

# The Center for Rehabilitation and Sports Medicine Best Practice in Treating Lower Back Pain

Acute lower back pain is one of the most common reasons people visit their doctor's office. Eighty-percent of the population will seek medical care for the treatment and management of lower back pain in their life time.

Because primary care physicians (PCP) are often the first point of contact for patients with low-back pain, we encourage you to partner with the Center for Rehabilitation and Sports Medicine to gain direct access to evidence-based treatments that could help alleviate your patient's back issue. Research supports that early physical therapy treatment improves patient outcomes and results in lower total cost of care than other approaches to treating low back.

Our multidisciplinary team of therapists performs a comprehensive evaluation to accurately assess a patient's condition. The team then develops an individualized plan that advances your patient's care while decreasing their back pain, increasing their function, and providing them with a maintenance program to prevent reoccurring back problems.

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## Chronic Pain Category

### How can physical therapy help my patients?

Chronic low back pain is described in a patient who has had low back pain with symptom duration of more than three months, generalized pain that is not consistent with an impairment based classification criteria, and presence of depression, fear-avoidance belief and/or pain catastrophizing.

(1) Many patients with chronic pain have had physical therapy in the past without a good outcome. Recent studies have shown that utilizing education about pain neurophysiology, in conjunction with exercise, resulted in statistically significant improvements in disability, pain and pain beliefs catastrophication, straight leg raise and forward bending compared to controls.<sup>1</sup> By utilizing this approach, patients can learn to manage their pain and learn what exercise is safe for them that will not increase pain and improve their overall function.<sup>2</sup>

### Is physical therapy effective?

There is significant new research in the field of pain neuroscience that shows that educating patients in pain neurophysiology in conjunction with traditional physical therapy is significantly more effective in functional and symptomatic outcome. A condition is considered chronic if it has lasted for three months.<sup>2</sup>

Pain at this point is not necessarily a sign of damage but more and individual response to a threat, either real or perceived. This is known as central sensitization of the

nervous system. Imaging studies reveal that there are marked changes in the brain with chronic pain. With these changes, pain is perceived at a lower threshold and pain responses are heightened. By incorporating education into treatment about the science of pain, physical therapy can be very effective.

### What should I expect if I refer my patient for physical therapy?

The therapy staff at the Center for Rehabilitation and Sports Medicine has been educated in pain neuroscience and utilize this knowledge to educate patients about:

1. The promotion and understanding of anatomical/ structural strength of the human spine.
2. The neuroscience that explains pain perception.
3. An overall favorable prognosis.
4. The use of active pain coping strategies that decrease fear and catastrophizing.
5. The early resumption of normal or vocational activities, even when still experiencing pain.
6. The importance in the improvement of activity levels, not just pain relief.

Once the patient has gained the understanding of these concepts then they can more successfully progress through exercise and improve overall functional activity.

#### References:

1. Delitto A, George SC Et al. Low Back Pain Clinical Practice Guidelines linked to the International Classifications of Functioning Disability and health from the Orthopedic Section of the APTA. *J Orthop Sports Phys Ther* 2012;42(4) A1-A57.
2. Moseley GL, Nicholas MK, Hodges PW. A randomized controlled trial of intensive neurophysiology education in chronic low back pain. *Clin J Pain*. 2004;20:324-330.



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## Manipulation/Mobilization Category FAQs

### How Can Physical Therapy Help My Patient?

Patients who experience acute lower back pain may benefit from lower back manipulation techniques. In a randomized controlled trial, Childs et al. demonstrated a 50% improvement in Oswestry Disability Questionnaire scores in 92% of patients<sup>1</sup> who met the Clinical Prediction Rule (CPR) and who were manipulated in two physical therapy sessions<sup>2</sup>. The Clinical Prediction Rule for spinal Manipulation has the following criteria:

1. Duration of current episode of lower back pain in less than 16 days
2. No symptoms distal to the knee
3. Fear Avoidance Belief Questionnaire (FABQ) score < 19 points
4. Segmental Mobility testing indicates at least one hypomobile segment in the lumbar spine
5. Hip internal rotation greater than or equal to 35 degrees

Manipulation of the spine includes a high velocity thrust intended to increase lumbar segmental mobility, relax surrounding musculature and reduce pain. Spinal mobilization utilizes specific lower velocity pressure to the spinal segments with similar results. A recent study has demonstrated that the spinal manipulation and spinal mobilization are equally effective in achieving positive outcomes for these patients.<sup>3</sup>

### What should I expect if I refer my patient for physical therapy?

Physical therapists at the Center for Rehabilitation and Sports Medicine have advanced training in spinal manipulation and mobilization. Each patient will undergo a comprehensive evaluation and a treatment plan tailored to that patient will be developed.

Patients who fit the criteria above will undergo 2-6 sessions of spinal manipulation or mobilization. Each patient will be educated on his/her individual condition, appropriate body mechanics and self-management. Each patient will also be given a specific home exercise program that will improve daily function and prevent recurrence of the condition<sup>4</sup>.

#### References:

1. Childs et al. A clinical prediction rule to identify patients with low back pain most likely to benefit from spinal manipulation: a validation study. *Ann Intern Med.* 2004 Dec 21; 141(12): 920-8. Pubmed PMID: 15611489.
2. Flynn et al. A clinical prediction rule for classifying patients with low back pain who demonstrate short-term improvement with spinal manipulation. *Spine(Phila Pa 1976).* 2002 Dec 15;27(24):2835-43.PUBMED PMID:12486357.
3. Hides et al. Long-term effects of specific stabilizing exercises for first episode low back pain. *Spine (Phila Pa 1976).* 2001 Jun 1;26(11):E243-8. PubMed PMID: 11389408.
4. Cook et al. Early use of thrust manipulation: a randomized clinical trial. *Manual Therapy* (2012), <http://dx.doi.org/10.1016/j.math.2012.08.005>.



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## Overview of Effective Treatments for Lower Back Pain

Recent research reveals that early referral to physical therapy in the acute phase can be an effective treatment for this condition.

- Early PT referral has also been shown to decrease the need for subsequent physician visits, advanced imaging, surgery, injections and use of opioid medication resulting in more effective and less costly care<sup>1</sup>.
- Recent research from physical therapists has shown that by classifying a low back condition into a subgroup during the PT evaluation, the correct treatment can be better directed to that particular subgroup resulting in a better outcome<sup>2</sup>.
- Physical therapists can utilize clinical prediction rules in conjunction with their skilled training to help classify the patients into the correct subgroup<sup>3</sup>.

The 4 subgroup that have been identified are as follows:

1. Spinal Stabilization Category
2. Specific exercise or Directional Preference Category
3. Lumbar spine mobilization/manipulation Category
4. Traction Category

At the Centers for Rehabilitation and Sports Medicine (at Danvers, Addison Gilbert and Beverly) all of our therapists have been trained in the evidenced-based classifications and treatments.

The patient will receive a combination of manual therapy, exercise and patient education. The therapists also have begun using FOTO, an electronic outcome measure to help guide the course of care. With FOTO, the patient data is entered into a national data base and recommendations are made for predicted outcome with number of visits and total points of improvement. FOTO will also begin to measure the effectiveness of our care and compare our outcomes to other clinics across the country.

The therapist will work with your patient to determine goals of therapy that are centered on their particular situation. Your patient will receive education and instruction in a home program, body mechanics, and management of the condition. Plans of care and discharge status will be communicated regularly to your office.

### References:

1. Gellhorn AC, Chan L, Martin B, Friedly J. Management Patterns in Acute Low Back Pain. *Spine*.2012;9:775-782.
2. Fritz JM, Childs JD, Wainner RS, Flynn TW. Primary Care Referral of Patients with Low Back Pain to Physical Therapy. *Spine*. 2012;37:2114-2121.
3. Delitto A, George SC. Et al. Low Back Pain Clinical Practice Guidelines linked to the International Classifications of Functioning Disability and health from the Orthopedic Section of the APTA. *J Orthop Sports Phys Ther* 2012; 42(4) A1-A57.References:



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## Specific Exercise and Directional Preference Category FAQs

### How Can Physical Therapy Help My Patient?

Research has shown that with spinal movement with directionally specific exercise<sup>1</sup>, patients can achieve a better outcome than a generalized spinal exercise program<sup>2</sup>.

A New Zealand physical therapist, Robin McKenzie developed the system of treatment in physical therapy utilizing directionally specific exercises. He utilized repeated movements in a specific direction based upon the response of the patient's symptoms.

He utilized the term "centralization" of symptoms from the extremity to the midline of the spine. McKenzie taught patients to avoid movements causing symptoms that radiated away from the back to the extremity and the use of movements that caused centralization

### What is the evidence to support specific exercises for a preferred direction?

Long et al.<sup>1</sup> (Spine 2004) noted that significant improvements were noted in groups of spinal pain patients that were "directionally matched" vs. a control group and a third group that was given exercises opposite of their directional preference.

A 2007 study by Browder et al.<sup>2</sup> randomly assigned patients to an extension based exercise program and a program of mobilization. The results demonstrated significant improvement on the patient's Oswestry Disability Questionnaire at 1 week and 6 months compared to the group that was given a generalizes low back strengthening exercises.

### What should I expect if I refer my patient for physical therapy?

Physical therapists at The Center for Rehabilitation and Sports Medicine are specifically trained to evaluate patients with lower back pain. Through detailed evaluation, a therapist can identify and educate patients that fit the specific exercise category. Your patient will be educated about his/her lower back condition, activities to avoid that may exacerbate the condition and a home program to prevent future episodes of back pain<sup>3</sup>. Once acute symptoms are controlled, patients are progressed to core stabilization and strengthening exercises. These motor control exercises have been shown to minimize incidence of reoccurrence<sup>3</sup>.

#### References:

1. Long A, Donelson R, Fung T. Does it matter which exercise? A randomized control trial of exercise for low back pain. *Spine (Phila Pa 1976)*. 2004 Dec1;29(23):2593-602. *PubMed PMID:*15564907.
2. Browder DA, Childs JD, Cleland JA, Fritz JM. Effectiveness of an extension-oriented treatment approach in a subgroup of subjects with low back pain: a randomized control trial. *Phys Ther*. 2007 Dec;87(12):1608-18;discussion 1577-9. *Epub* 2007 Sept 25. *PubMed PMID:*17895350.
3. Hides JA, Jull GA, Richardson CA. Long-term effects of specific stabilizing exercises for first-episode low back pain. *Spine (Phila PA 1976)*. 2001 Jun 1;26(11):E243-8. *PubMed PMID:* 11389408.



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### Spinal Stabilization Category FAQs

#### How can Physical Therapy help my patient?

Lumbar segmental instability is a condition in which there is a loss of stiffness between spinal vertebrae. The decreased stability of the vertebrae can result in the spinal segments being unable to tolerate external loads and can result in pain, degenerative changes and can put the neurological structures at risk. Radiographic imaging can be unreliable for diagnosis. Recent research has shown that clinical signs of instability are a better diagnostic tool. In 2005, Hicks, et al., published research on their development of a clinical prediction rule (CPR) to determine the likelihood of a positive response to a spinal stabilization program<sup>1</sup>.

Criteria set for the Clinical Prediction Rule is as follows:

1. Age (<40 years)
2. Average straight leg raise (SLR)>91 degrees
3. Aberrant movements present (catch, hitch or uncoordinated muscle contraction)
4. Positive prone instability test

Hicks, et al., demonstrated in their research a positive likelihood ratio of 4.0 for patients who participated in a spinal stabilization program over an eight week period and met three of the four variables in CPR.

#### What should I expect if I refer my patient for Physical Therapy?

The physical therapists at the Centers for Rehabilitation and Sports Medicine are trained not only to improve the patient's current episode of pain but to prevent a recurrence of this pain. A study by Hides, et al., demonstrated fewer recurrence of lower back pain with patients that participated in a lumbar stabilization program (34%) vs. a control group (84%)<sup>2</sup>.

Based upon the patient's severity, you can expect treatment over a 4-8 week period with an extensive home exercise program tailored to the individual patient's needs. Patients are taught how to activate the core stabilizers. Emphasis is on the transverse abdominus, obliques, multifidus and gluteals. Once your patient is able to engage these muscles, then the motor control exercises are progressed to include larger muscles and in functional movement patterns required for activities of daily living.

#### References:

1. Hicks GE, Fritz JM, Delitto A, McGill SM. Preliminary development of a clinical prediction rule for determining which patients with low back pain will respond to a stabilization exercise program. *Arch Phys Med Rehabil.* 2005 Sep;86(9):1753-62. PubMed PMID:16181938.
2. Hides JA, Jull GA, Richardson CA. Long-term effects of specific stabilizing exercises for first-episode low back pain. *Spine (Phila PA 1976).* 2001 Jun 1;26(11):E243-8. PubMed PMID:11389408.
3. Beazell JR, Mullins M, Grindstaff TL. Lumbar instability: an evolving and challenging concept. *J Man Manip Ther.* 2010 Mar;18(1):9-14. Doi:10.1179/106698110X12595770849443. PubMed PMID: 21655418; PubMed Central PMCID:PMC3103111.



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