

STEVEN CHUDIK MD

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Spear Tackler's Spine

Spear tackler's spine is a diagnosis of x-ray findings in football players that results from tackling with the head as the initial point of contact (spearing). The series of x-ray changes suggest the athlete is at high risk for permanent neurologic injury, including paralysis and death. The changes include congenital (you are born with it) narrowing of the spine at the neck, loss of the normal curvature of the spine, and changes due to trauma. This condition is an absolute contraindication to participation in contact sports.

Frequent Signs and Symptoms

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

Etiology (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 normal curve of the neck

Risk Factors

- 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 and flexibility)
- Previous neck injury
- Poor tackling technique
- Poorly fitting equipment



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Prevention

- Use proper technique (avoid tackling with the head, spearing, head butting; use proper falling techniques to avoid landing on the head).
- Maintain appropriate conditioning:
 - Neck strength and flexibility
 - Cardiovascular fitness
- Appropriately warm up and stretch before practice or competition.
- Wear protective equipment, such as padded soft collars, for participation in contact sports.

Outcomes

This condition 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*.

Potential Complications

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

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. These can all be carried out at home for acute cases, although for some acute or 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. Rarely surgery is 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 soft cervical collar.

Occasionally the spine will regain its normal curvature. If this occurs,

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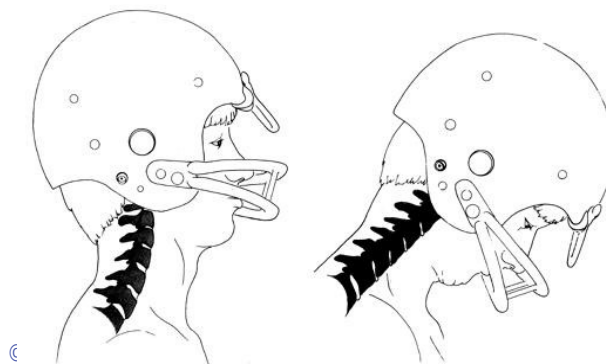


Figure 1

will regain its normal curvature. If this occurs,

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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 (neck) spine.

From DeLee JC, Drez D Jr.: Orthopaedic Sports Medicine: Principles and Practice. Philadelphia, WB Saunders, 1994, p. 444.

Possible Medications

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

Modalities (Heat and Cold)

- Cold is used to relieve pain and reduce inflammation for acute and chronic cases. Cold should be applied for 10 to 15 minutes every 2 to 3 hours for inflammation and pain 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. At night, while asleep, wrap a towel loosely around your neck to help maintain warmth.

Notify My Office If

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



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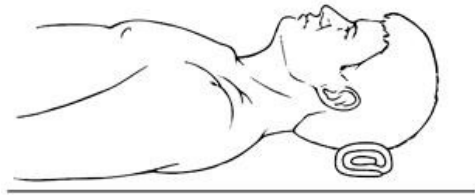
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EXERCISES

RANGE OF MOTION AND STRETCHING EXERCISES • Spear Tackler's Spine

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

- Flexible tissue is more tolerant of the stresses placed on it during activities.
- Each stretch should be held for 20 to 30 seconds.
- A **gentle** stretching sensation should be felt.



CERVICAL SPINE • Pivots

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



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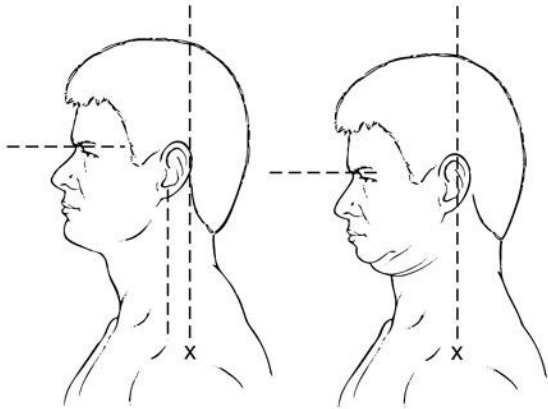
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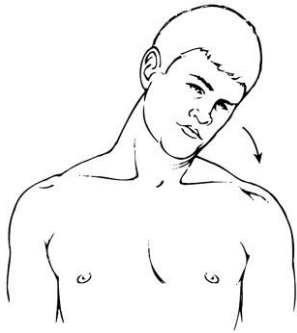
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CERVICAL SPINE • Axial Extension

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.
5. Repeat exercise _____ times, _____ times per day.



CERVICAL SPINE • Side Bend

1. Sit in a chair or stand in your normal posture.
2. Gently dip your ear toward your shoulder as shown.
3. Do not turn your head when you do this exercise. You should keep looking forward.
4. You will feel a stretch on the side of your neck.
5. Hold this position for _____ seconds.
6. Repeat exercise _____ times, _____ times per day.



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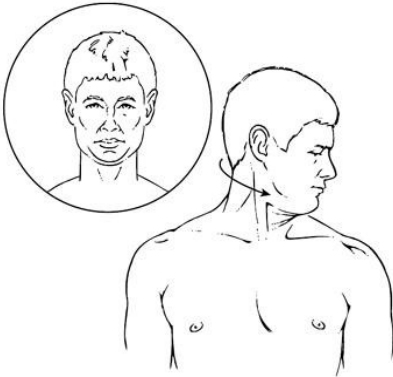
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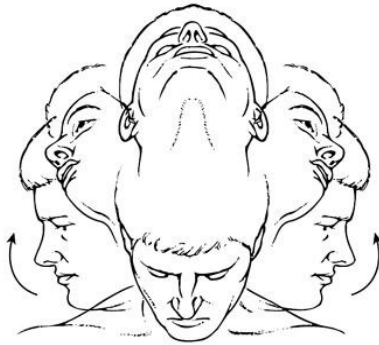
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CERVICAL SPINE • Rotation

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



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.
3. Work within your pain free range of motion. Strive to obtain a gentle feeling of stretching and relaxation.
4. Repeat in each direction 5 to 10 times.
5. Repeat exercise _____ times, _____ times per day.



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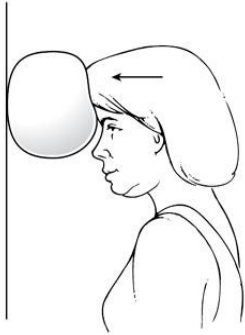
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STRENGTHENING EXERCISES • Spear Tackler's Spine

These are some of the **initial** exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. 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, gradually increasing the number of repetitions and weight used under their guidance.



CERVICAL SPINE • Flexion Strength

1. Obtain a child's playground ball or towel roll approximately 6 to 8 inches in diameter.
2. Stand erect 12 to 18 inches from the wall. Place the ball between your forehead and the wall.
3. Gently push your forehead into the ball.
4. Hold this position for 15 to 20 seconds. Count out loud. Do not hold your breath.
5. Repeat exercise _____ times, _____ times per day.

Note: You can also do this exercise by using your hands in place of the ball; however, this technique may cause some discomfort due to the use of your arms.



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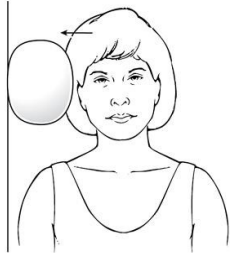
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CERVICAL SPINE • Side Bending Strength

1. Obtain a child's playground ball or towel roll approximately 6 to 8 inches in diameter.
2. Stand with your shoulder next to a wall. Place the ball between the side of your head and the wall.
3. Gently push your forehead into the ball.
4. Hold this position for 15 to 20 seconds. Count out loud. Do not hold your breath.
5. Repeat exercise _____ times, _____ times per day.

Note: You can also do this exercise by using your hands in place of the ball; however, this technique may cause some discomfort due to the use of your arms.



CERVICAL SPINE • Extension Strength

1. Obtain a child's playground ball or towel roll approximately 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 forehead into the ball.
4. Hold this position for 15 to 20 seconds. Count out loud. Do not hold your breath.
5. Repeat exercise _____ times, _____ times per day.

Note: You can also do this exercise by using your hands in place of the ball; however, this technique may cause some discomfort due to the use of your arms.

