Sprains and Strains, Back

### Related Terms

- Back Sprain
- Back Strain
- Lumbago
- Lumbar Sprain
- Sacral Sprain
- Thoracic Sprain

### Differential Diagnoses

- Bone disease
- Coccyx pain
- Disc herniation
- Lumbar spondylolysis and spondylolisthesis
- Muscle disease
- Osteoporosis (primary)
- Psychological disorders
- Tumor
- Vertebral compression fracture

### Specialists

- Chiropractor
- Family Physician
- Orthopedic (Orthopaedic) surgeon
- Physiatrist
- Physical Therapist

### Comorbid Conditions

- Alcoholism
- Degenerative joint disease
- Depression
- Drug-seeking behavior
- Hypochondriasis
- Obesity
- Recurrent episodes of back pain
- Sciatica (pain extending below the knees)
- Skeletal anomalies
- Smoking
- Traumatic injury

### Length of Disability

Duration depends on severity.
Supportive treatment, thoracic spine sprain or strain.

DURATION IN DAYS

<table>
<thead>
<tr>
<th>Job Classification</th>
<th>Minimum</th>
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<th>Maximum</th>
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<td>3</td>
<td>7</td>
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Supportive treatment, lumbar or lumbosacral spine sprain or strain.

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Factors Influencing Duration

Factors include the severity and extent of the injury, the severity of the pain associated with the injury, the method of treatment, the individual's response to treatment and adherence to recommendations, and the individual's job requirements or leisure activities.

Duration Trends from Reference Data

DURATION TRENDS

ICD-9-CM: 846, 846.0, 846.1, 846.9, 847.1, 847.2, 847.9

Cases Mean Min Max No Lost Time Over 6 Months
67256 37 0 252 2.7% 1.2%

Percentile: 5th 25th Median 75th 95th
Days: 3 9 21 49 130
Differences may exist between the duration tables and the reference graphs. Duration tables provide expected recovery periods based on the type of work performed by the individual. The reference graphs reflect the actual experience of many individuals across the spectrum of physical conditions, in a variety of industries, and with varying levels of case management. Selected graphs combine multiple codes based on similar means and medians.

Definition

A back sprain involves injury of one or more nonmuscular structures (ligament, disc, facet, capsule, etc.) of the back, whereas a strain involves musculotendinous injury of the back. The terms are often used interchangeably because of the difficulty in isolating the actual structure that is affected in a soft tissue injury.

Back sprains usually result from overstretching a ligament, most often due to twisting, heavy lifting, or sustained postural loading. Like sprains elsewhere in the body, back sprains are graded from mild to severe, depending on the degree of damage to the ligaments or other muscular structures. In a mild sprain (first-degree), only a few fibers are torn. Moderate sprains (second-degree) result in more fibers being torn and, consequently, some instability around the joint. Acute sprains of this type are usually associated with pain and muscle spasm. In a severe sprain (third-degree), the ligaments are completely disrupted, and joint instability may be severe. Most back sprains are first- or second-degree.

Back strains are most often caused by overstretching or overusing a muscle, and they are usually not as severe as a back sprain. In fact, strains involving the back may not even cause symptoms until the following day. Back strains are most often seen in persons whose occupation or leisure activities involve excessive lifting or torso rotation. Many strains are the result of inadequate warm-up, excessive training, or inadequate healing of a previous muscular injury. Muscle and tendon strains are similarly graded according to the severity of muscle or tendon fiber damage. In a grade I strain, muscles or tendons become stretched, with few torn fibers and no loss of muscle strength. Grade II strains involve a greater number of injured muscle or tendon fibers with noticeable loss of strength. With a grade III strain, the muscle or tendon is completely torn (ruptured), resulting in complete functional loss of the affected muscle or tendon.

Back strains and sprains are best avoided by receiving instruction on how to properly lift and move heavy items, realizing one’s limitations, and taking the time to stop and ask another person for help when appropriate. Whether an individual has a ligamentous back sprain or a muscular back strain can be differentiated with passive and resisted test movements, respectively.

Risk: Lower back sprains and strains occur in every culture and country in the world. They correlate with few risk factors other than increasing age. Twisting while holding or lifting heavy objects or persons is frequently an inciting event for back sprain and strain, as are vigorous sports, falls, and motor vehicle accidents. Anecdotal information does link certain occupations with increased risk for back sprain and strain, including construction, landscaping, roofing, working at a nursing home, firefighting, and working as an emergency medical technician (Hills).

Incidence and Prevalence: Lower back pain is the second most common complaint seen by physicians. Among people living in the US, 85% will experience lower back pain during their lifetime. Pain that persists for more than 2 weeks is experienced by 14% of people. Lower back pain is the most common cause of work-related disability among people 45 years of age or younger (Hills).
Diagnosis

History: The individual may report sharp pain and tenderness. If bleeding in the muscle has occurred, swelling (edema) beneath the skin may be present. As a result of the injury and accompanying pain, the individual's movement may be limited, even to the point of requiring temporary immobilization. The pain may be persistent or associated with a specific movement or activity. Turning, sitting, and bending forward usually worsen pain.

Physical exam: The exam may reveal tenderness to the touch or upon pressure, localized swelling, and areas of discoloration along the back and gluteal area. Range of motion will be limited due to pain and muscle spasm, and the involved muscles may be tense. The physician may try to identify the particular movements or positions that aggravate the pain and determine whether the pain is relieved by lying down or rest.

Tests: Most cases of back strains and sprains do not require any diagnostic tests. Occasionally x-rays or MRI may be necessary to rule out other potential causes of back pain. For example, x-rays of the spine may be taken to rule out fracture. MRI allows good visualization of discs and nerves and can provide valuable diagnostic information in cases in which symptoms persist despite treatment (El Abd).

Treatment

Sprains and strains are treated in the same manner. Activity level should be adjusted according to what the individual can tolerate. Overall, the individual should avoid activities such as lifting, bending, or twisting, if they cause the pain to recur or become aggravated. The individual's activity level should be increased gradually. Bed rest of more than 2 days is not recommended because it has been shown to delay recovery. Pain and swelling may be relieved through the application of ice during the first 48 to 72 hours following injury, and heat, massage, or therapeutic ultrasound thereafter. Nonsteroidal anti-inflammatory drugs (NSAIDs) are recommended for relief of pain and inflammation. If pain is severe, a mild narcotic may be prescribed for an appropriate short period. In addition, "muscle relaxants" may be prescribed for a short period. Lidocaine patches applied to the skin of the lower back (topical application) can reduce pain intensity and have provided relief in clinical trials. Severe sprains and strains are treated with physical therapy, modalities such as moist heat and electrical stimulation, trigger point injections, and short-term immobilization with a brace (corset). Exercise tolerance should be explored immediately and instituted within 2 weeks for the majority of individuals. Passive therapies should be eliminated or restricted severely after 1 month.

Prognosis

Most first- and second-degree sprains and strains heal on their own without significant functional impairment. There may be an increased potential for recurrence of symptoms, particularly in individuals with more severe injuries or in those who do not allow previous injuries to heal completely. Nonetheless, the prognosis is good. After 1 month, approximately 35% of individuals with diagnoses of back strain or sprain have recovered; at 3 months, 85%; and at 6 months, 95% (Hills). Some individuals may need regular follow-up and monitoring to ensure the best possible outcome. An interdisciplinary approach that combines medical management of pain with physical and occupational therapy to restore motion and function may be appropriate. Recurrence of back pain during the next year or two following recovery is not uncommon.

Source: Medical Disability Advisor
Rehabilitation

The goal of rehabilitation for low back pain is to decrease pain and promote an active lifestyle. Regular participation in an exercise program will help the individual regain mobility and strength to the involved area of the spine and the supporting muscles (Malmivaara).

Therapy, such as manipulation, to reduce symptoms followed by spinal exercises may be all that is required for mild cases. However, more involved rehabilitation is required for severe symptoms. Passive intervention should be time limited, with emphasis on active exercise. Rehabilitation will be based upon the duration of time from the onset of symptoms.

Acute Phase (up to 1 week): Recovery may be improved by a few sessions of manipulation, followed by instruction on safe postures and positions. The individual should be encouraged to resume activities that can be tolerated (Bigos).

Subacute Phase (2 to 12 weeks): Instruction should be given on an exercise program that will help maintain the individual's well-being. Physical therapy may include modalities such as moist heat and electrical stimulation in order to promote physical activity. To prevent further injury, the physical therapist should instruct the individual on proper body mechanics. The individual may also benefit from spinal injections for pain control. During this phase, the workplace should undergo an ergonomic evaluation so that changes may be implemented to assist the employee's return to work. Toward the later stages of this phase, if the individual shows a lack of or slow progress, a health psychologist should evaluate the individual to determine whether or not there are signs of psychological distress secondary to the injury (Kendall). There is evidence that a multidisciplinary treatment approach can be effective in treating these individuals and returning them to a full level of activity (Loisel).

Chronic Phase (more than 12 weeks): Exercise instruction must continue, and the program should combine coordination, aerobic conditioning, and flexibility. The individual should continue to be educated on functional exercises and proper body mechanics. A short course on cognitive pain management may reduce pain. Again, an ergonomic evaluation with modifications may enable the individual's return to work and reduce the risk of reinjury. Vocational services should be available for individuals who cannot return to their previous job title or do not have a job to which to return (van Tulder).

FREQUENCY OF REHABILITATION VISITS

<table>
<thead>
<tr>
<th>Specialist</th>
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<tbody>
<tr>
<td>Chiropractor</td>
<td>Up to 3 visits within first week of onset</td>
</tr>
<tr>
<td>Occupational Therapist</td>
<td>Daily up to 6 weeks ‡</td>
</tr>
<tr>
<td>Ergonomist</td>
<td>Up to 2 visits within 8 weeks</td>
</tr>
<tr>
<td>Vocational Counselor</td>
<td>Up to 3 visits within 6 weeks ‡</td>
</tr>
<tr>
<td>Physical Therapist</td>
<td>Up to 12 visits within 6 weeks</td>
</tr>
<tr>
<td>Physical Therapist</td>
<td>Daily up to 6 weeks ‡</td>
</tr>
<tr>
<td>Clinical Psychologist</td>
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</tr>
</tbody>
</table>

‡ As part of multidisciplinary intervention (work condition).

The table above represents a range of the usual acceptable number of visits for uncomplicated cases. It provides a framework based on the duration of tissue healing time and standard clinical practice.

Source: Medical Disability Advisor

Complications
Complications of severe lower back injuries include fractures, dislocations, and avulsion injuries (tearing away of a part or structure). An avulsion fracture involves the tearing away of a piece of bone with a ligament at the point of attachment and can result in spinal instability or nerve root or spinal cord injury. Bleeding into a muscle can result in severe pain.

Source: Medical Disability Advisor

Return to Work (Restrictions / Accommodations)

Individuals with severe sprains and/or strains whose jobs require extensive lifting or bending may require temporary reassignment to more sedentary duties. Use of prescribed medications for management of pain and inflammation may require review of drug policies. Safety issues may need to be evaluated. Education and awareness regarding proper lifting and moving, particularly while performing heavy labor, can help prevent recurrence.

Source: Medical Disability Advisor

Failure to Recover

If an individual fails to recover within the expected maximum duration period, the reader may wish to consider the following questions to better understand the specifics of an individual’s medical case.

Regarding diagnosis:

- Does individual have continued pain and disability after an adequate course of treatment?
- Have other conditions, such as diseased internal organs, bone disease, tumor, muscle disease, or psychological stress, been ruled out?
- Has MRI or x-ray been done to rule out disc herniations or fractures?
- Has individual experienced any complications such as fractures, dislocations, avulsion injuries, or bleeding into a muscle?
- Is individual obese?
- Does individual suffer from alcoholism, hypochondriasis, or depression? Is individual a smoker?
- Does individual have an underlying condition that may be affecting recovery

Regarding treatment:

- Did individual follow recommendations for activity restrictions and limited bed rest?
- Has individual avoided lifting, bending, or twisting?
- If individual was prescribed bed rest for more than 2 days, what were the extenuating circumstances?
- Did individual take medications such as nonsteroidal anti-inflammatory drugs or muscle relaxants, as prescribed?
- Did individual ask for more pain relievers or muscle relaxants than injury warranted?
- Was individual able to receive comprehensive rehabilitation?

Regarding prognosis:

- Were workplace accommodations made to allow injury to heal completely?
- What additional treatment options are available?
- Given that back pain is one of the most common conditions in which somatization and seeking of secondary gain is found, has a psychological evaluation been done?
- Would individual benefit from counseling?
- If individual is obese, would weight reduction counseling be appropriate?

Source: Medical Disability Advisor
References

Cited


Rehabilitation


Source: Medical Disability Advisor