

No job is safe from spine injuries. And rehab presents unique challenges.

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Back injuries are rampant in the American workplace. From white collar jobs to physically demanding labor, no occupation is completely free of risk.

While people with sedentary jobs—such as office workers—would seem to be safe from back injuries, that's not the case. A sedentary lifestyle leads to deconditioned muscles, which heightens the risk of injury when workers perform moderately strenuous tasks, such as moving a desk or heavy object.

On the other hand, laborers in more physical jobs, such as construction or truck driving, are plagued by the constant wear and tear on back musculature. Strenuous occupations can cause early degenerative changes to disks and facets. A depleted reserve of bone and muscle strength in this area can leave people vulnerable to the slightest trauma. And a moderately awkward lift or fall can result in significant injury and severe pain.

Low back pain continues to be one of the most difficult diagnoses facing clinicians. But in the work-injured patient, this diagnosis becomes an even greater challenge. Compounding factors, such as loss of income, legal action, and conflicts with co-workers and managers, cloud the picture. You must address these issues before you can make real progress.

Spinal injury can be insidious in onset, or it can present as a more dramatic and discrete injury. Some patients describe a particular event in detail such as lifting a heavy box or object and turning a precise way—that brought on the pain. Others can't recall a defining moment and display more indistinguishable symptoms.

Patients injured at work present a constellation of complaints. For instance, back pain, muscle spasm, restricted range of motion, radicular pain and weakness in the lower extremities are common symptoms.

To dig to the root of the problem, it's important to take a thorough patient history. A desk worker who experiences back and leg pain after lifting a computer is different from someone who experiences back pain alone. The former symptoms may tip you off to a disk herniation and a muscle strain, which indicates a course of therapy that's different than just managing a strain.

Make a note of past history of back pain and treatment, both surgical and nonsurgical. Focus the history on the patient's current symptoms, the work environment and any significant systemic illness.

Additional diagnostic studies are guided by the findings of the patient's history and presenting symptoms. Your initial study should include radiographs from anterior-posterior, lateral, flexion and lateral views. Flexion-extension views help evaluate potential spinal instability. Oblique views can also identify pars fracture (spondylolysis). Finally, X-rays allow you to screen for degenerative changes, such as a loss of disk height and osteoarthritic facets.

The Rehab Triumvirate

Following an initial evaluation, most patients can begin rehabilitation. Patients whose symptoms rapidly improve on their own can generally do well with education and lifestyle modifications. On the other end of the spectrum, if you note a loss of motor function and bladder or bowel function, refer the patient to a more appropriate level of management, which could include MRI scans or surgical intervention.

When traditional rehab is warranted, begin by modifying the demands of a work station. Work modification helps the patient remain actively employed while undergoing treatment, which is important on physical and emotional levels. By continuing to work, a patient has something else to focus on besides the injury.

Visiting a worksite or asking patients to physically replicate the demands of their job can help you visualize the postures, lifting demands and work-related activities that could make the condition worse or hinder rehab.

Once you've addressed and modified any work factors that could lead to reinjury, you can implement true rehab. Rehabilitating the worker with a back injury employs a three-fold objective.

1. Decrease pain and discomfort. Your initial role in intervention is to ease pain. Pain from a back injury can be intense and debilitating.

The ideal choices for pain relief are nonsteroidal anti-inflammatory drugs (NSAIDs). Muscle relaxers can be prescribed, but at this point make an effort to avoid any potentially addictive narcotics.

Pay attention to possible signs of drug seeking. Patients who demand narcotics or who claim that none of the NSAIDs work for them should be viewed with caution. Another red flag for abuse is the patient who loses his prescription, especially if the person provides a suspicious reason. Drug-seeking patients often exhibit consistent behavior patterns, such as calling for new prescriptions after hours or on the weekends, "doctor shopping," or even visiting multiple pharmacies to fill prescriptions.

Not every patient can tolerate NSAIDs. Recommend or prescribe them only if the patient has no history of adverse reactions, such as gastrointestinal ulcers. However, the combination of NSAIDs and early progressive therapy is a proven and powerful tandem

to diminish pain symptoms. This relief can be encouraging for patients, motivating them and setting the stage for future rehab efforts.

2. Increase flexibility. As the patient's pain symptoms subside, start a flexibility program that concentrates on more than back muscles. Core muscles such as the abdominals are important for this injury, and accessory muscles, such as the gluteals, hamstrings and quadriceps, play a significant role. Although these muscles aren't located in or around the spine, they serve a function to balance the pelvis, where most back muscles originate.

Don't overlook other components of the kinetic chain. For instance, hamstring tightness is a common cause of back pain. But it also indicates underlying spine pathology, such as pars defect and spondylolisthesis.

Also, quadriceps tightness or hip flexion contraction can cause sagittal malalignment and a loss of lumbar lordosis. To compensate, patients may hyperextend their lumbar spine, which can inflame back pain, increase pressure on the lumbar facets, and create spinal stenosis.

Progress slowly as you customize a patient's flexibility program. If the patient reports pain, include modalities (hot and cold therapies, massage therapy, TENS) along with stretching exercises. Pharmaceuticals can also be used to diminish painful symptoms and allow the patient to realize maximum benefits from a stretching program.

Patients should stretch only after warming up the muscles. Instruct them to progress gradually to an endpoint, hold, then relax. Don't allow them to bounce or overextend.

3. Strengthen core muscles. As flexibility improves, incorporate a strengthening program. It's wise to combine flexibility and strengthening in each session.

The current standard in rehab is to emphasize core muscles—the abdominals and back. These muscles must co-contract in harmony to move the lumbar spine in various angles. Muscles must synchronize and fire in precise degrees so that one group isn't overloaded.

A fitness ball can help reinforce coordination, and improve balance and proprioception. Experiment with half crunches, sit-ups on the ball, lunges, hamstring contractions and rotational trunk movements with light weights to arrive at the best combination for each patient.

When an injured worker doesn't improve with therapy, further diagnostic studies are warranted. An MRI scan is the imaging study of choice for the spine, due to its ability to examine the neural and soft tissue structures in multiple planes.

MRIs also allow you to examine the condition of the intervertebral disks and look for more serious pathologies, such as neoplasms and infections. MRIs can also be used as a safety measure to rule out serious conditions before a patient proceeds with rehab. MRI

scans, and in some cases CT scans, may be contraindicated for patients with metal fragments, pacemakers or vascular stents.

Patients who show no significant improvement through traditional rehab can be considered for injections. The choice of injections is based on the pathology facet injections are indicated for facet pain; epidurals are useful for spinal stenosis.

These interventions are an alternative for patients who don't want surgical treatment, but who're plateauing in therapy. Injections are temporary, but they can significantly diminish pain and allow patients to maximize the results of physical therapy.

A worker who suffers a back injury is one of the most difficult cases you'll face. But consistent rehab, and adhering to the three key objectives, can fill an irreplaceable role in a thorough treatment plan.

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