

VALGUS EXTENSION OVERLOAD SYNDROME (VEOS)



■ ■ ■ Description

Valgus extension overload syndrome (VEOS) is a constellation of problems and pains within the elbow due to overuse and repetitive throwing forces. The ulnar collateral ligament (UCL) on the inner side of the elbow is a structure that helps keep the normal relationship of the humerus (arm bone) and the ulna (one of the forearm bones). This ligament may be stretched over time with repeated hard throwing. The stretching of the ligament results in gapping of the inner side of the elbow. This stretches the ulnar nerve on the inner elbow, causing symptoms in the hand, particularly the ring and little fingers. The outer part of the elbow and the back of the elbow develop increased pressure from the loose UCL, resulting in cartilage injury, bone spurs, and loose pieces of bone floating within the elbow joint.

■ ■ ■ Common Signs and Symptoms

- Pain and tenderness around the elbow (inner, outer, or back of the elbow), especially when trying to throw or straightening the elbow
- Occasionally, locking or catching of the elbow
- Swelling of the elbow
- Inability to throw at full speed; loss of ball control
- Elbow stiffness; inability to straighten the elbow
- Numbness or tingling in the ring and little fingers
- Clumsiness and weak hand grip

■ ■ ■ Causes

Force that exceeds the strength to the ligament results in stretching of the ulnar collateral ligament of the elbow. This injury usually is the result of throwing repetitively or particularly hard, which produces stretching of the ulnar nerve and increased pressure of the cartilage on the outer portion of the elbow, as well as the back of the elbow. This causes bone spurs to form, which may break off and become loose pieces of bone within the joint.

■ ■ ■ Risk Increases With

- Sports in which the arm is used to throw or straighten hard (baseball, javelin, hockey slap shot, tennis serve, volleyball)
- Poor physical conditioning (strength and flexibility)
- Improper throwing mechanics
- Sports in which there is a valgus force on an extended elbow (gymnastics) or hyperextension of the elbow (boxing, weightlifting)

■ ■ ■ Preventive Measures

- Appropriately warm up and stretch before practice and competition.
- Maintain appropriate conditioning:
 - Arm, forearm, and wrist flexibility
 - Muscle strength and endurance

- Use proper technique when throwing, serving, and hitting a puck.
- Braces may be effective in preventing injury, especially re-injury, by reducing forceful straightening of the elbow.

■ ■ ■ Expected Outcome

Often this condition is treatable with nonoperative management, although surgery may be required to alleviate symptoms. Persons with VEOS are prone to recurrence after a prolonged period if the sport is continued.

■ ■ ■ Possible Complications

- Frequent recurrence of symptoms and repeated injury, resulting in a chronic problem, such as inability to throw at full speed or distance, pain with throwing, and loss of ball control, especially if activity is resumed too soon after injury; appropriately addressing the problem the first time decreases frequency of recurrence and optimizes healing time
- Prolonged healing time if activities are resumed too soon
- Injury to other structures of the elbow, including medial epicondylitis, and strain of the muscle-tendon of the muscles that bend the wrist
- Arthritis of the elbow
- Elbow stiffness (loss of elbow motion)
- Locking of the elbow
- Prolonged disability
- Inability to return to the same level of sports
- Tear of the ulnar collateral ligament

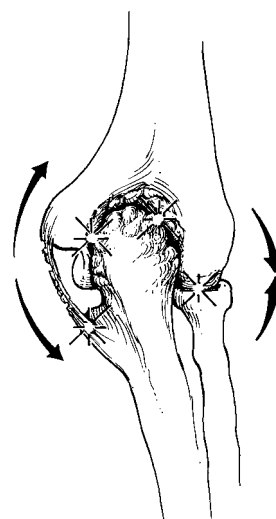


Figure 1

From Jobe FW: Operative Techniques in Upper Extremity Sports Injuries. St. Louis, Mosby Year Book, 1996, p. 414.

- Risks of surgery, including infection, bleeding, injury to nerves, persistent pain, increased pain, catching or locking, tearing, and need for further surgery

■ ■ ■ General Treatment Considerations

Initial treatment consists of medication and ice to relieve the pain and modification of the activity that initially caused the problem. Occasionally a splint, brace, or cast may be recommended. Elbow range-of-motion, strength, and endurance exercises are performed and proper throwing mechanics are used. These may be carried out at home, although usually referral to a physical therapist or athletic trainer is recommended. A gradual return to throwing is attempted. If symptoms persist or if there is locking and catching, which are due to loose bone fragments within the joint, arthroscopic surgery is recommended. Surgery is performed to remove bone spurs, bone fragments, and loose cartilage. Return to sports after surgery may take 3 months.

■ ■ ■ Medication

- 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.

- Stronger pain relievers may be prescribed as necessary by your physician. Use only as directed.

■ ■ ■ Cold Therapy

Cold is used to relieve pain and reduce inflammation. 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.

■ ■ ■ Notify Our Office If

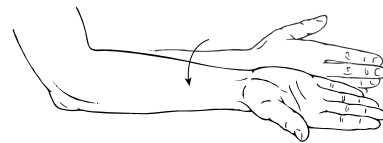
- Symptoms get worse or do not improve in 4 to 6 weeks despite treatment
- You experience pain, numbness, or coldness in the hand
- Blue, gray, or dusky color appears in the fingernails
- New, unexplained symptoms develop (drugs used in treatment may produce side effects)

EXERCISES

➤ RANGE OF MOTION AND STRETCHING EXERCISES • Valgus Extension Overload Syndrome (VEOS)

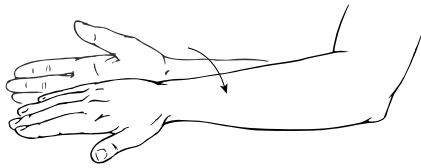
These are some of the *initial* exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- 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.



RANGE OF MOTION • Supination

1. Stand or sit with your elbow bent to 90 degrees.
2. Turn your palm upward as far as possible.
3. Hold this position for _____ seconds and then *slowly* return to the starting position.
4. Repeat exercise _____ times, _____ times per day.



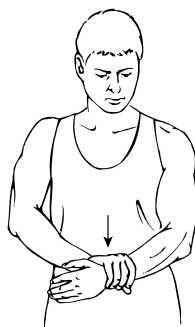
RANGE OF MOTION • Pronation

1. Stand or sit with your elbow bent to 90 degrees.
2. Turn your palm down toward the floor as far as possible.
3. Hold this position for _____ seconds and then *slowly* return to the starting position.
4. Repeat exercise _____ times, _____ times per day.



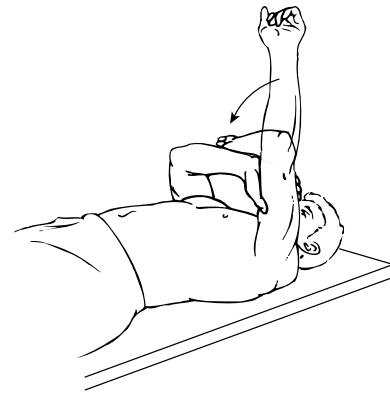
RANGE OF MOTION • Flexion

1. Bend your _____ elbow as far as you can actively.
2. Try to bend it a little farther with the other hand as shown until you feel a gentle stretch.
3. Hold this position for _____ seconds and then *slowly* return to the starting position.
4. Repeat exercise _____ times, _____ times per day.



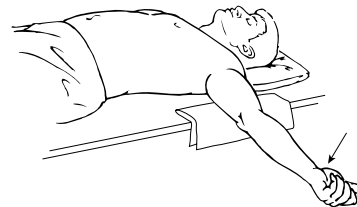
RANGE OF MOTION • Extension

1. Straighten your _____ elbow as far as you can actively.
2. Try to straighten it a little farther with the other hand as shown until you feel a gentle stretch.
3. Hold this position for _____ seconds and then *slowly* return to the starting position.
4. Repeat exercise _____ times, _____ times per day.



RANGE OF MOTION • Flexion

1. Lie on your back with your _____ arm straight up in the air. Support your arm with the other hand as shown.
2. Let the gravity weight of your hand, wrist, and lower arm bend your elbow until you feel a slight stretch.
3. You may hold a small weight in your hand or wear a weight around your wrist (_____ lbs.) if approved by your physician, physical therapist, or athletic trainer to help stretch farther.
4. Hold this position for _____ seconds and then *slowly* return to the starting position.
5. Repeat exercise _____ times, _____ times per day.



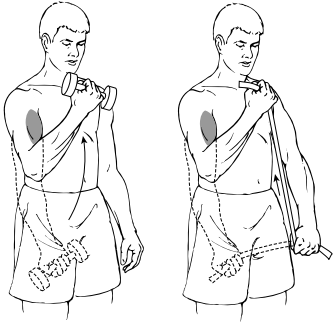
RANGE OF MOTION • Extension

1. Lie on your back and rest your elbow off the edge of the bed as shown. You may also sit at a table with the upper arm supported in a similar manner.
2. Let the gravity weight of your hand, wrist, and lower arm straighten your elbow until you feel a slight stretch.
3. You may hold a small weight in your hand or wear a weight around your wrist (_____ lbs.) if approved by your physician, physical therapist, or athletic trainer to help stretch farther.
4. Hold this position for _____ seconds and then *slowly* return to the starting position.
5. Repeat exercise _____ times, _____ times per day.

> **STRENGTHENING EXERCISES** • Valgus Extension Overload Syndrome (VEOS)

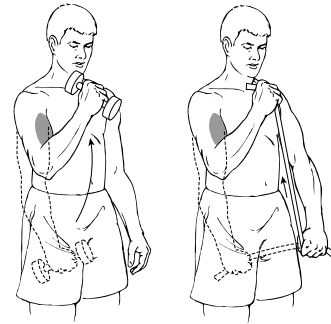
These are some of the *initial* exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- 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.



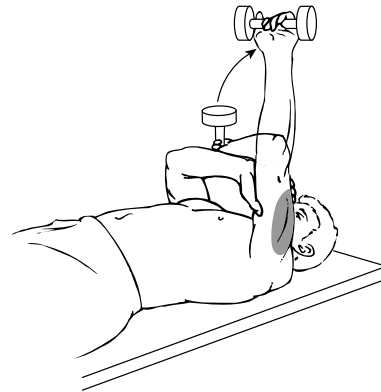
STRENGTH • Elbow Flexion

1. Stand with your arm straight and your *palm* facing forward.
2. Bend the elbow as shown using a _____ pound weight or rubber band/tubing as shown.
3. Hold this position for _____ seconds and then *slowly* return to the starting position.
4. Repeat exercise _____ times, _____ times per day.



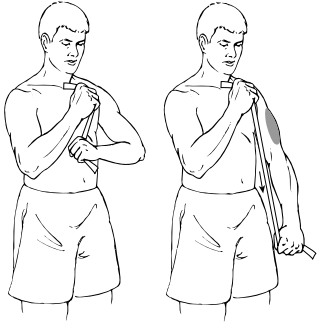
STRENGTH • Elbow Flexion

1. Stand with your arm straight and your *thumb* facing forward.
2. Bend the elbow as shown using a _____ pound weight or rubber band/tubing as shown.
3. Hold this position for _____ seconds and then *slowly* return to the starting position.
4. Repeat exercise _____ times, _____ times per day.



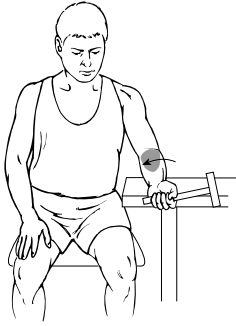
STRENGTH • Elbow Extension

1. Lie on your back with your _____ elbow bent and pointing directly at the ceiling as shown. (You may also do this exercise standing with the arm pointed overhead.)
2. Hold a _____ pound weight in your hand.
3. Straighten the elbow.
4. Hold this position for _____ seconds and then *slowly* return to the starting position.
5. Repeat exercise _____ times, _____ times per day.



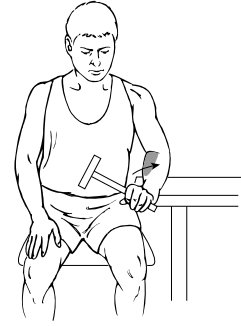
STRENGTH • Elbow Extension

1. Hold the rubber band/tubing with your _____ hand on the bottom as shown.
2. Straighten out your elbow, stretching the rubber band/tubing for resistance.
3. Hold this position for _____ seconds and then *slowly* return to the starting position.
4. Repeat exercise _____ times, _____ times per day.



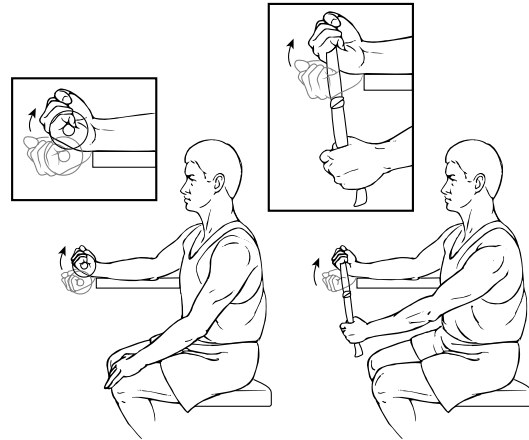
STRENGTH • Pronation

1. Sit with your forearm supported on a table and the hand over the edge and your palm facing up toward the ceiling.
2. Hold a _____ oz. hammer or a stick with a weight on the end in your hand as shown.
3. Turn your palm and hand toward you to a “thumbs up” position.
4. Hold this position for _____ seconds and then *slowly* return to the starting position.
5. Repeat exercise _____ times, _____ times per day.



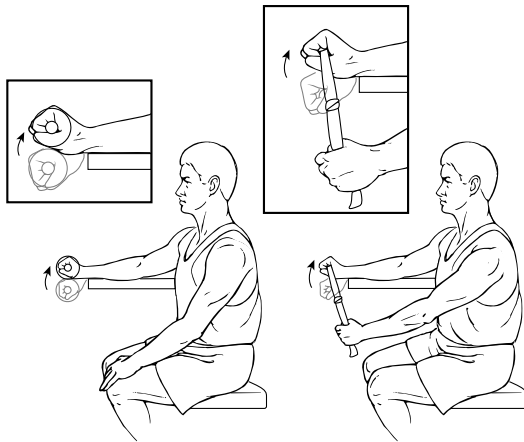
STRENGTH • Supination

1. Sit with your forearm supported on a table and the hand over the edge and your palm facing the floor.
2. Hold a _____ oz. hammer or a stick with a weight on the end in your hand as shown.
3. Turn your palm and hand toward you to a “thumbs up” position.
4. Hold this position for _____ seconds and then *slowly* return to the starting position.
5. Repeat exercise _____ times, _____ times per day.

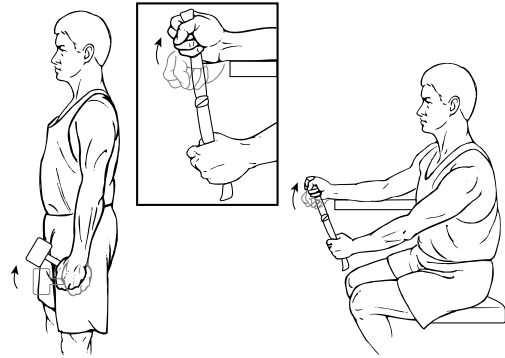


STRENGTH • Wrist Flexors

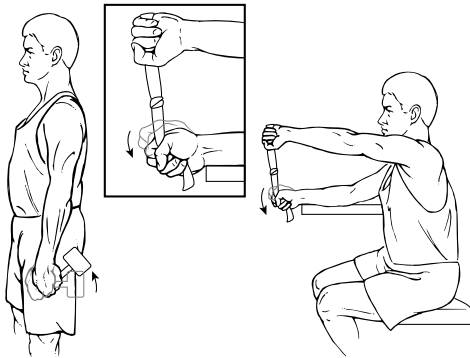
1. Sit or stand with your forearm supported as shown.
2. Using a _____ pound weight or a piece of rubber band/tubing, bend your wrist slowly upward toward you.
3. Hold this position for _____ seconds and then *slowly* lower the wrist back to the starting position.
4. Repeat exercise _____ times, _____ times per day.

**STRENGTH • Wrist Extensors**

1. Sit or stand with your forearm supported as shown.
2. Using a _____ pound weight or a piece of rubber band/tubing, bend your wrist slowly upward toward you.
3. Hold this position for _____ seconds and then *slowly* lower the wrist back to the starting position.
4. Repeat exercise _____ times, _____ times per day.

**STRENGTH • Wrist, Radial Deviation**

1. Stand with a _____ oz. hammer in your hand as shown, or sit holding on to the rubber band/tubing with your arm supported as shown.
2. Raise your hand upward in front of you or pull up on the rubber tubing.
3. Hold this position for _____ seconds and then *slowly* lower the wrist back to the starting position.
4. Repeat exercise _____ times, _____ times per day.

**STRENGTH • Wrist, Ulnar Deviation**

1. Stand with a _____ oz. hammer in your hand as shown, or sit holding on to the rubber band/tubing with your arm supported as shown.
2. Raise your hand upward behind you or pull down on the rubber tubing.
3. Hold this position for _____ seconds and then *slowly* lower the wrist back to the starting position.
4. Repeat exercise _____ times, _____ times per day.

Notes:

(Up to 4400 characters only)

Notes and suggestions