



Spear Tackler's Spine

DESCRIPTION

Spear tackler's spine is a diagnosis based on x-ray findings. It is seen in football players and results from tackling with the head as the initial point of contact, a technique called *spearing*. A series of x-rays shows changes that suggest the athlete is at high risk for permanent neurologic injury, including paralysis and death. The changes include narrowing of the spine at the neck, loss of the normal curvature of the spine, and changes resulting from trauma. Spear tackler's spine is an absolute contraindication to participation in contact sports.

COMMON SIGNS AND SYMPTOMS

- Pain or stiffness in the neck
- Muscle spasm with soreness and stiffness in the neck
- Tenderness and swelling at the injury site in the neck
- Numbness, tingling, or a pins and needles sensation in the shoulder, arm, or hand
- Weakness or paralysis of the shoulder, arm, or hand

CAUSES

- Congenital narrowing of the spine in the neck, combined with injury from using the head as the initial point of contact when tackling; may result in loss of the normal curve of the neck

FACTORS THAT INCREASE RISK

- Osteoarthritis of the spine
- Congenital narrowing of the spine at the neck
- Repeated injury to the neck
- Situations that make accidents more likely, including tackling with the head (*spearing*), head butting, and landing on the top of the head
- Football, rugby, wrestling, hockey, auto racing, gymnastics, diving, martial arts, and boxing
- Poor neck conditioning (strength, flexibility)
- Previous neck injury
- Improper tackling technique
- Poorly fitting equipment

PREVENTIVE MEASURES

- Use proper sports technique, which includes not tackling with the head down or head butting; use proper falling techniques to avoid landing on the head.
- Maintain appropriate conditioning that includes neck strength and flexibility training and cardiovascular fitness.

- Appropriately warm up and stretch before practice and competition.
- Wear protective equipment, such as padded soft collars, for participation in contact sports.

EXPECTED OUTCOME

Spear tackler's spine is not curable, although the spine may regain its normal curve. If it does regain the normal curve, return to contact sports may be *considered*.

POSSIBLE COMPLICATIONS

- Permanent or temporary numbness, weakness, or paralysis in the upper or lower extremities
- Death

GENERAL TREATMENT MEASURES

Ending participation in contact sports is mandatory. If symptoms occur, initial treatment consists of medications and ice to relieve pain, stretching and strengthening exercises, and modification of the activity that initially caused the problem. The exercises can be carried out at home for acute cases, although for acute and chronic cases, physical therapy may also be beneficial. If symptoms are severe, a soft, padded fabric or hard plastic cervical collar may be recommended until the pain subsides. Surgery is rarely necessary.

Improve your posture by pulling your chin and abdomen in while sitting or standing. Also, sit in a firm chair, and force your buttocks to touch the chair's back. Sleep without a pillow; instead, use a small towel rolled to 2 inches in diameter, or use a cervical pillow or soft cervical collar.

Occasionally the spine will regain its normal curvature. If this occurs, consideration may be given to resumption of contact sports, although risk of permanent injury still may be higher than for those without congenital narrowing of the cervical spine (neck).

MEDICATION

- Nonsteroidal antiinflammatory medications, such as aspirin and ibuprofen (do not take for 7 days before surgery), or other over-the-counter pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician, and contact your doctor immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.
- Pain relievers or muscle relaxers may be prescribed as necessary. Use these only as directed, and take only as much as you need.

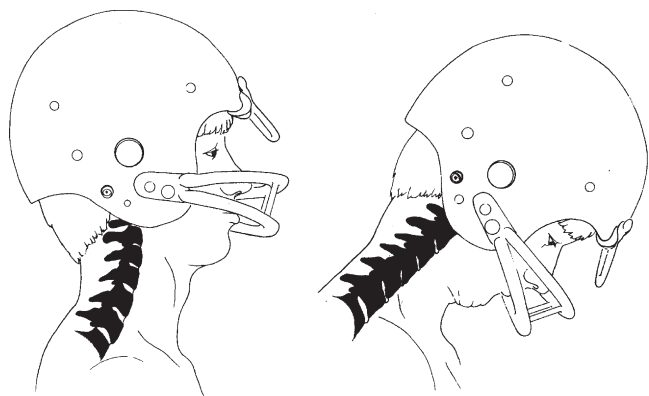


FIGURE 1 From DeLee JC, Drez D, Jr.: *Orthopedic sports medicine: principles and practice*, Philadelphia, 1994, W.B. Saunders, p 444.

HEAT AND COLD

- Cold is used to relieve pain and reduce inflammation for acute and chronic cases. It should be applied for 10 to 15 minutes every 2 to 3 hours as needed and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage.
- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Use a heat pack or a warm soak. Wrap a towel loosely around your neck to help maintain warmth while you sleep.

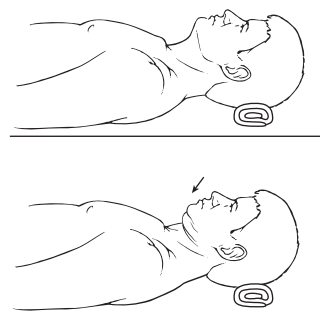
WHEN TO CALL YOUR DOCTOR

- Symptoms get worse or do not improve in 4 weeks despite treatment.
- New, unexplained symptoms develop. Drugs used in treatment may produce side effects.

RANGE OF MOTION AND STRETCHING EXERCISES Spear Tackler's Spine

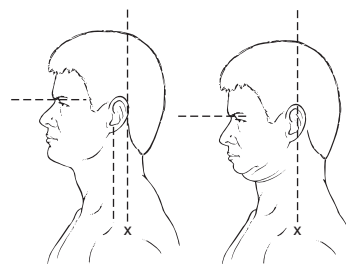
These are some of the *initial* exercises you may use to start your rehabilitation program, until you see your physician, physical therapist, or athletic trainer again, or until your symptoms resolve. Please remember:

- Flexible tissue is more tolerant of the stresses placed on it.
- A *gentle* stretching sensation should be felt.



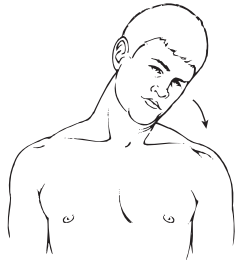
RANGE OF MOTION • Cervical Spine, Pivots

1. Roll up a washcloth or small towel (1 to 3 inches in diameter). Lie on a firm surface, and place the washcloth directly under your head as shown.
2. Gently tuck your chin down toward the floor. You will feel a stretch in the back of your neck.
3. Hold this position for ____ seconds, and *slowly* return to the starting position.
4. Repeat this exercise ____ times, ____ times per day.



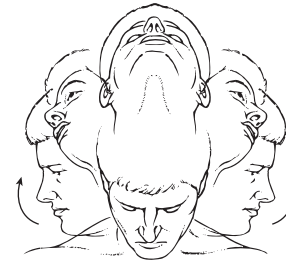
RANGE OF MOTION • Cervical Spine, Axial Extension

1. Sit in a chair or stand in your normal posture.
2. Gently tuck your chin and glide your head backward. Keep your eyes level as shown; you should not end up looking up or looking down.
3. You will feel a stretch in the back of your neck and at the top of your shoulders.
4. Hold this position for ____ seconds, and *slowly* return to the starting position.
5. Repeat this exercise ____ times, ____ times per day.



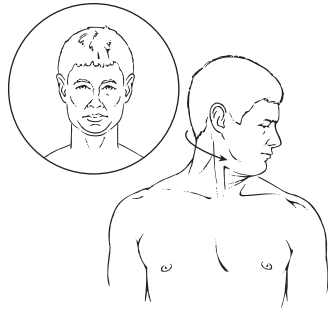
RANGE OF MOTION • Cervical Spine, Side Bends

1. Sit in a chair or stand in your normal posture.
2. Gently dip your ear toward your shoulder as shown. Keep looking forward, and do not turn your head. You should feel a stretch on the side of your neck.
3. Hold this position for ____ seconds, and *slowly* return to the starting position.
4. Repeat this exercise ____ times, ____ times per day.



RANGE OF MOTION • Cervical Spine, Neck Circles

1. Sit in a chair or stand in your normal posture.
2. Gently circle your head and neck in a clockwise and a counterclockwise direction. Work within your pain-free range of motion, and strive to obtain a *gentle* feeling of stretching and relaxation.
3. Repeat in each direction ____ times.
4. Repeat this exercise ____ times, ____ times per day.



RANGE OF MOTION • Cervical Spine, Rotation

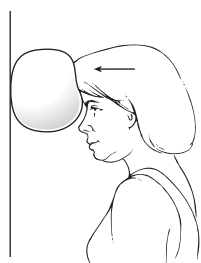
1. Sit in a chair or stand in your normal posture.
2. Turn your head and look over your shoulder, keeping your head level. Do not dip your ear toward your shoulder when you do this exercise. You will feel a stretch on the side and back of your neck.
3. Hold this position for ____ seconds, and *slowly* return to the starting position.
4. Repeat this exercise ____ times, ____ times per day.

STRENGTHENING EXERCISES

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These are some of the *initial* exercises you may use to start your rehabilitation program, until you see your physician, physical therapist, or athletic trainer again, or until your symptoms resolve. Please remember:

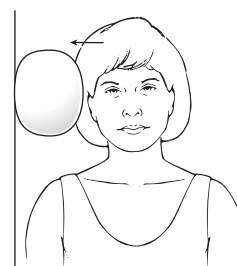
- Strong muscles with good endurance tolerate stress better.
- Do the exercises as *initially* prescribed by your physician, physical therapist, or athletic trainer. Progress slowly with each exercise under their guidance, gradually increasing the number of repetitions and weight used.



STRENGTH • Cervical Spine, Flexion

1. Obtain a child's playground ball, an exercise ball, or a towel rolled to about 6 to 8 inches in diameter.
2. Stand erect 12 to 18 inches from the wall, and place the ball/towel between your forehead and the wall.
3. Gently push your forehead into the ball/towel.
4. Hold this position for ____ seconds. Count out loud, and do not hold your breath.
5. Repeat this exercise ____ times, ____ times per day.

You can also do this exercise using your hands in place of the ball; however, this technique may cause some discomfort.



STRENGTH • Cervical Spine, Side Bends

1. Obtain a child's playground ball or a towel rolled to about 6 to 8 inches in diameter.
2. Stand with your shoulder next to a wall, and place the ball/towel between the side of your head and the wall.
3. Gently push your head into the ball.
4. Hold this position for ____ seconds. Count out loud, and do not hold your breath.
5. Repeat this exercise ____ times, ____ times per day.

You can also do this exercise using your hands in place of the ball; however, this technique may cause some discomfort.



STRENGTH • Cervical Spine, Extension

1. Obtain a child's playground ball or a towel rolled to about 6 to 8 inches in diameter.
2. Stand erect 12 to 18 inches from a wall. Place the ball between the back of your head and the wall.
3. Gently push your head into the ball.
4. Hold this position for ____ seconds. Count out loud, and do not hold your breath.
5. Repeat this exercise ____ times, ____ times per day.

You can also do this exercise using your hands in place of the ball; however, this technique may cause some discomfort.