pain who do not have significant leg pain or numbness. Nerve conduction studies are done in addition to the needle EMG both to rule out other potential causes for the symptoms (co-morbidity or alternate diagnosis involving peripheral nerves) and to confirm radiculopathy, but the testing must include needle EMG. (Preston 05)

Indications: Failure of suspected radicular pain to resolve or plateau after waiting 4 to 6 weeks (to provide for sufficient time to develop EMG abnormalities as well as time for conservative treatment to resolve the problems), equivocal imaging findings such as CT or MRI, and suspicion by history and physical examination that a neurologic condition other than radiculopathy may be present instead of or in addition to radiculopathy.

Strength of Evidence: Recommended, Evidence (C)

## **Surface Electromyography**

### *1. Recommendation: LBP*

There is no established indication for the use of surface EMG in LBP diagnosis. Surface EMG may be of use in biofeedback training and gait analysis for neurologic disorders, but it has no established use in any adult back pain scenario.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **Ultrasound (Diagnostic)**

### *1. Recommendation: LBP*

Diagnostic ultrasound is not recommended for patients with LBP.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **Thermography**

### *1. Recommendation: Acute, Subacute, Chronic LBP or Radicular Pain*

Thermography is not recommended for the assessment of acute, subacute, or chronic LBP, or radicular pain patients.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **Fluoroscopy**

### *1. Recommendation: Acute, Subacute or Chronic LBP*

Fluoroscopy is not recommended for the evaluation of acute, subacute, and chronic LBP.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **Videofluoroscopy**

### *1. Recommendation: Acute, Subacute or Chronic LBP*

Videofluoroscopy is not recommended for the assessment of acute, subacute, or chronic LBP patients.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **Lumbar Discography**

1. *Recommendation: Acute, Subacute, Chronic LBP or Radicular Pain Syndromes*

Discography, whether performed as a solitary test or when paired with imaging (e.g., MRI), is not recommended for acute, subacute, chronic LBP or radicular pain syndromes.

Strength of Evidence: Moderately Not Recommended, Evidence (B)

## **MRI Discography**

1. *Recommendation: Herniated Discs*

For evaluating herniated discs, the role for discography combined with MRI has not been determined.

Strength of Evidence: Not Recommended, Evidence (C)

## **Myelography**

1. *Recommendation: Acute, Subacute, Chronic LBP, Spinal Stenosis, Radicular Pain Syndromes or Post-Surgical Back Pain Problems*

Myelography is not recommended for acute, subacute, or chronic LBP, spinal stenosis, radicular pain syndromes or post-surgical back pain problems.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **C. MEDICATIONS**

### **Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) and Acetaminophen**

1. *Recommendations: Back Pain Patients*

For acute, subacute, chronic, or post-operative LBP patients, NSAIDs are recommended for treatment of LBP. Evidence is strong for acute LBP [Evidence (A)], but less strong for subacute LBP, chronic LBP, or sciatica [Evidence (C)]. Acetaminophen is a reasonable alternative, although evidence suggests it is modestly less efficacious.

Generally, older generation (COX-1, non-selective) NSAIDs are recommended as first-line medications. Second-line medications should generally include one of the other COX-1 medications. While COX-2 selective agents generally have been recommended as either third- or fourth-line medications to use when there is a risk of gastrointestinal complications, high dose misoprostol, sucralfate and proton pump inhibitors are also

gastro-protective. COX-2 selective agents may still be used for those with contraindications to other medications, especially those with a history of gastrointestinal bleeding or past history of peptic ulcer disease.

Indications: For acute, subacute, chronic, or post-operative LBP, NSAIDs are recommended for treatment. Over-the-counter (OTC) agents may suffice and may be tried first.

Frequency/Duration: In most acute LBP patients, scheduled dosage, rather than as needed, is generally preferable. As needed (PRN) prescriptions may be reasonable for mild, moderate or chronic LBP.

Indications for Discontinuation: Resolution of symptoms, lack of efficacy, or development of adverse effects that necessitate discontinuation.

Strength of Evidence: Strongly Recommended (acute LBP), Evidence (A) Recommended (subacute and chronic LBP, sciatica), Evidence (C)

## *2. Recommendation: Radicular Syndromes*

For radicular pain syndromes, including sciatica, NSAIDs are recommended for treatment of back and radicular pain. The same suggested sequence of medications noted above applies.

Indications: For radicular pain syndromes, NSAIDs are recommended for treatment.

Frequency/Duration: In acute radicular pain syndromes, scheduled dosage, rather than as needed, is generally preferable. PRN prescriptions may be reasonable for mild, moderate, or chronic radicular pain.

Indications for Discontinuation: Resolution of symptoms, lack of efficacy, or development of adverse effects that necessitate discontinuation. It should be noted that resolution of radicular symptoms generally takes significantly longer than does resolution of acute LBP.

Strength of Evidence: Recommended, Evidence (C)

## *3. Recommendation: Risk of GI Adverse Effects*

Those patients at substantially increased risk for gastrointestinal bleeding should be considered for concomitant prescriptions of cytoprotective medications. Individuals considered being at elevated risk included history of prior gastrointestinal bleeding, elderly, diabetics, and cigarette smokers. There are four commonly used cytoprotective classes of drugs: Misoprostol, sucralfate, histamine type 2 receptor blockers (famotidine, ranitidine, cimetadine, etc.), and proton pump inhibitors (esomeprazole, lansoprazole, omeprazole, pantoprazole, rabeprazole). There is not believed to be

substantial differences in efficacy for prevention of gastrointestinal bleeding. (Graham 02) There also are combination products of NSAIDs/misoprostol (e.g., arthrotec).

Indications: For patients with a high-risk factor profile who also have indications for NSAIDs, cytoprotective medications should be considered, particularly if longer term treatment among those most susceptible patients is contemplated.

Frequency/Duration: Frequency as recommended.

Indications for Discontinuation: Intolerance, development of adverse effects, or discontinuation of the NSAID.

Strength of Evidence: Recommended, Evidence (C)

#### *4. Recommendation: Risk of Cardiovascular Adverse Effects*

Selective COX-2 Inhibitors should be used with great caution in patients with ischemic heart disease and/or stroke and avoided in patients with risk factors for coronary heart disease. Patients with known cardiovascular disease or multiple risk factors for cardiovascular disease should have the risks and benefits of NSAID therapy for pain discussed. In these patients, it appears to be safest to use acetaminophen or aspirin as the first-line therapy. If needed, NSAIDs that are non-selective are preferred over COX-2 specific drugs. Even a relative lack of COX-2 selectivity does not completely eliminate the risk of cardiovascular events, and in that regard, all drugs in the NSAID spectrum should only be prescribed after thorough consideration of risk benefit balance. Patients who receive COX-2 inhibitors should take the lowest effective dose for the shortest time necessary to control symptoms. In patients receiving low-dose aspirin for primary or secondary cardiovascular disease prevention, to minimize the potential for the NSAID to counteract the beneficial effects of aspirin, aspirin should be taken 2 hours before or at least 8 hours after the NSAID. (Antman 07).

Strength of Evidence: Strongly Recommended, Evidence (A)

#### *5. Recommendation: Acetaminophen*

Acetaminophen is recommended for treatment of LBP with or without radicular symptoms, particularly for those with contraindications for NSAIDs.

Strength of Evidence: Recommended, Evidence (C)

### **Anti-Depressants**

#### *1. Recommendation: TCAs for Chronic LBP*

Tricyclic antidepressants (TCAs) are recommended for the treatment of chronic LBP.

Indications: Chronic pain that is not fully treated with NSAIDs and an exercise program. This intervention may be helpful where there is nocturnal sleep disruption and mild dysthymia.

Frequency/Duration: Generally prescribed at a very low dose at night and gradually increased (e.g., amitriptyline 25 mg QHS, increase by 25 mg each week) until a sub-maximal or maximal dose is achieved, sufficient effects are achieved, or adverse effects occur. Most practitioners use lower doses, (e.g., amitriptyline 25 to 75 mg a day to avoid the adverse effects and necessity of blood level monitoring), as there is not evidence of increased pain relief at higher doses. Imipramine is less sedating, thus if there is carryover daytime sedation, this may be a better option.

Indications for discontinuation: Resolution of pain, intolerance, or development of adverse effects.

Strength of Evidence: Strongly Recommended, Evidence (A)

## *2. Recommendation: TCAs for Radicular Pain*

There is limited evidence that tricyclic antidepressants (TCAs) result in modest reductions in pain ratings in the treatment of radicular pain compared with placebo. The indications, frequency, duration, and indications for discontinuation are as above for Lower Back Pain.

Strength of Evidence: Recommended, Evidence (C)

## *3. Recommendation: SSRIs for LBP*

The selective serotonin reuptake inhibitors, (e.g., paroxetine, as well as bupropion and trazodone) are not recommended for treatment of chronic LBP. (They may be nevertheless recommended for treatment of depression as noted previously.) There is strong evidence that treatment with these medications is not of benefit, thus their use is not recommended for the management of chronic LBP without depression.

Strength of Evidence: Strongly Not Recommended, Evidence (A)

## *4. Recommendation: Anti-depressants for Acute or Subacute LBP*

There is no quality evidence supporting the efficacy of anti-depressants in the treatment of acute or subacute LBP. Absent other indicators of a need for such treatment, this intervention is not recommended for the management of acute or subacute LBP.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)



## Anti-Seizure Drugs

### 1. *Recommendation: Topiramate for Chronic LBP*

Topiramate is recommended for limited use in select chronic LBP patients, but not as a first line agent.

Indications for Initiation: Failure of multiple other modalities including trials of different NSAIDs, aerobic exercise, specific stretching exercise, strengthening exercise, tricyclic antidepressants, distractants, and manipulation.

Frequency/Dose: This medication is initiated by gradually increasing the dose. It has been initiated with a beginning dose of 50 mg and increasing by 50 mg a week. (Muehlbacher 06) The most appropriate steady dose is unclear, but appears to be 300 mg. Patients should be carefully monitored for the development of adverse events.

Indications for Discontinuation: Resolution, development of adverse effects, or failure to adhere to a functional restoration program. Careful monitoring of employed patients is indicated due in part to elevated risks for central nervous system (CNS) sedating adverse effects.

Strength of Evidence: Recommended, Evidence (C)

### 2. *Recommendation: Carbamazepine for Chronic Radicular or Neuropathic Pain*

Carbamazepine is recommended as a potential adjunct for chronic radicular or neuropathic pain after attempting other treatments (e.g., other medications, aerobic exercise, other exercise, manipulation). While there is not quality evidence for treatment of chronic radicular LBP, this may be tried if other medications have failed. Oxcarbazepine and lamotrigine may be useful agents to try if the results from carbamazepine are insufficient pain relief.

Frequency/Duration: Frequency and dosing are based on the medication prescribed.

Indications for Discontinuation: Resolution of LBP, lack of efficacy, or development of side effects that necessitate discontinuation. Careful monitoring of employed patients is indicated due to elevated risks for CNS sedating adverse effects.

Strength of Evidence: Recommended, Evidence (C)

### 3. *Recommendation: Topiramate for Neuropathic Pain*

Topiramate is not recommended for neuropathic pain, including peripheral neuropathy.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

#### *4. Recommendation: Gabapentin and Pregabalin for Peri-Operative Pain*

Gabapentin is recommended for peri-operative management of pain to reduce need for opioids, particularly in those with side effects from opioids.

Indications: Peri-Operative pain management.

Indications for Discontinuation: Resolution or intolerance. Careful monitoring of employed patients is indicated due in part to elevated risks for CNS-sedating adverse effects.

Strength of Evidence: Strongly Recommended, Evidence (A)

#### *5. Recommendation: Chronic Non-Neuropathic or Low Back Pain*

Gabapentin is not recommended for chronic non-neuropathic pain or LBP.

Strength of Evidence: Not Recommended (Chronic), Evidence (C)

#### *6. Recommendation: Chronic Radicular Pain*

There is no recommendation for or against the use of gabapentin for chronic radicular pain syndromes as the evidence is conflicting. (McCleane 01; Yildirim 03).

Strength of Evidence: No Recommendation, Evidence (I)

#### *7. Recommendation: Severe Neurogenic Claudication*

Gabapentin is recommended for treatment of severe neurogenic claudication with limited walking distance.

Indications: Severe neurogenic claudication from spinal stenosis or chronic radicular pain syndromes.

Indications for Discontinuation: Resolution or intolerance. Careful monitoring of employed patients is indicated due in part to elevated risks for CNS-sedating adverse effects.

Strength of Evidence: Recommended, Evidence (C)

### **Colchicine**

#### *1. Recommendation: Oral and IV Colchicine*

Oral and IV colchicine are not recommended for acute, subacute, or chronic LBP.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **Opioids – Oral, Transdermal, and Parenteral (Includes Tramadol)**

### *1. Recommendation: Routine Use of Opioids*

There is quality evidence that other medications and treatments are superior to opioids. Routine use of opioids for treatment of any acute, subacute, or chronic LBP condition is not recommended.

### *2. Recommendation: Limited Treatment of Acute Low Back Pain*

Limited use of opioids for treatment of acute LBP is sometimes needed.

Indications: For acute LBP patients with severe pain, opioids may be recommended as adjuncts to more efficacious treatments (especially NSAIDs, muscle relaxants, progressive aerobic exercise, manipulation, and directional exercise). Parenteral administration outside of obvious acute trauma or surgical emergency conditions is almost never required, and requests for such treatments are clinically viewed as red flags for substance abuse. Caution should be used in prescribing opioids for patients with a history of depression, personality disorder, substance addiction, or abuse including alcohol or tobacco.

Frequency/Duration: Generally prescribed at night or when not at work. Lower doses are preferable as they tend to have the better safety profiles. Taper off in 2 weeks.

Indications for Discontinuation: Resolution of pain, improvement to the point of not requiring these medications, intolerance or adverse effects, non-compliance, surreptitious medication use, or use beyond 2 weeks.

Strength of Evidence: Recommended, Evidence (C)

### *3. Recommendation: Post-operative Pain*

Limited use of opioids for post-operative pain management is recommended as adjunctive therapy to more effective treatments.

Indications: For post-operative pain management, a brief prescription of opioids as adjuncts to more efficacious treatments (especially NSAIDs, muscle relaxants, progressive aerobic exercise, and directional exercise) is often required, especially for lumbar fusion and other more invasive procedures.

Frequency/Duration: Generally prescribed as needed throughout the day, then later only at night, before weaning off completely.

Indications for Discontinuation: Resolution of pain, improvement to the point of not requiring these medications, intolerance or adverse effects, non-compliance, surreptitious medication use, or use beyond 2 to 3 weeks for less extensive procedures.

Use for up to 6 weeks may be necessary during recovery from more extensive surgical procedures.

Strength of Evidence: Recommended, Evidence (C)

#### *4. Recommendation: Tramadol*

Tramadol is useful in relief of pain and has been shown to provide pain relief equivalent to that of commonly prescribed NSAIDs. Although Tramadol may cause impaired alertness, it is generally well tolerated, does not cause gastrointestinal ulceration, or exacerbate hypertension or congestive heart failure. Tramadol should be used cautiously in patients who have a history of seizures or who are taking medication that may lower the seizure threshold, such as monoamine oxidase (MAO) inhibitors, SSRIs, and tricyclic antidepressants. This medication has physically addictive properties and withdrawal symptoms may follow abrupt discontinuation. It is not recommended for those with prior opioid addiction.

- Maximum Duration: 2 weeks. Use beyond 2 weeks is acceptable in appropriate cases.

### **Skeletal Muscle Relaxants**

#### *1. Recommendation: Mild to Moderate Acute LBP, Subacute or Chronic LBP*

Muscle relaxants are not recommended for mild to moderate acute LBP due to problems with adverse effects, nor are they recommended for chronic use in subacute or chronic LBP (other than acute exacerbations).

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

#### *2. Recommendation: Moderate to Severe LBP*

Muscle relaxants are recommended as a second-line treatment in moderate to severe LBP.

Indications: Recommended for selected cases of moderate to severe acute low back pain. For most cases, these agents are not recommended as other medication, progressive walking, and other exercises will be sufficient to control the symptoms. Generally, it is recommended that these agents be prescribed nocturnally initially and not during workdays or when patients plan to operate motor vehicles. Caution should be used in prescribing skeletal muscle relaxants for those with a history of depression, personality disorder, substance addiction and/or abuse, including alcohol or tobacco. If a muscle relaxant is felt to be necessary in patients with those problems, cyclobenzaprine should be the drug tried since its chemical structure resembles a tricyclic antidepressant, and since addiction and abuse of this drug typically do not occur.

Frequency/Dose: This initial dose should be in the evening. Daytime use is acceptable in circumstances where there are minimal CNS-sedating effects and little concern about sedation compromising function or safety. There is no evidence of benefit from higher doses of medication (e.g., cyclobenzaprine 10 mg over 5 mg). (Borenstein 03). If significant daytime somnolence results, then the medication may need to be discontinued, particularly if it interferes with performance of the aerobic exercise and other components of the rehabilitation plan. Another option is to decrease a dose of cyclobenzaprine by 50% to as little as 2.5 mg (Borenstein 03). It is not recommended that the first dose be taken prior to starting a work shift, or operating a motor vehicle or machinery.

Indications for Discontinuation: Resolution of the pain, non-tolerance, significant sedating effects that carry over into the daytime, or other adverse effects.

Strength of Evidence: Moderately Recommended, Evidence (B)

### *3. Recommendation: Acute Radicular Pain Syndromes or Acute Post-Surgical Situations*

Muscle relaxants are recommended as second- or third-line agents for acute radicular pain syndromes or acute post-surgical situations. Other agents may be more efficacious for relieving radicular pain.

Indications: Moderate to severe radicular pain syndromes or post-surgical pain thought to be musculoskeletal in nature. Generally, muscle relaxants should be prescribed nocturnally initially and not during workdays or when patients plan on operating motor vehicles.

Frequency/Dose: The initial dose should be in the evening. Daytime use is acceptable in circumstances where there are minimal CNS sedating effects. If significant daytime somnolence results, then the medication may need to be discontinued, particularly if it interferes with the performance of aerobic exercise and other components of the rehabilitation plan.

Indications for Discontinuation: Resolution of the pain, non-tolerance, significant sedating effects that carry over into the daytime, or other adverse effects.

Strength of Evidence: Recommended, Insufficient Evidence (I)

- Optimum Duration: 1 week
- Maximum Duration: 2 weeks (or longer if used only at night).

## **Systemic Glucocorticosteroids (aka “Steroids”)**

### *1. Recommendation: Acute Severe Radicular Pain Syndromes*

Glucocorticosteroids are recommended for treatment of acute severe radicular pain syndromes for purposes of obtaining a short-term reduction in pain. (Finckh 2006)

Indication: Acute severe radicular pain.

Frequency/Dose: It is unclear whether parenteral administration or oral administration is more efficacious. In the absence of evidence, it is suggested that oral administration is preferable due to lower invasiveness and costs. It is recommended that only one course (5 to 14 days) of oral medication (i.e.: taper dose of methylprednisolone) be prescribed for a given episode of radicular pain. If additional treatment is needed, epidural steroid injections are preferable due to more direct route and targeting of the medication to the affected tissue.

Strength of Evidence: Recommended, Evidence (C)

### *2. Recommendation: Acute, Subacute, Chronic LBP without Radicular Pain or Mild to Moderate Radiculopathy*

Glucocorticosteroids are not recommended for acute, subacute, or chronic LBP without radicular pain or mild to moderate radiculopathy. Oral steroids are not recommended for axial pain.

Strength of Evidence: Not Recommended (Acute), Evidence (B)

Not Recommended (Subacute, Chronic, mild to moderate radiculopathy), Insufficient Evidence (I)

### *3. Recommendation: Intravenous Steroids for Acute Neurological Emergencies*

The risks of permanent neurological damage from acute spinal cord compression generally outweigh the risks of pharmacologic side effects of steroids in an emergency situation. However, intravenous steroids are not recommended in settings other than acute neurological emergencies and should be confined to use only in the hospital setting with the intensity and duration of intravenous steroids to be determined in consultation with spinal cord experts.

## **Tumor Necrosis Factor- $\alpha$ Inhibitors**

### *1. Recommendation: Radicular Pain Syndromes*

Tumor necrosis factor- $\alpha$  inhibitors are not recommended for treatment of radicular pain syndromes.

Strength of Evidence: Not Recommended, Evidence (C)

*2. Recommendation: Acute, Subacute or Chronic LBP*

Tumor necrosis factor- $\alpha$  inhibitors are not recommended for treatment of acute, subacute or chronic LBP.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

### **Complementary and Alternative Methods**

*1. Recommendation: Acute, Subacute, Chronic LBP or Radicular Pain Syndromes or Other Back-Related Conditions*

Complementary and alternative treatments, other than those specifically defined below, do not have quality evidence and do not have evidence of efficacy for the treatment of acute, subacute, or chronic LBP, or radicular pain syndromes, or other back-related conditions.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

### **Herbal and Other Preparations**

*1. Recommendation: Herbal Treatments*

There is no quality information and thus no recommendation for or against use of Camphora molmol, Maleluca alternifolia, Angelica sinensis, Aloe vera, Thymus officinalis, Menthe peperita, Arnica Montana, Curcuma longa, Tancaetum parthenium, and Zingiber officinicalis. (van Tulder 05) There are many traditional interventions with proven efficacy. There is no quality information, and thus no recommendation for use of these herbs/chemicals in post-operative patients. Absent information about potential effects on surgical wound healing, these chemicals are not recommended.

Strength of Evidence: No Recommendation, Insufficient Evidence (I)

*2. Recommendation: Willow Bark*

Willow bark (salix) appears mildly effective in short-term trials. However, as there are better treatments and this treatment appears unlikely to be able to counter the adverse effects of NSAIDs, NSAIDs are thus preferable and willow bark is not recommended. If salicylates are to be used as treatment, generic aspirin is preferable to willow bark or salicin.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

### 3. *Recommendation: Harpagoside*

For acute, subacute, or chronic back pain syndromes there is evidence that harpagoside reduces pain more than a placebo in a dose-dependent manner. In carefully selected patients, harpagoside is recommended for treatment of LBP.

Indications: For acute, subacute, chronic LBP in patients in whom NSAIDs are contraindicated or not tolerated, harpagoside is a reasonable consideration. However, long-term safety is unclear and caution is warranted about long-term treatment with this compound.

Indications for Discontinuation: Resolution of LBP, lack of efficacy, or development of adverse effects necessitate discontinuation. Not recommended for use more than 3 months until more evidence of efficacy is available.

Strength of Evidence: Recommended, Evidence ©

## **Capsaicin, “Sports Creams” and Other Creams and Ointments**

### 1. *Recommendation: Capsicum*

Capsicum is recommended for treatment of acute and subacute back pain, or temporary flare-ups of chronic LBP. Long-term use is not recommended. Capsicum appears superior to Spiroflor. Other creams and ointments may be useful, although there is no quality evidence to guide recommendations.

Indications: For acute and subacute, and for temporary flare-ups of chronic LBP, capsaicin is recommended for treatment. Providers should be aware that there are other treatments that appear to likely have greater efficacy (e.g., medications, progressive exercise program, etc.). However, capsaicin may be a useful adjunct. These compounds may also be used in those patients who prefer topical treatments over oral treatments and other more efficacious treatments, but have only mild LBP.

Indications for Discontinuation: Resolution of LBP, lack of efficacy, or development of adverse effects that necessitate discontinuation. Recommended not to be used more than 1 month as the costs become high and the patient should be transitioning to an active treatment program.

Strength of Evidence: Recommended

### 2. *Recommendation: Acute, Subacute or Chronic LBP*

Other creams and ointments may be used for treatment of acute, subacute, or chronic LBP. However, there is no evidence of efficacy and no recommendation. Other agents and medicines have evidence of efficacy.



Strength of Evidence: No Recommendation, Insufficient Evidence (I)

## **Vitamins**

*1. Recommendation: Acute, Subacute, Chronic or Post-Operative LBP and Radiculopathy*

The use of vitamins in the absence of documented deficiencies or other nutritional deficit states for acute, subacute, chronic, or post-operative LBP patients and for patients with radiculopathy is not recommended.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **D. PHYSICAL METHODS (Appliances, Acupuncture, Neuroreflexotherapy)**

### **Shoe Insoles and Shoe Lifts**

*1. Recommendation: These interventions are not recommended for the treatment of acute, subacute, or chronic LBP or radicular pain syndromes or other back-related conditions in the absence of significant leg-length discrepancy.*

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

### **Kinesiotaping and Taping**

*1. Recommendation: Acute, Subacute or Chronic LBP or Radicular Pain Syndromes or Other Back-Related Conditions*

Kinesiotaping and taping are not recommended for the treatment of acute, subacute, or chronic LBP or radicular pain syndromes or other back-related conditions.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

### **Lumbar Supports**

*1. Recommendation: Prevention of LBP*

Lumbar supports are not recommended for prevention of LBP.

Strength of Evidence: Not Recommended, Evidence (C)

## *2. Recommendation: Treatment of LBP*

Lumbar supports are not recommended for treatment of LBP. They may be useful for specific treatment of spondylolysis, documented instability, or post-operative treatment in the absence of significant leg length discrepancy.

Strength of Evidence: Not Recommended, Evidence (C)

## **Magnets**

### *1. Recommendation: LBP*

The use of magnets is not recommended.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **Mattresses, Water Beds, and Sleeping Surfaces (None with Sciatica)**

### *1. Recommendation: Firm Mattresses*

No recommendation regarding mattresses other than that providers should be aware that ordering patients to sleep on firm mattresses or on the floor may be incorrect.

Strength of Evidence: No Recommendation, Insufficient Evidence (I)

### *2. Recommendation: Optimal Sleeping Surfaces*

There is no quality evidence to guide recommendations regarding other optimal sleeping surfaces (e.g., bedding, water beds, and hammocks). It is recommended that patients select mattresses, pillows, bedding, or other sleeping options that are most comfortable for them.

Strength of Evidence: No Recommendation, Insufficient Evidence (I)

## **E. MODALITIES**

### **Massage**

#### *1. Recommendation: Massage for Subacute and Chronic Low Back Pain*

Massage is recommended for select use in subacute and chronic LBP as an adjunct to more efficacious treatments consisting primarily of a graded aerobic and strengthening exercise program.

Indication: Consideration for time-limited use in subacute and chronic LBP patients without underlying serious pathology is as an adjunct to a conditioning program that has both graded aerobic exercise and strengthening exercises. The intervention is only recommended to assist in increasing functional activity levels more rapidly and the primary attention should remain on the conditioning program. In those not involved in a conditioning program, or who are non-compliant with graded increases in activity levels, this intervention is not recommended.

Frequency/Duration: The two highest quality studies of massage as a treatment for LBP showed benefit from participants undergoing massage therapy 1 or 2 times a week for 4 to 10 weeks for a total of between 6 and 10 sessions. Each session lasted 30 to 35 minutes. Objective improvements should be shown approximately halfway through the treatment regimen to continue this course of treatment.

Indications for Discontinuation: Resolution, intolerance, lack of benefit, or non-compliance with aerobic and strengthening exercises.

Strength of Evidence: Recommended, Evidence (C)

### *2. Recommendation: Massage for Acute Low Back Pain and Chronic Radicular Syndromes*

Massage is recommended as a treatment for acute LBP and chronic radicular syndromes in which LBP is a substantial symptom component.

Indications: Patients with sub-acute and chronic LBP without underlying serious pathology, such as fracture, tumor, or infection.

Frequency/Duration: It is suggested that objective benefit (functional improvement along with symptom reduction) be demonstrated after a trial of 2 sessions in order for further treatment to continue, for up to 10 visits during which a transition to a conditioning program is accomplished.

Indications for Discontinuation: Resolution, intolerance or lack of benefit.

Strength of Evidence: Recommended, Insufficient Evidence (I)

### *3. Recommendation: Mechanical Devices for Massage*

Mechanical devices for administering massage are not recommended. (Melzack 83; Werners 99)

Strength of Evidence: Not Recommended, Evidence (C)

## **Reflexology**

### *1. Recommendation: Chronic Low Back Pain*

Reflexology is not recommended for treatment of chronic LBP.

Strength of Evidence: Not Recommended, Evidence (C)

### *2. Recommendation: Other Low Back Conditions*

For treatment of other LBP conditions, there is not evidence of efficacy and there is evidence that other interventions are efficacious, thus reflexology is not recommended for acute, subacute, and other spinal conditions.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **Biofeedback**

### *1. Recommendation: Chronic LBP*

Biofeedback is recommended for select patients with chronic LBP, as a component of an interdisciplinary approach.

Indications: Moderate to severe chronic LBP with sufficient symptoms that multiple treatment options have failed, particularly including NSAIDs, progressive aerobic exercise program, other exercises, and potentially manipulation or acupuncture. These select patients must also be willing to learn about biofeedback and motivated to comply with the treatment regimen which requires self discipline.

Frequency/Duration: Four (4) to 6 sessions for initial effect, 10 to 12 sessions to acquire skill within the multidisciplinary program. Those not making objective progress are not candidates for additional treatment. Maximum duration of 12 to 16 sessions. Further supervised treatments unlikely to be needed unless there is objective evidence of further improvement that is continuing through and to that time. Patients are discharged at that time to continue biofeedback exercises at home.

Indications for Discontinuation: Non-tolerance, noncompliance or resolution of LBP

Strength of Evidence: Recommended, Insufficient Evidence (I)

### *2. Recommendation: Acute or Subacute LBP*

Biofeedback is not recommended in patients with acute or subacute LBP, although it is suggested that other treatments for which there is quality evidence of efficacy are more appropriate.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

### **Myofascial Release**

1. *Recommendation: Acute, Subacute, Chronic LBP or Radicular Pain Syndromes or Other Back-Related Conditions*

Myofascial release is not recommended for the treatment of acute, subacute, or chronic LBP or radicular pain syndromes or other back-related conditions.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

### **Traction**

1. *Recommendation: Acute, Subacute, Chronic LBP or Radicular Pain Syndromes*

Traction is not recommended for treatment of acute, subacute, chronic LBP or radicular pain syndromes.

Strength of Evidence: Not Recommended, Evidence (C)

### **Vertebral Axial Decompression (VAX-D) and Other Decompressive Devices**

1. *Recommendation: Acute, Subacute, Chronic or Radicular Pain Syndromes*

Vax-D is not recommended.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

### **Chiropractic Care**

1. *Recommendation: See individual treatment sections elsewhere.*

Strength of Evidence: No Recommendation, Insufficient Evidence (I) – see specific treatments.

### **Manipulation and Mobilization**

1. *Recommendation: Manipulation for Acute, Subacute, or Chronic Low Back Pain*

Manipulation is recommended for treatment of acute, subacute and chronic LBP when tied to objective measures of improvement.

Indications: acute, subacute, chronic LBP and radicular pain syndromes. More likely to be effective in acute and subacute phases with re-evaluation in a certain period of time

(within 4 weeks) for evidence of functional improvement or need for further work-up. Continuance of treatment will depend on functional improvement.

Frequency/Duration: It should be expected that most patients with more severe LBP conditions receive 8 to 12 visits over 6 to 8 weeks, as long as functional improvement (and not just self-described pain) and program progression are documented when re-evaluated after 2 to 3 visits. Compliance and efficacy should be demonstrated. Patients with mild symptoms may require either no therapy appointments or only a few appointments. Those with moderate problems may require 5 to 6 visits.

## *2. Recommendation: Chronic Treatment/Prophylactic Manipulation*

There is no efficacy for chronic treatment (manipulation several times a month for years) and chronic treatment is not recommended. There is no evidence that prophylactic treatment is effective, either for primary prevention (before the first episode of pain) or for secondary prevention (after recovery from an episode of back pain) and prophylactic treatment is not recommended.

## **Manipulation under Anesthesia (MUA) and Medication-Assisted Spinal Manipulation (MASM)**

*1. Recommendation: MUA and MASM are not recommended in acute, subacute or chronic LBP patients.*

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

### Rationale for Recommendation

MUA and MASM have been evaluated in chronic LBP patients in one RCT, however that study used a complex mixture of interventions and changed multiple interventions between the two groups. Thus, there is no quality study reported comparing these with either a non-interventional control or other conservative treatment. MUA/MASM is high cost, is invasive when combined with injections, and MUA/MASM has potential for significant adverse effects (e.g., herniations, fracture) (Dan 83) although no reports of complications with the use of more modern osteopathic and chiropractic techniques, as the result of anesthesia or subsequent to 1986 were found. (Kohlbeck 02)

## **Hot and Cold Therapies**

Superficial heat and cold are thermal agents applied in various manners that lower or raise the body temperature for the reduction of pain, inflammation, and/or effusion resulting from injury or induced by exercise. Includes application of heat just above the surface of the skin at acupuncture points.

Indication: Include acute pain, edema, and hemorrhage, need to increase pain threshold, reduce muscle spasm, and promote stretching/flexibility. Cold and heat packs can be used at home as an extension of therapy in the clinic setting.

Time to Produce Effect: Immediate

Frequency: 2 to 5 times per week

Optimum Duration: 3 weeks as primary, or intermittently as an adjunct to other therapeutic procedures up to two months.

## **Diathermy**

### *1. Recommendation: LBP*

Diathermy is not recommended for treatment of any LBP-related conditions.

Strength of Evidence: Not Recommended, Evidence (C)

## **Infrared Therapy**

### *1. Recommendation: Acute LBP*

No recommendation until additional quality studies are published. For those circumstances where this intervention is used for treatment of acute LBP, it is recommended to only be provider-based treatment and only performed in conjunction with an active exercise program, with frequency not to exceed 4 visits.

Strength of Evidence:

No Recommendation, Insufficient Evidence (I) for acute LBP

Not Recommended, Insufficient Evidence (I) for subacute and chronic LBP

No recommendation, Insufficient Evidence (I) for home use

## **Ultrasound**

### *1. Recommendation: LBP*

There is no recommendation for or against the use of ultrasound in the treatment of LBP.

Indications: In situations where deeper heating is desirable, a limited trial of ultrasound for the treatment of LBP is reasonable, but only if performed as an adjunct with exercise.

Time to produce effect: 6 to 15 treatments.

Frequency: 3 times per week.

Optimum Duration: 4 to 8 weeks.

Maximum Duration: 8 weeks.

### **Low Level Laser Therapy**

*1. Recommendation: LBP*

Low level laser therapy is not recommended for treatment of LBP.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **F. ELECTRICAL THERAPIES**

### **Interferential Therapy**

*1. Recommendation: Interferential Therapy for Subacute or Chronic Low Back Pain and Other Back Disorders*

Interferential therapy is not recommended for treatment of acute, subacute, chronic LBP, chronic radicular pain syndromes, or other back-related conditions.

Strength of Evidence: Not Recommended, Evidence (C) for subacute or chronic LBP, chronic radicular pain syndromes or other back-related conditions

### **Transcutaneous Electrical Neurostimulation (TENS) and Neuromuscular Electrical Stimulation**

*1. Recommendation: TENS for Acute, Subacute Low Back Pain, or Acute Radicular Pain Syndromes*

TENS is not recommended for acute, subacute LBP, or acute radicular pain syndromes. There also is no recommendation for neuromuscular electrical stimulation.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

*2. Recommendation: TENS for Chronic Low Back Pain or Chronic Radicular Pain Syndrome*

TENS is recommended for select use in chronic LBP or chronic radicular pain syndrome as an adjunct for more efficacious treatments.



Indications: TENS (single or dual channel) may be recommended as treatment for chronic LBP when clear objective and functional goals are being achieved, which includes reductions in medication use. TENS is used as adjunctive treatment in chronic pain conditions to support graded aerobic exercise and strengthening exercises. In those not involved in a conditioning program, or who are non-compliant with graded increases in activity levels, this intervention is not recommended. There is no quality evidence that more complex TENS units beyond the single or dual channel models are more efficacious, thus those models are not recommended.

TENS units should be tried prior to purchase to demonstrate efficacy and increase function. Two or three visits with a therapist may be necessary to instruct the patient in the application and use of the unit and to determine the most effective electrode placement and current parameters. When a patient has a TENS unit, electrical stimulation for pain management should not be performed as part of any ongoing rehabilitative program.

Indications for Discontinuation: Resolution, intolerance or non-compliance, including non-compliance with aerobic and strengthening exercises.

Strength of Evidence: Recommended, Evidence (C)

### **Percutaneous Electrical Nerve Stimulation (PENS)**

*1. Recommendation: PENS for Acute, Subacute Low Back or Radicular Pain Syndromes*

PENS is not recommended for acute, subacute LBP and radicular pain syndromes.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

*2. Recommendation: PENS for Chronic Non-radicular Low Back Pain*

As PENS is still an investigational treatment, it is not recommended outside of research settings for chronic non-radicular LBP.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

### **Microcurrent Electrical Stimulation**

*1. Recommendation: Acute, Subacute, Chronic LBP or Radicular Pain Syndrome*

Microcurrent electrical stimulation is not recommended for acute, subacute, or chronic LBP or radicular pain syndrome patients, as other therapies are believed to be more efficacious and less costly.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **H-Wave Stimulation**

1. *Recommendation: Acute, Subacute, Chronic LBP or Radicular Pain Syndromes*

H-wave stimulation is not recommended for acute, subacute, or chronic LBP or radicular pain syndromes.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **High-Voltage Galvanic**

1. *Recommendation: Acute, Subacute, or Chronic LBP or Radicular Pain Syndromes or Other Back-Related Conditions*

High-voltage galvanic is not recommended for the treatment of acute, subacute, or chronic LBP or radicular pain syndromes or other back-related conditions.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **Iontophoresis**

1. *Recommendation: Acute, Subacute, Chronic LBP, Radicular Pain Syndromes or Other Back-Related Conditions*

Iontophoresis is not recommended for the treatment of acute, subacute, or chronic LBP or radicular pain syndromes or other back-related conditions.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **G. ACUPUNCTURE**

1. *Recommendation: Routine Use of Acupuncture for Acute or Subacute LBP, Radicular Pain, etc.*

Although it is not high cost and its use is not associated with high potential for patient harm, routine use of acupuncture is not recommended.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

2. *Recommendation: Acupuncture for Chronic LBP*

Acupuncture is recommended for select use in chronic LBP as an adjunct to more efficacious treatments.

Indications: Acupuncture may be recommended as treatment of chronic LBP as a limited course during which time there are clear objective and functional goals that are

to be achieved. Consideration for time-limited use in chronic LBP patients without underlying serious pathology is as an adjunct to a conditioning program that has both graded aerobic exercise and strengthening exercises. Acupuncture is only recommended to assist in increasing functional activity levels more rapidly and the primary attention should remain on the conditioning program. This intervention is not recommended for patients not involved in a conditioning program, or who are non-compliant with graded increases in activity levels.

Frequency/Duration: There are different patterns which are used in quality studies. These range from weekly for a month to 20 appointments over 6 months; however the norm is generally no more than 8 to 12 sessions. An initial trial of 5 to 6 appointments would appear reasonable in combination with a conditioning program of aerobic and strengthening exercises. Future appointments should be tied to improvements in objective measures and would justify an additional 6 sessions, for a total of 12 sessions.

Indications for Discontinuation: Resolution, intolerance, or non-compliance, including non-compliance with aerobic and strengthening exercises.

Strength of Evidence: Recommended, Evidence (C)

## **H. NEUROREFLEXOTHERAPY**

### *1. Recommendation: Neuroreflexotherapy for Moderate to Severe Chronic LBP*

Neuroreflexotherapy is recommended for treatment of moderate to severe chronic LBP in patients who have failed management with NSAIDs, progressive aerobic exercise program or other exercises, and manipulation.

Strength of Evidence – Recommended, Evidence (C)

### *2. Recommendation: Neuroreflexotherapy for Acute, Subacute, or Radicular Pain*

No recommendation for the use of neuroreflexotherapy in the treatment of acute, subacute, or radicular pain syndromes.

Strength of Evidence: No Recommendation, Insufficient Evidence (I)

## I. ACTIVITY MODIFICATION AND EXERCISE

### Bed Rest

#### 1. *Recommendation: Bed Rest for Acute LBP*

Bed rest is not recommended for the management of acute LBP. Though bed rest is non-invasive, it is costly and associated with high morbidity.

Strength of Evidence: Strongly Not Recommended, Evidence (A)

#### 2. *Recommendation: Bed Rest for Subacute and Chronic LBP*

Bed rest is not recommended for the management of subacute and chronic LBP. It is suspected that it is just as ineffective for these situations as it is for acute LBP; however, there is less evidence on which to rely.

Strength of Evidence: Moderately Not Recommended, Evidence (B)

#### 3. *Recommendation: Bed Rest for Other Low Back Problems*

There is no quality evidence that other back pain related problems are successfully treated with bed rest, including spondylolisthesis, spondylolysis, spinal stenosis, facet related pain, or pain thought to be related to the sacroiliac joint. There also are likely adverse effects. Bed rest is costly, has no documented benefits, and is expected to be associated with higher morbidity, although it is non-invasive. This treatment strategy is not recommended.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

#### 4. *Recommendation: Bed Rest for Stable Spinal Fractures*

There is no quality evidence regarding the use of bed rest or other activity limitations for the treatment of stable spinal fractures, such as transverse process fractures or compression fractures. In those settings, bed rest is costly, has no documented benefits, and is expected to be associated with higher morbidity, although it is non-invasive. This treatment strategy is not recommended. Instead, gentle activity within tolerance is recommended.

Strength of Evidence: Not Recommended, Insufficient Evidence ((I)

#### 5. *Recommendation: Bed Rest for Unstable Spinal Fractures*

There are no quality studies evaluating the role of bed rest in the management of unstable spinal fractures or cauda equina syndrome. There is consensus that these require bed rest or other marked activity limitations to prevent adverse events. Although

bed rest is costly and has no documented benefits, the hazard of mobilization in this setting is theoretically catastrophic, thus this treatment strategy is considered to be recommended.

Strength of Evidence: Recommended, Insufficient Evidence (I)

#### *6. Recommendation: Bed Rest for Radicular Pain*

Bed rest is not recommended for the management of radicular pain syndromes, including sciatica. It is suspected that it is as unhelpful as it is for acute LBP, but there are not as many studies.

Strength of Evidence: Not Recommended, Evidence C

### **Sleep Posture**

#### *1. Recommendation: Sleep Posture*

The most appropriate sleep posture is that which is most comfortable for the patient. If a patient habitually chooses a particular sleep posture, it would appear reasonable to recommend altering posture to determine if there is reduction in pain or other symptoms.

Criteria for Initiation: Acute, subacute or chronic LBP that results in nocturnal awakening, particularly if not amenable to other treatments.

Criteria for Discontinuation: Non-tolerance.

Strength of Evidence: Recommended, Insufficient Evidence (I)

#### *2. Recommendation: Commercial Products*

There is no quality evidence that specific commercial products have roles in primary prevention or treatment of acute, subacute or chronic LBP.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

### **General Exercise**

#### *1. Recommendation: Acute LBP*

Stretching and aerobic exercise are recommended, while strengthening is not, as there is insufficient time for deconditioning to occur and there is a potential for aggravation of LBP. Pain control modalities may be needed as a complement to exercise.

Classification-based exercise management may be beneficial in selection of specific exercises. The recommended frequency is 1 to 3 sessions a week for up to 4 weeks as

long as periodically documented functional improvement and symptom reduction is occurring.

## *2. Recommendation: Acute Radicular LBP*

The treatment strategy is the same as for acute LBP. However, movements that centralize LBP may be used to guide exercise selection. Concentration on radicular symptoms is emphasized over axial pain. Rapid progression of radicular symptoms and objective signs may necessitate discontinuation of exercise and consideration of further diagnostic testing.

## *3. Recommendation: Subacute LBP*

For patients with no prior treatment, the treatment plan is similar to nonspecific LBP. The frequency is 1 to 3 sessions per week for 4 weeks as long as periodically documented functional improvement and symptom reduction is occurring.

For those who failed acute treatment, a trial of more intensive reconditioning that includes strengthening exercises is recommended. Particular attention should be paid to psychosocial factors that may impair compliance with exercise recommendations among those with subacute LBP, as it is believed possible to reduce risk for the LBP to become chronic. Providers should educate patients to help motivate, encourage, and facilitate recovery. The frequency is 2 to 5 sessions per week for 4 weeks as long as there is objective functional improvement, symptom reduction, patient compliance and efficacy. Progress should be reassessed after 8 sessions. Visit frequency depends on work status, symptom severity, comorbidities and functional status.

## *4. Recommendation: Subacute Radicular Pain*

Subacute radicular pain is treated similarly to subacute LBP above, except if there is rapid progression of radicular symptoms and objective signs. If this occurs it may be necessary to discontinue exercise and to consider further diagnostic testing.

## *5. Recommendation: Postoperative Exercising*

Postoperative progressive exercise programs should first emphasize flexibility and aerobic exercises, and then progress to strengthening. Treatment frequency of 1 to 3 sessions per week progressing to 2 to 4 sessions per week is recommended depending on patient compliance, periodically documented functional improvement and symptom reduction. Reassessment should occur after 10 sessions, with continuation based on demonstration of functional improvement. The upper range is 20 sessions.

## *6. Recommendation: Chronic Episodic LBP and Radicular Pain*

For patients with mild symptoms or a flare-up of symptoms, the treatment focus is on education regarding home management and exercise. Individuals with mild symptoms

and minimal functional limitations may receive a therapy evaluation and 1 follow-up visit to adjust the home therapy program.

For individuals with moderate to severe flare-up with mild to severe disability, treatment should consist of a progressive exercise program first emphasizing flexibility and aerobic exercises, and progressing to strengthening treatment frequency of 1 to 3 visits per week up to a maximum of 12 visits. Reassessment should occur after the 6<sup>th</sup> visit, with continuation based on patient compliance, periodically documented functional improvement and symptom reduction.

#### *7. Recommendation: Chronic LBP and Radicular Pain*

For individuals with mild symptoms and minimal disability, treatment should consist of a therapy evaluation to instruct the patient in home based exercise program, with 1 to 2 follow-up visits.

For individuals who had failure of prior treatment and have moderate symptoms and some functional deficits, if the patient had no previous exposure to exercise therapy, he or she should be treated the same as a patient with subacute symptoms (outlined above). If the patient failed prior exercise therapy, consider 6 additional exercise visits, or consider an interdisciplinary approach.

### **Aerobic Exercises**

#### *1. Recommendation: Acute, Subacute or Chronic LBP*

Aerobic exercise is recommended for treatment of acute, subacute and chronic LBP, although most available evidence is from studies treating chronic LBP patients. For most patients, a structured, progressive walking program on level ground or no incline on a treadmill is recommended. There has been some controversy about whether bicycling is helpful or harmful from a biomechanical perspective (lordosis) and the back muscles are less active with bicycling, thus it may be less appropriate. Yet, if bicycling is the preferred exercise for the patient, it is believed to be far superior to obtaining no aerobic exercise. For those patients who desire other aerobic exercises, there are no specific data, although there are indications that imply that there is a direct correlation between benefit and the amount of aerobic activity that results in higher MET expenditure. Therefore, the activity that the patient will adhere to is believed to be the one most likely to be effective, given that compliance is a recognized problem.

Indications: All patients with acute, subacute and chronic LBP appear to benefit from aerobic exercises. However, those with significant cardiac disease, or significant potential for cardiovascular disease should be considered for whether an evaluation is required prior to institution of vigorous exercises.

Frequency/Duration: For patients with chronic LBP, walking at least 4 times per week at 60% of predicted maximum heart rate ( $220 - \text{age} = \text{maximum heart rate}$ ) is

recommended. One successful study benchmarked 20 minutes during Week 1, 30 minutes during Week 2, and 45 minutes after that point. For acute or subacute LBP patients, a graded walking program is generally desired, often using distance or time as minimum benchmarks. For example, a patient can start with 10 to 15 minutes twice a day for 1 week, and increase in 10 to 15 minute increments per week until at least 30 minutes per day is achieved.

Indications for Discontinuation: Aerobic exercise should be discontinued when there is intolerance (rarely occurs) or development of other disorders. Nearly all patients should be encouraged to maintain aerobic exercises on a long-term basis for both prevention of LBP (see below), and to maintain optimal health.

Strength of Evidence: Strongly Recommended, Evidence (A)

## *2. Recommendation: Post-Operative Patients*

Aerobic exercise is believed to be strongly recommended for post-operative patients. Unfortunately there is no quality evidence to support this recommendation. In the absence of evidence, it is suggested that the above guideline be used for treatment of post-operative LBP patients.

Strength of Evidence: Recommended, Insufficient Evidence (I)

## **Stretching and Flexibility**

### *1. Recommendation: Stretching for Acute LBP*

Evidence suggests specific stretching exercises are somewhat helpful for acute LBP. However, aerobic exercise should be the first-line treatment and stretching exercises may be added for self-treatment if needed.

Indications: For acute, subacute, or chronic LBP, either slump stretch-related exercises or directional preference stretching exercises are recommended. Generic stretching exercises are not recommended.

Frequency/Duration: Three to five times per day for acute LBP. Two to three times per day for subacute or chronic LBP.

Indications for Discontinuation: Stretching exercises should be discontinued if there is a strain in the course of treatment, or failure to improve.

Strength of Evidence: Recommended, Evidence (C)



## *2. Recommendation: Aggressive Stretching*

There is one reported low-quality RCT of aggressive stretching exercises for the treatment of chronic “myofascial” LBP (Khalil 1992) and there is no duplication of those results in the literature. Thus, there is no quality evidence base for aggressive stretching. There are concerns that over-stretching may result in additional injuries to patients. Aggressive stretching requires a health care provider for each session and thus costs are considerably greater than those for self-performed stretching exercises. While they were not invasive, there are concerns that the potential for harm outweighs the potential for benefit. There are many other interventions with evidence of efficacy.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## *3. Recommendation: LBP*

Stretching exercises as an isolated prescription or program for purposes of preventing LBP are not recommended.

Strength of Evidence: Not Recommended, Evidence (C)

## **Strengthening and Stabilization Exercises**

### *1. Recommendation: Acute, Subacute, Chronic LBP or Post-Operative Pain*

Specific strengthening exercises, such as stabilization exercises, are helpful for the prevention and treatment (including post-operative treatment) of LBP. (Hides 01) (Filiz 05) (Soukup 99, 01)

Indications: For acute, subacute, or chronic LBP, or post-operative LBP patients, strengthening exercises are recommended for treatment of LBP. However, as evidence of efficacy of aerobic exercises appears greater, these exercises should be added after either aerobic exercises have already been instituted and additional treatment is needed, or in situations where both are felt to be required. Exercises should be taught and then performed by the patient in a home exercise program. For those patients who do not improve, follow up appointments to verify technique and compliance (by exercise log books) are recommended. Some patients, particularly those lacking motivation to be in a home exercise program may benefit from a supervised exercise program, although strong questions about long-term compliance are apparent among patients with chronic LBP. More intensive programs with more intensive exercises and direct supervision with active coaching appear warranted for chronic LBP.

Frequency/Duration: Home program frequency is 1 to 2 times a day for acute LBP, and two to three times a day for subacute or chronic LBP. Supervised treatment frequency and duration is dependent on symptom severity and acuity, the presence of comorbid conditions and yellow flags.

Indications for Discontinuation: Indications to discontinue strengthening exercises include development of a strain in the course of treatment or failure to improve.

Strength of Evidence: Recommended, Evidence (C)

## *2. Recommendation: LBP*

Strengthening of abdominal muscles (e.g., rectus abdominus and obliques with sit-up exercises) is a frequent goal of LBP rehabilitation or prevention programs. There is no quality evidence that these exercises are effective, there is rationale that suggests they are not effective and there are other treatment strategies with proven or at least suggested efficacy. Thus abdominal strengthening exercises particularly as either a sole or central goal of a strengthening program are not recommended for treatment or prevention of LBP.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **Aquatic Therapy (Including Swimming)**

### *1. Recommendation: Subacute or Chronic LBP with Co-Morbidities*

Indications: If the patient has subacute or chronic LBP and meets criteria for a referral for supervised exercise therapy and has co-morbidities (e.g., extreme obesity, significant degenerative joint disease, etc.) that preclude effective participation in a weight-bearing physical activity, then a trial of aquatic therapy is recommended for the treatment of subacute or chronic LBP. Osteoarthritis of the knee is not a clear contraindication to a walking program, rather walking may be therapeutically indicated based on high quality evidence. (Ettinger WH Jr., et al. A randomized trial comparing aerobic exercise and resistance exercise with a health education program in older adults with knee osteoarthritis. The Fitness Arthritis and Seniors Trial (FAST). *JAMA*. 1997;277(1):25-31).

Frequency/Duration: A program should generally begin with 3 to 4 visits per week. The patient must have demonstrated evidence of functional improvement within the first 2 weeks to justify additional visits. The program should include up to 4 weeks of aquatic therapy with progression towards a land-based, self-directed physical activity or self-directed aquatic therapy program by 6 weeks.

Indications for Discontinuation: Non-tolerance, failure to progress, or reaching a 4 to 6 week time frame.

Strength of Evidence: Recommended, Insufficient Evidence (I)

## 2. *Recommendation: Acute, Subacute or Chronic LBP*

For all other subacute and chronic LBP patients, and for all acute LBP, aquatic therapy is not recommended as other therapies are believed to be more efficacious.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

### **MEDX Machine**

#### 1. *Recommendation: Acute, Subacute, Chronic LBP or any Radicular Pain Syndrome*

Use of a MedX machine to strengthen the lumbar spine is not recommended for acute, subacute, or chronic LBP, or for any radicular pain syndrome.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

### **Yoga**

#### 1. *Recommendation: Uncomplicated LBP*

There is some evidence to support the effectiveness of Yoga Therapy in alleviating symptoms and decreasing medication use in uncomplicated LBP.

Time to Produce Effect: 2 to 6 treatments

Frequency: 2 to 5 times per week

Optimum Duration: 4 weeks

Maximum Duration: Reassess after 8 weeks

## **J. INJECTION THERAPIES**

### **Lumbar/Transforaminal/Epidural Injections**

#### 1. *Recommendation: Acute or Subacute Radicular Pain Syndromes*

An epidural glucocorticosteroid injection is an option for acute or subacute radicular pain syndromes. Its purpose is a few weeks of partial pain relief while hopefully awaiting spontaneous improvement. An epidural steroid injection may provide short-term improvement, which may assist in successfully accruing sufficient time to ascertain whether conservative care will succeed. An “option” means there should be no requirement that a patient receive and fail treatment with epidural glucocorticosteroids, especially repeated injections, prior to discectomy. These injections must be fluoroscopically guided.

Indications: Radicular pain syndromes lasting at least 3 weeks having been treated with NSAIDs and without evidence of trending towards spontaneous resolution. Consideration may also be given for an optional short course of an oral glucocorticosteroid before an injection.

Frequency/Duration: It is recommended that each injection be scheduled separately, and effects of each injection be evaluated, rather than scheduling a “Series of 3.” Medications most often used in the RCTs were triamcinolone and methylprednisolone combined with an anesthetic. The anesthetic has most often been bupivacaine. There are no head to head comparisons of different medications to ascertain the optimum medication(s) and/or dose(s).

Indications for Discontinuation: A second epidural steroid injection is not recommended if following the first injection there has been resolution of the symptoms of the acute radicular pain syndrome, particularly resolution of leg symptoms, or a decrease in symptoms to a tolerable level. If there has not been a response to a first epidural injection, there would be no recommendation for a second epidural injection. In patients who respond with a pharmacologically appropriate 3 to 6 weeks of temporary, partial relief of leg pain, but who then have a worsening of leg pain and function, and who are not (yet) interested in surgical discectomy, a repeat epidural steroid injection is an option. Generally, there are not believed to be benefits beyond 3 injections for a given episode of radicular pain. Patients requesting a fourth injection should be counseled for discectomy, or considered to have chronic radicular symptoms for which epidural steroids are not recommended.

Strength of Evidence: Recommended, Insufficient Evidence (I)

## *2. Recommendation: Acute Flare Ups of Spinal Stenosis*

Epidural glucocorticosteroid injections are an option for second-line treatment for acute flare ups of spinal stenosis, although the evidence is less robust than it is for herniated discs.

Indications: Symptoms of spinal stenosis of at least 1 to 2 months, with prior treatment that has included NSAIDs and progressive exercise.

Frequency/Duration: It is recommended that each injection be scheduled, and the effects of each injection be evaluated before additional injections are considered, rather than scheduling a “Series of 3.”

Indications for Discontinuation: Resolution of the symptoms of spinal stenosis, or decrease in symptoms to a tolerable level.

Strength of Evidence: Recommended, Insufficient Evidence (I)

### *3. Recommendation: Acute, Subacute, Chronic LBP in the Absence of Significant Radicular Symptoms*

Epidural glucocorticosteroid injections are not recommended for acute, subacute or chronic LBP in the absence of significant radicular symptoms. They are also not recommended as first or second line treatment in individuals with LBP symptoms that predominate over leg pain. They are not recommended as treatment for any chronic problem.

Strength of Evidence: Not Recommended, Evidence (C)

### **Intradiscal Steroids**

#### *1. Recommendation: Acute LBP*

There is no quality evidence on the value of intradiscal steroid injections in those with acute LBP. There is no quality evidence that these injections improve on the natural history of acute LBP. These injections are not recommended.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

#### *2. Recommendation: Subacute and Chronic LBP*

This intervention was assessed in subacute and chronic LBP patients. This treatment strategy is not recommended for management of subacute or chronic LBP.

Strength of Evidence: Moderately Not Recommended, Evidence (B)

### **Chemonucleolysis (Chymopapain and Collagenase)**

This procedure, while a successful treatment, is not available in the U.S. due to serious adverse effects.

### **Tender and Trigger Point Injections**

#### *1. Recommendation: Acute LBP*

Trigger and/or tender point injections are not recommended for treatment of acute LBP. Also, there are other more efficacious treatment strategies available.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

#### *2. Recommendation: Subacute or Chronic LBP*

Trigger or tender point injections may be reasonable second or tertiary options for subacute or chronic LBP that is not resolving. These injections are recommended to

consist solely of a topical anesthetic (e.g., bupivacaine). Repeated injections should be linked to subjective and objective improvements. The use of therapeutic injections without participation in an active therapy program or in the context of maintaining employment is not recommended. An alternative option to these injections is acupuncture.

Indications: Subacute or chronic LBP that is not resolving with more conservative means (e.g., NSAID, progressive aerobic exercises, other exercises).

Frequency/Duration: It is recommended to allow at least 3 to 4 weeks between injections. If the results are not satisfactory after the first set of injections, a second set is reasonable. If there are not subjective and objective improvements at that point, further injections are not recommended.

Indications for Discontinuation: Resolution, intolerance or completing two set(s) of injections without materially affecting the condition.

Strength of Evidence: Recommended, Evidence (C)

### **Diagnostic Facet Joint Injections (Intra-articular and Nerve Blocks)**

#### *1. Recommendation: Chronic LBP*

One fluoroscopically guided diagnostic facet joint injection per side per level may be recommended for patients with chronic LBP that is significantly exacerbated by extension and rotation or associated with lumbar rigidity, and not alleviated with other conservative treatments (e.g., medication, aerobic exercise, other exercise, manipulation) in order to determine whether specific interventions targeting the facet joint are recommended. Repeated diagnostic injections in the same location(s) are not recommended.

#### *2. Recommendation: Acute, Subacute LBP or Sciatic Pain*

Diagnostic facet joint injections are not recommended for acute, subacute LBP, or sciatic pain

### **Therapeutic Facet Joint Injections**

#### *1. Recommendation: Select Patients with Chronic LBP*

For a select group of patients with chronic LBP who have completed a full course of conservative management, including but not limited to medication, modalities, active exercises, have reached MMI and have chronic low back pain believed to be the result of facet dysfunction, these injections may be considered. Fluoroscopically guided therapeutic facet joint injections should not be considered any earlier than 8 months from the time of the injury.

## **Facet Joint Hyaluronic Acid Injections**

1. *Recommendation: Not recommended*

Strength of Evidence: Not Recommended, Evidence (I)

## **Sacroiliac Joint Injections**

1. *Recommendation: Sacroiliitis*

Sacroiliac joint corticosteroid injections are recommended as a treatment option for patients with a specific cause of sacroiliitis, meaning a work related aggravation of proven rheumatologic inflammatory arthritis involving the sacroiliac joints.

Strength of Evidence: Recommended, Evidence (C)

2. *Recommendation: Sacroiliac Joint Sprain/Dysfunction*

Sacroiliac sprain may present with local tenderness corresponding to the anatomical sacroiliac joint. Such presentation is an extra-axial finding, without radiation, and may be the result of inflammation or trauma. The pain may be acute, subacute or chronic

If the results after the first injection are not satisfactory, fluoroscopic guidance must be used for the second injection. Subsequent injections are not recommended unless significant improvement is noted after the initial injections.

## **Prolotherapy Injections**

1. *Recommendation: Acute, Subacute, Chronic LBP or any Radicular Pain Syndrome*

Prolotherapy is not recommended for acute, subacute, or chronic LBP, or for any radicular pain syndrome.

Strength of Evidence: Not Recommended, Evidence (C)

## **Botulinum Injections**

1. *Recommendation: Acute, Subacute, Chronic LBP, Radicular Pain Syndrome or Other Low Back-Related Problems*

There is no recommendation for or against the use of botulinum injections in the management of acute, subacute, or chronic LBP, radicular pain syndromes, or other low back-related problems.

Strength of Evidence: No Recommendation, Insufficient Evidence (I)

## **Radiofrequency Neurotomy, Neurotomy, and Facet Rhizotomy**

### *1. Recommendation: Procedure of Last Resort*

Radiofrequency neurotomy, neurotomy, and facet rhizotomy may be considered as a procedure of last resort in patients with chronic LBP.

### *2. Recommendation: Therapeutic Facet Joint Injection*

For patients in whom facet joint injections have been therapeutically successful, the use of radiofrequency neurotomy, neurotomy, and facet rhizotomy may be indicated.

## **Dorsal Root Ganglia Radiofrequency Lesioning**

### *1. Recommendation: Chronic Sciatica*

Radiofrequency lesioning of the dorsal root ganglia is not recommended for chronic sciatica.

Strength of Evidence: Moderately Not Recommended, Evidence (B)

Rationale for Recommendation

Radiofrequency lesioning is invasive, has adverse effects and is costly. It has been shown to not be efficacious in a well-designed, high-quality study.

## **Intradiscal Electrothermal Therapy (IDET)**

### *1. Recommendation: Acute, Subacute, Chronic or any Back-Related Disorder*

IDET is not recommended for treatment of acute, subacute, chronic LBP, or any other back-related disorder.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **Percutaneous Intradiscal Radiofrequency Thermocoagulation (PIRFT)**

### *1. Recommendation: Acute, Subacute, Chronic LBP*

Percutaneous Intradiscal Radiofrequency Thermocoagulation is not recommended for treatment of acute, subacute or chronic LBP, particularly including discogenic LBP.

Strength of Evidence: Strongly Not Recommended, Evidence (A)



## **K. SURGICAL CONSIDERATIONS**

### **Discectomy, Microdiscectomy, Sequestrectomy, Endoscopic Decompression**

#### *1. Recommendation: Radiculopathy*

Lumbar discectomy is recommended as an effective operation to speed recovery in patients with radiculopathy due to ongoing nerve root compression who continue to have significant pain and functional limitation after 6 to 12 weeks of time and appropriate conservative therapy, absent progressive neurological deficits. Patients who are candidates for discectomy should be informed that (other than for cauda equina syndrome and the rare progressive major neurologic deficit), there is evidence that there is no need to rush surgical decisions as there is no difference in long-term functional recovery whether the surgery is performed early or delayed. Open discectomy, microdiscectomy, and endoscopic discectomy are all potentially appropriate ways to perform discectomy. The decision as to which of these procedures to choose should be left to the surgeon and the patient until quality evidence becomes available to provide evidence-based guidance.

Indications: All of the following should be present: 1) radicular pain syndrome with current dermatomal pain and/or numbness, or myotomal muscle weakness all consistent with a herniated disc; 2) imaging findings by MRI, or CT with/out myelography that confirm persisting nerve root compression at the level and on the side predicted by the history and clinical examination; 3) continued significant pain and functional limitation after 6 to 12 weeks of time and appropriate conservative therapy, absent progressive neurological deficits.

Strength of Evidence: Moderately Recommended, Evidence (B)

#### *2. Recommendation: Acute, Subacute or Chronic LBP without Radiculopathy*

Discectomy is not recommended as treatment of acute, subacute, or chronic LBP without radiculopathy.

Strength of Evidence: Not Recommended

#### *3. Recommendation: Any Back or Radicular Pain Syndrome*

Percutaneous discectomy (nucleoplasty), laser discectomy, and disc coblation therapy are not recommended as treatment for any back or radicular pain syndrome.

Strength of Evidence: Not recommended, Evidence (B)

## **Adhesiolysis**

### *1. Recommendation: Acute, Subacute, Chronic LBP, Spinal Stenosis or Radicular Pain Syndromes*

Adhesiolysis is not recommended for acute, subacute, or chronic LBP, spinal stenosis, or radicular pain syndromes.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

## **Decompressive Surgery for Spinal Stenosis (Laminotomy/Facetectomy, Laminectomy)**

### *1. Recommendation: Symptomatic Spinal Stenosis*

Decompression surgery is recommended as an effective treatment for patients with symptomatic spinal stenosis (neurogenic claudication) that is intractable to conservative management.

Strength of Evidence: Moderately Recommended, Evidence (B)

### *2. Recommendation: Spinal Stenosis*

Lumbar fusion is not recommended as a treatment for spinal stenosis, unless concomitant instability has been proven.

Strength of Evidence: Not Recommended, Evidence (C)

Indications: All of the following should be present: 1) neurogenic claudication (leg pain and/or numbness with standing or walking); 2) imaging findings, by MRI, or CT/myelogram that confirm the nerve roots compressed are consistent with the neurological symptoms; 3) lack of responsiveness or unsatisfactory response(s) to adequate conservative treatment over a minimum 6 to 8 week period that may or may not include an epidural steroid injection.

Strength of Evidence: Strongly Recommended, Evidence (A)

## **Spinal Fusion (In Spondylolisthesis, Herniated Nucleus Pulposus, Spinal Stenosis, Non-Specific Chronic Low Back Pain)**

### *1. Recommendation: Spondylolisthesis*

Lumbar fusion is recommended as an effective treatment for isthmic spondylolisthesis.

Strength of Evidence: Recommended, Evidence (C)

## *2. Recommendation: Spondylolisthesis*

Lumbar fusion is recommended as an effective treatment for degenerative spondylolisthesis.

Strength of Evidence: Recommended, Evidence (C)

## *3. Recommendation: Herniated Nucleus Pulposus (Disc Herniation)*

Lumbar fusion is not recommended as a treatment for patients with radiculopathy from disc herniation or for patients with chronic LBP after lumbar discectomy.

Strength of Evidence: Not Recommended, Evidence (C)

## *4. Recommendation: Herniated Nucleus Pulposus (Disc Herniation)*

There are no scientific studies, but consensus is that if a patient is having the third lumbar discectomy on the same disc, that spine fusion at the time of discectomy is an option.

Strength of Evidence: Recommended, Evidence (I)

## *5. Recommendation: Spinal Stenosis*

Lumbar fusion is not recommended as a treatment for spinal stenosis unless concomitant instability has been proven.

Strength of Evidence: Not Recommended, Evidence (C)

## *6. Recommendation: Non-Specific Chronic Low Back Pain, also referred to as Degenerative Disc Disease/"Discogenic Back Pain"/"Black Disc Disease"/"Micro Instability"/Lumbar Spondylosis*

Lumbar fusion is not recommended as a treatment for chronic non-specific LBP (which has multiple synonyms).

Strength of Evidence: Moderately Not Recommended, Evidence (B)

## *7. Recommendation: Disc Replacement*

Artificial disc replacement is not recommended as treatment for chronic non-specific LBP or any other spinal pain syndrome. Additional research including demonstrated long-term safety and efficacy would be needed prior to a recommendation in support.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

*8. Recommendation: Vertebroplasty and Kyphoplasty*

Vertebroplasty and kyphoplasty are recommended for treatment of select patients.

Indications: Vertebral body compression fractures among those with chronic or severe pain. Particularly those who have had fractures despite bisphosphonate therapy are candidates.

Strength of Evidence: Recommended, Insufficient Evidence (I)

*9. Recommendation: Sacroiliac Surgery*

SI joint fusion surgery and other SI joint surgical procedures are not recommended.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

*10. Recommendation: Implantable Spinal Cord Stimulators*

Spinal cord stimulators are not recommended for treatment of acute, subacute, or chronic LBP. They also are not recommended for treatment of radicular pain syndromes, or failed back surgery syndrome.

Strength of Evidence: Not Recommended, Insufficient Evidence (I)

# APPENDIX

**Sources:**

This Medical Treatment Guideline is adopted, with modification, from ACOEM's<sup>1</sup> Occupational Medicine Treatment Guidelines for Low Back Disorders with supplementation from the State of Colorado's Low Back Medical Treatment Guidelines.

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<sup>1</sup> American College of Occupational and Environmental Medicine