Hughston Health Alert

6262 Veterans Parkway P.O. Box 9517 Columbus GA 31908-9517

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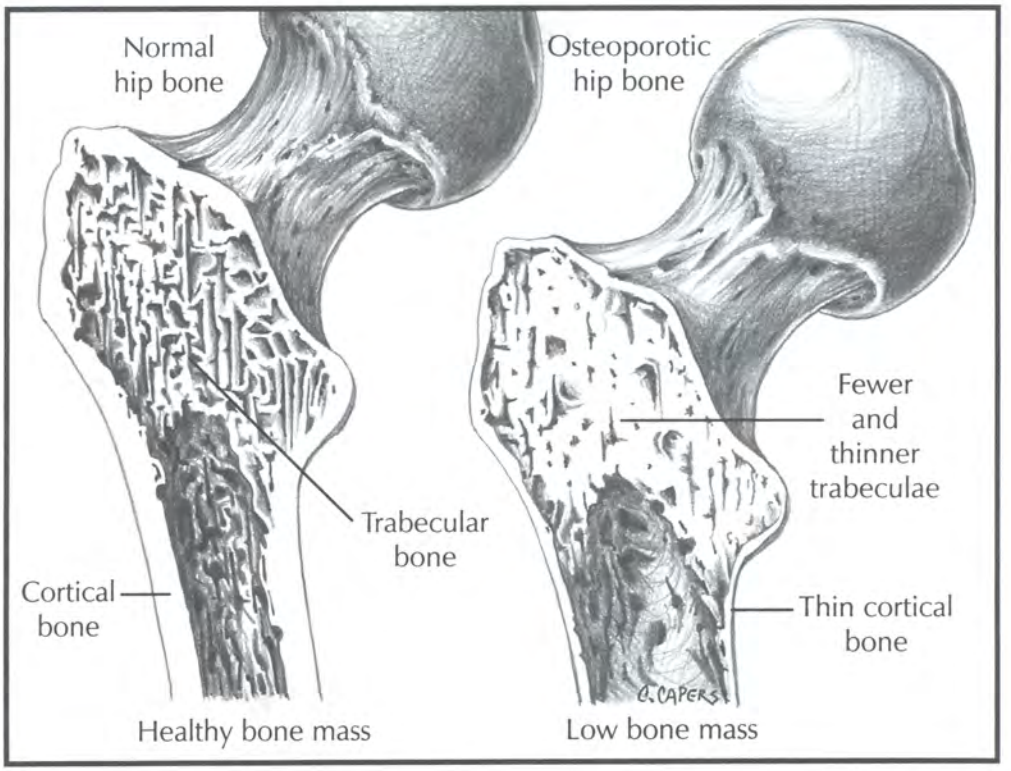
Osteoporosis

Bad to the Bone

What is osteoporosis?

Osteoporosis is a disease that affects over 25 million people in the United States and is responsible for over 1.3 million fractures (broken bones) per year. It is characterized by low bone mass and deterioration of both the inner (trabecular) and outer (cortical) parts of bone, which can lead to bone fragility and fractures.

Osteoporosis is classified as either primary or secondary. Primary osteoporosis is subdivided into Type I (postmenopausal) and Type II (age-related). Most cases are primary Type I, affecting up to 80% of the women in the United States between the ages of 50 and 70. Primary Type II osteoporosis affects nearly half of all people over the age of 75, and it affects women only slightly more than men.



Secondary osteoporosis can occur as a side effect from the use of certain drugs, such as corticosteroids and heparin. Some diseases, such as rheumatoid arthritis, kidney disease, and some forms of cancer, can also lead to secondary osteoporosis.

Who is at risk?

Most risk factors are attributed to genetics. Women are affected more than men, especially Caucasian and Asian women who are thin and who have a family history of osteoporosis.

Certain lifestyle factors can also lead to the development of osteoporosis. These include smoking, excessive consumption of alcohol and caffeine, low calcium intake, and little or no physical exercise.

Measuring bone mass

Measuring bone mass of the spine or hip gives a good indication of the body's overall bone health. X-rays are not a reliable way to assess bone

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Bone mass of patient's hip measured by LUNAR® DPX-IQ™
Photo provided by LUNAR Corporation, Madison, WI

mass. The most recent technology in bone mass density measurement uses dual-energy x-ray absorptiometry (DEXA) (see photo). Although it is more expensive, there is significantly less radiation exposure than with x-rays.

Secondary problems

Bone structures that are composed of trabecular bone, such as the hip and spine, are the most common sites of osteoporotic fractures. These fractures can occur as a result of a traumatic (forceful) injury, such as a fall. However, if bones are weakened enough from osteoporosis, fractures can occur with little or no trauma, such as lifting a light box.

Spinal complications result from compression of the vertebrae (bones of the spinal column). As a result, a patient might experience a loss in height and postural deformities, such as a dowager's hump (curvature of the spine).

Other secondary problems can include gastrointestinal (digestive) disorders and bone marrow and connective tissue diseases.

But I'm young, and I don't have to worry about osteoporosis, or do I?

Young, white women, especially athletes, who may be predisposed to inadequate peak bone mass can be at increased risk of developing osteoporosis. Vigorous athletic training, eating disorders, and poor dietary habits can all contribute to low total-body fat percentage. A certain level of body fat percentage is needed to produce sex hormones, especially estrogen. Thus, when the body is low in fat, the production of estrogen is reduced, which in turn accelerates the loss of bone mass.

The importance of early diagnosis

The loss of bone mass spans many years over a person's lifetime. Unfortunately, osteoporosis is usually symptomless and not detected until a fracture has occurred. That's why early diagnosis is important. It allows one to change any lifestyle habits that can lead to osteoporosis and take the necessary steps to prevent fractures and slow down the progression of osteoporosis.

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Williamsburg, Virginia

The Prevention of Osteoporosis

There are several ways to prevent osteoporosis. The most important is an adequate intake of calcium throughout the life span, beginning from early childhood and adolescence through young, middle, and late adult years. Calcium makes bones stronger by increasing bone mass and density.

Best sources of calcium

Dairy products (milk, cheese, and yogurt) are the best sources for calcium. For instance, one cup of skim milk contains 296 mg of calcium, and one cup of yogurt contains 272 mg of calcium. Additionally, sardines with bones and fresh salmon are also excellent sources of calcium.

Calcium supplements, such as calcium carbonate or calcium lactate, can help those of you who are having trouble getting enough calcium in your daily diet. These supplements provide between 10% and 60% of daily calcium requirement and can be found in supermarkets, pharmacies, and health food stores, usually in the vitamin section. Antacids are also used for calcium supplementation. However, you should avoid any products made with dolomite or bone meal because they contain lead and other toxic contaminants.

Calcium absorption

Vitamin D plays an important role in bone formation and mineralization and helps your bones absorb calcium effectively. Fortified milk and small amounts of egg yolks, liver, and fatty fish (sardines and salmon) offer the best sources for this vitamin. Also, sunlight absorbed through your skin provides a natural source of vitamin D, but remember that too much sunlight exposure can be harmful. Be

sure to wear sunscreen when outdoors.

Like calcium, phosphorus is also a significant factor in bone health. Equal amounts of calcium and phosphorus in your daily diet are beneficial, because they can reduce the loss of calcium that is excreted through the urinary system. However, too much phosphorus can actually increase calcium excretion and reduce calcium absorption by the bones. Although phosporus is widely distributed throughout the food supply, certain foods, such as nuts and seeds, dried beans and peas, and caffeinated beverages, contain a higher content of phosphorus and should be consumed in moderation.

Large amounts of caffeine and protein can also result in calcium excretion through the urinary system and therefore increase the risk of developing osteoporosis. This is especially true when dietary calcium intake is consistently low, in which case caffeinated tea, coffee, cola-type beverages, and dark chocolate should be consumed sparingly. In addition, excessive amounts of meat, fish, poultry, and eggs, which are high in protein content, are not recommended for maintaining bone density. A consultation with your physician and dietitian can help you determine your recommended daily allowance of protein.

Are you getting enough exercise?

Physical activity and exercise also play an important part in maintaining, and in some cases increasing, your bone mass and density. Aerobic exercises, such as jogging and walking, and resistive exercises, such as weight-lifting, should be done for 30 to 60 minutes a day, 3 to 5 days a week. Exercise can be beneficial to bone health as long as you continue to do it throughout your life span. For older adults, physical activity and exercise can improve balance and neuromuscular function, which help prevent falls that can lead to broken bones.

Lifestyle habits

Smoking tobacco and drinking alcohol will increase your risk of developing osteoporosis. By avoiding these habits and maintaining a proper diet and exercise routine, you can reduce the risk of osteoporosis and improve your overall health.

Jessie G. Wright, M.S., R.D., L.D.
Columbus, Georgia

New Daily Recommendations for Calcium Intake

Age	mg/day
1-3 years old	500
4-8 years old	800
9-18 years old	1300
19-50 years old	1000
51 years old and over	1200

Drug Therapy for Osteoporosis

Studies have shown that high levels of estrogen (a hormone) minimize the risk of osteoporosis for women. After menopause, however, a woman is at greater risk because of the decreased levels of estrogen. Hormone replacement therapy (HRT) can prolong the protection from osteoporosis and prevent heart disease. But for benefits, long-term use is required and there is an increased risk of breast cancer associated with long-term use. HRT is a personal decision that should be made in consultation with your physician.

Fosamax™

Alendronate, or Fosamax™, is the first nonhormonal bone-restoring drug that has been marketed in the United States. Many trials have indicated that Fosamax™ can reduce spine and hip fractures in 50% of patients with osteoporosis.

Fosamax™ should be taken once a day with a full glass of water and 30 minutes before you consume any food, beverage, or other medication. Waiting more than 30 minutes before eating can improve the absorption of the drug. After taking the drug, do not lie down for at least 30 minutes to promote delivery to the stomach to help avoid gastrointestinal (digestive) problems.

Fosamax™ is a prescription medication and can only be prescribed by your physician.

Nancy J. Chaffee, R.P.H, M.S.H.A., Columbus, Georgia

Ice Hockey Injuries

Ice hockey is one of the most popular team sports in many parts of the country. It is a fast-paced game that combines players of many sizes together on the rink with high skating speeds and fast, furious action.

Hockey is known as a hard-hitting, collision sport. Players risk injury from high-impact collisions with each other, the rigid boards that mark the boundary of the playing surface, and the goal posts. Impact with a skate blade, long sticks, and pucks traveling more than 100 mph also add to the risk.

What causes most injuries?

Studies show that most hockey injuries occur during games rather than practices. It is estimated that direct trauma (a sudden forceful injury) accounts for 80% of all injuries. Most of these injuries are caused by

player contact (checking and collision), falls, and contact with a puck, high stick, and occasionally, a skate blade.

The most common injuries

Lacerations (cuts) to the head, scalp, and face are the most frequent types of injury. However, the use of helmets and face shields has markedly reduced the incidence of injuries to the face and head.

Yet, there has been an increase in neck and spine injuries in the past decade. Some players may adopt a false sense of security, believing that they are not susceptible to injury when wearing protective equipment. Usually, however, that's when injuries occur—when you least expect them.

The knee is another frequently injured site, with sprains to the medial collateral and capsular ligaments being common (Fig. 1). Cruciate ligament tears are less common in hockey and seen more in turf sports, such as football and soccer.

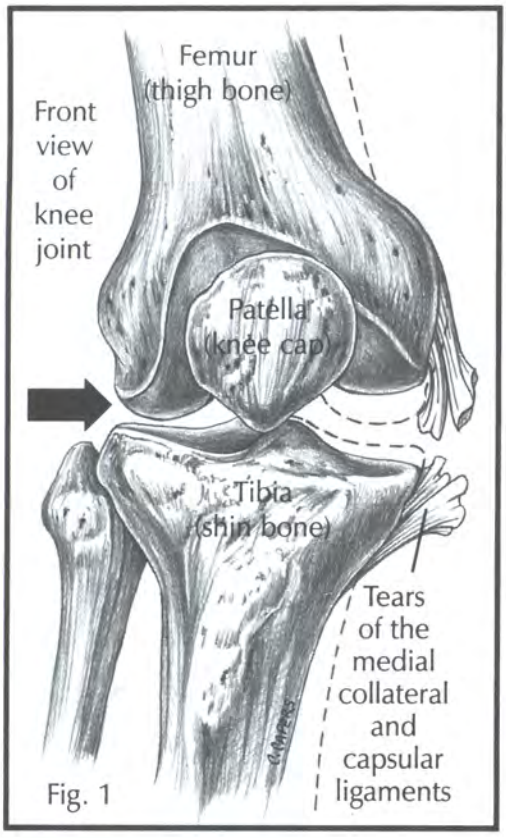

Fig. 1

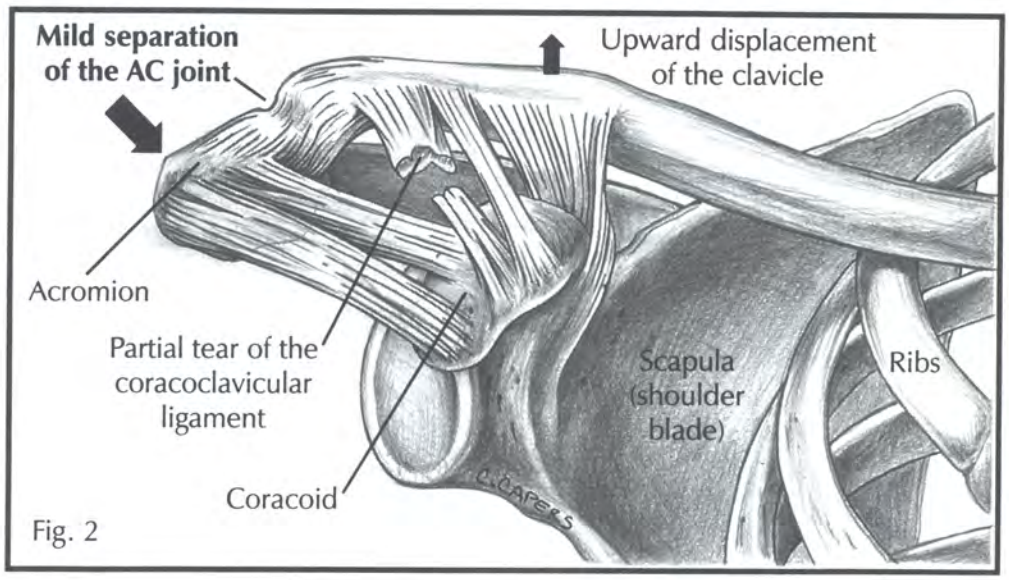

Fig. 2

Players can injure their shoulders as well. Acromioclavicular, or AC, joint separation (separated shoulder)(see page 7) is a common injury that occurs both with checking to the boards and falls onto the ice (Fig. 2). Other arm injuries include shoulder dislocations, gamekeeper's thumb (tear of the ulnar collateral ligament) (Fig. 3), and fractures of the hand and wrist.

A unique aspect of hockey is that gloves normally protect the hands from injury, but when fighting occurs and the protective gloves are removed, the hands become exposed to injury. These injuries include fractures, torn tendons, or even bite wounds from striking an opposing player's teeth.

Penalty!!!

It has been estimated that as many as one-third of injuries are caused by foul play. Many have observed a need for increased vigilance in this area, particularly at the adolescent and high school levels. Establishment and enforcement of effective rules have led to fewer injuries.

Education on the ice

Education regarding equipment usage, as well as teaching players to avoid the "head down" or "spearing" postures of the neck, should remind players that helmets do not make them invincible. And, as in any sport, proper coaching and effective training and conditioning can serve to further reduce injury.

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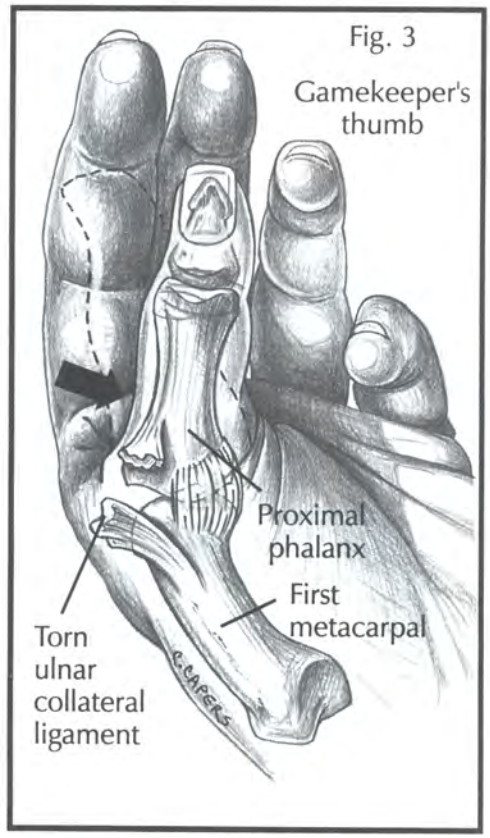


Fig. 3

Proper Safety Equipment for Ice Hockey

More than 2 million boys and girls under the age of 18 are playing hockey in the United States. Several rule changes, technological advancements in equipment, and mandatory wearing of helmets and face masks have made hockey a safer sport for all to play and enjoy.

Hockey is a collision sport and injuries do occur. But with certified, quality, well-fitting equipment, the frequency and severity of these injuries can be decreased.

Photos by Carolyn M. Capers

Helmets and face masks

Most hockey injuries occur to the head and face. Lacerations (cuts) to the skull and face, along with concussions, have been minimized by the mandatory wearing of helmets and face masks at most levels of play. In youth, high school, and college hockey, helmets and face masks are mandatory. Even in the NHL, most players wear helmets even though they are not required to do so.

When purchasing a helmet, make sure it fits snugly. Look for helmets with the seal of approval either from the HECC (Hockey Equipment Certification Council) or the CAHA (Canadian Amateur Hockey Association). Chin guards should always be worn; check the snaps frequently to ensure good working condition.

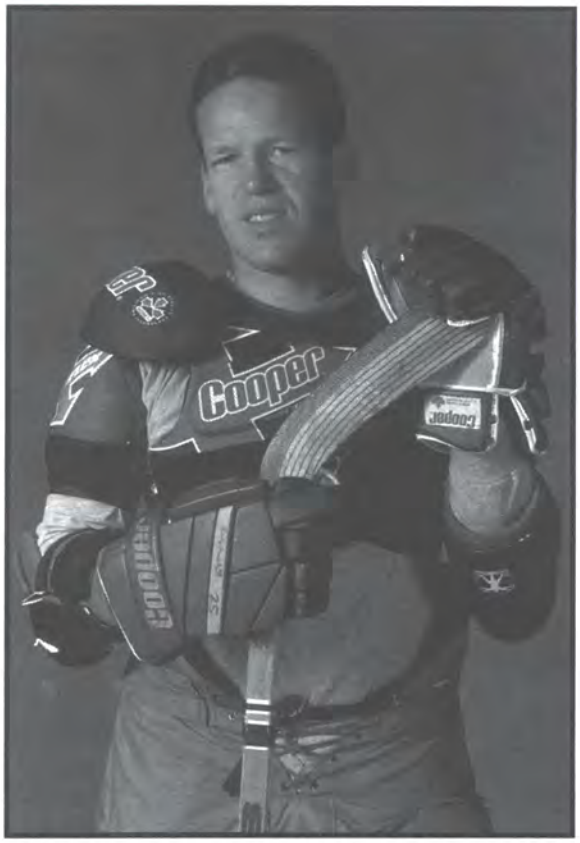
Face masks come in 3 styles: plastic visor, wire cage, or a combination of visor and cage. Wearing a helmet with a wire cage mask can protect your eyes from a high stick or a deflected puck.

Shoulder pads and chest protectors

Standard shoulder pads and chest protectors provide protection for the clavicle (collarbone) and upper arms, while giving you the ability to move freely on the ice and handle your stick. Several types of chest protectors include both the chest and the back as one piece.

Gloves and elbow pads

Your gloves must provide maximum protection without affecting your grip. The thumb, the palm, and the cuff of the wrist are often hit by opposing players' sticks. Purchase gloves with maximum protection over the thumb. Make sure the palm of the glove is soft, so you can feel the stick in your hand. The cuff of the glove should be flexible but still offer protection. Cuffs that run too far up the arm will hinder your flexibility. And make sure the laces of the gloves are always tied and in good condition.



Eric Germain of the Columbus Cottonmouths

Make sure your elbow pads fit well and cover the sides and the back part of the elbow.

Hockey pants

Most hockey pants today are manufactured with pads built inside to cover and protect the hips, thighs, kidneys, and tailbone. Properly fitted pants can prevent your pads from sliding out of place and exposing an area to injury. Your garter belt, which is used to hold your pants up, should be checked frequently for wear and tear.

Leg guards

Good leg guards have a knee cup pad, wrap-around padding to cover the sides of the knee, and wide side flaps. Make sure they are not too bulky and the length is correct.

Hockey stick

The hockey stick is the most important piece of equipment for a player. The top of the stick is known as the "butt," which leads down into the shaft (the long stem of the stick). Shafts are typically made of carbon graphite, aluminum, or wood. The curvature at the bottom of the shaft is known as the blade.

Sticks need to be fitted for players. Remember the "rule of chin": While wearing skates and placing the stick on the end of its blade, the butt of the stick should lie 3 inches under your chin (see photo). Sticks are made for either left- or right-handed players, depending on the curve of the blade. Restrictions regarding the size of your hockey stick vary depending upon the level of competition.

Skates

Skates are composed of three parts: a boot, a blade holder, and a steel blade. The boot is made of leather, nylon, or molded plastic. The surface of the steel blade is not flat, but curved inward. The sharpening process carves out the center of the blade, leaving two sharp surfaces. Keeping your skates sharp helps maneuverability and prevents you from catching your blade on the ice, which can lead to leg and knee injuries. Brand-name skates are your best bet. Make sure the skate has a well-constructed heel and ankle support. Wear only one pair of socks; bulky socks can hinder the snug fit of a boot.

Mouth guards and groin protection

Mouth guards are cheaper than dental bills. You can have them specially molded for you.

For groin protection, the larger, heavily padded, boxer-style cup is better than the traditional small plastic cup.

Goalie gear

As a goalie you need to be ready to stop slap shots of up to 100 mph. The goalie's equipment weighs approximately one-fourth of his or her body weight.

A goalie helmet and mask is usually made of fiberglass or Kevlar™, the same material that bulletproof vests are made of. Masks can be form fitted to match the contours of your face, or you can use a cage-and-helmet combination. For younger goalies, the cage and helmet offers more protection. Most masks have a deflector pad that hangs down from the chin, protecting the neck and throat.

The newer goalie pads are made of synthetic materials that are stronger, lighter, and less absorbent than the old leather pads, but still offer excellent protection. Goalies require extra protection, especially around the arms, thighs, and tailbone. Special leg pads are worn, not only for protection, but also to give the goalie an additional blocking surface. There are restrictions on the width of leg pads, again depending upon the level of play.

The goalie also wears two different gloves. The catching glove looks like a first baseman's mitt. It has ample padding around the wrist and hand to protect against cuts and bruises. The backhand glove is a flat rectangular pad made of leather and usually covered with fiberglass. The palm of this glove is thin, allowing the goalie to maintain a firm grip on the stick.

The goalie stick is usually made of wood with a larger blade, measuring about 3½ inches wide. This allows for a greater shot-blocking surface.

Practical tips

Penny-pinching is not wise when it comes to buying good protection. Go to a reputable sporting goods store that sells certified brand names. If you are going to buy used equipment, check it out carefully. Try the equipment on and make sure it all fits properly. Injuries occur when loose-fitting equipment slides out of the way of an oncoming puck.

Keep your gear well organized and stored in a well-ventilated, dry area. Check your equipment frequently for early signs of wear and tear. Make those necessary repairs before you get out on the ice. And remember the old saying: "Take care of your equipment and it will take care of you!"

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Separations of the Shoulder

What is a separated shoulder?

Often confused with a dislocated shoulder, the separated shoulder actually is an injury to the end of the clavicle (collarbone) where it connects with the acromion (tip of the shoulder blade). Thus, the injury to the acromioclavicular (AC) joint involves a tear of the ligaments (acromio-clavicular and coracoclavicular) that connect the two bones. This type of injury is generally seen when a person takes a spill and falls directly on the shoulder, such as someone falling from a bike or a football player being tackled. There can also be associated nerve injuries, since large nerves run underneath the end of the clavicle.

Treatment

Treatment consists of placing the injured shoulder in a sling. Your doctor will prescribe medication to help with the pain. Passive range-of-motion exercises are used to maintain flexibility. Those who don't require surgery usually heal in 4 to 6 weeks and can have a visible, residual bump at the end of the clavicle.

When is surgery required?

In more severe injuries where the ligaments to the surrounding bones are completely torn, the clavicle is displaced upward, and it becomes quite painful to do any overhead activity. Surgery in these cases is usually recommended, especially in overhead throwing athletes (such as quarterbacks and pitchers) and people who use their shoulder in doing overhead work (such as painters and construction workers). The end of the clavicle is removed (resected) to prevent any degeneration or other disease of the joint.

Look on the bright side

Those who require surgery for severely displaced injuries often have good results from the repair. Surgical repair consists of using the remaining ligament (coracoclavicular ligament) to bring the clavicle back down and reinforcing the repair with sutures or wires. This will keep the clavicle in its proper position relative to the acromion. Passive range-of-motion exercises are started, but overhead activity is usually delayed for about 6 weeks after surgery. Patients are advised to avoid contact activities for 9 months after the operation. Anatomic repair of the main ligaments involved has a good success rate, and patients are usually able to return to their previous level of work or sports.

Next time you meet someone who has recently separated his or her shoulder, give them much-deserved sympathy and a handshake, but don't expect a high five!

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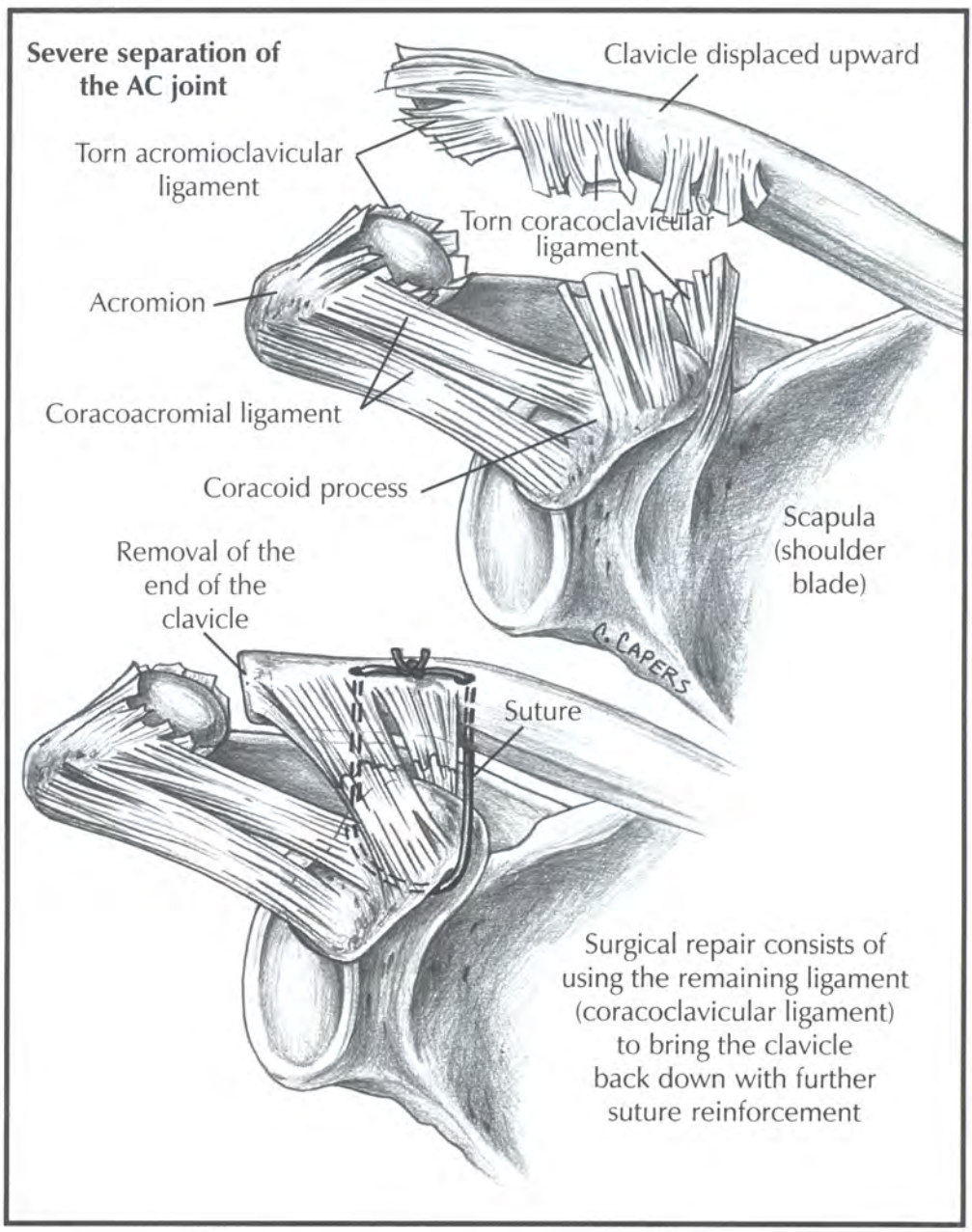

Dental Injuries in Sports

Dental injuries in sports can be divided into two categories: soft and hard tissue injuries. Soft tissue injuries include bruises to the face; cut lips, tongue, or cheeks; and nerve damage resulting in numbness to the area. Hard tissue injuries include intruded or jammed teeth, loosened teeth, chipped or broken teeth, teeth that have been completely knocked out, and fractured jaws and facial bones. These hard tissue injuries can also cause stiffness in the jaw joint, numbness in the face, and loss of consciousness.

Some dental injuries can be severe enough to cause fractures, such as a small chip or a complete fracture of a crown, that can expose and damage the nerve. Fractures of the root can also occur as a result of a dental injury.

Most sports-related dental injuries can be prevented by using protective equipment. This includes helmets, face masks, and a properly constructed mouth guard. The newer mouth guards can be constructed to be sport specific, with the mouth guards becoming more absorbing as the sport becomes more hazardous.

If you have problems with your teeth as a result of a sports injury, or if you have questions regarding preventive measures against dental injuries, contact your local dentist.

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The Hughston Health Alert is a quarterly publication of the Hughston Sports Medicine Foundation, Inc. The Foundation's mission is to help people of all ages attain the highest possible standards of musculoskeletal health, fitness, and athletic prowess. Information in the Hughston Health Alert reflects the experience and training of physicians at The Hughston Clinic, P.C., of physical therapists and trainers at Rehabilitation Services of Columbus, Inc., of physicians who trained as residents and fellows under the auspices of the Hughston Sports Medicine Foundation, Inc., and of research scientists and other professional staff at the Foundation. The information in the Hughston Health Alert is intended to supplement the advice of your personal physician and should not be relied on for the treatment of an individual's specific medical problems.

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Health Hint

On cold winter days right before we begin our morning jog, most of us start off with some stretching, thinking that we are taking the proper measures to avoid injury. Well, we're wrong! Stretching cold muscles, especially on a cold day, can lead to injury. The best way to prepare for any exercise in cold weather is to warm-up the muscles gently: 2 minutes of light exercise (sit-ups or running in place) done indoors and then stretching.

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