



# Hughston Health Alert

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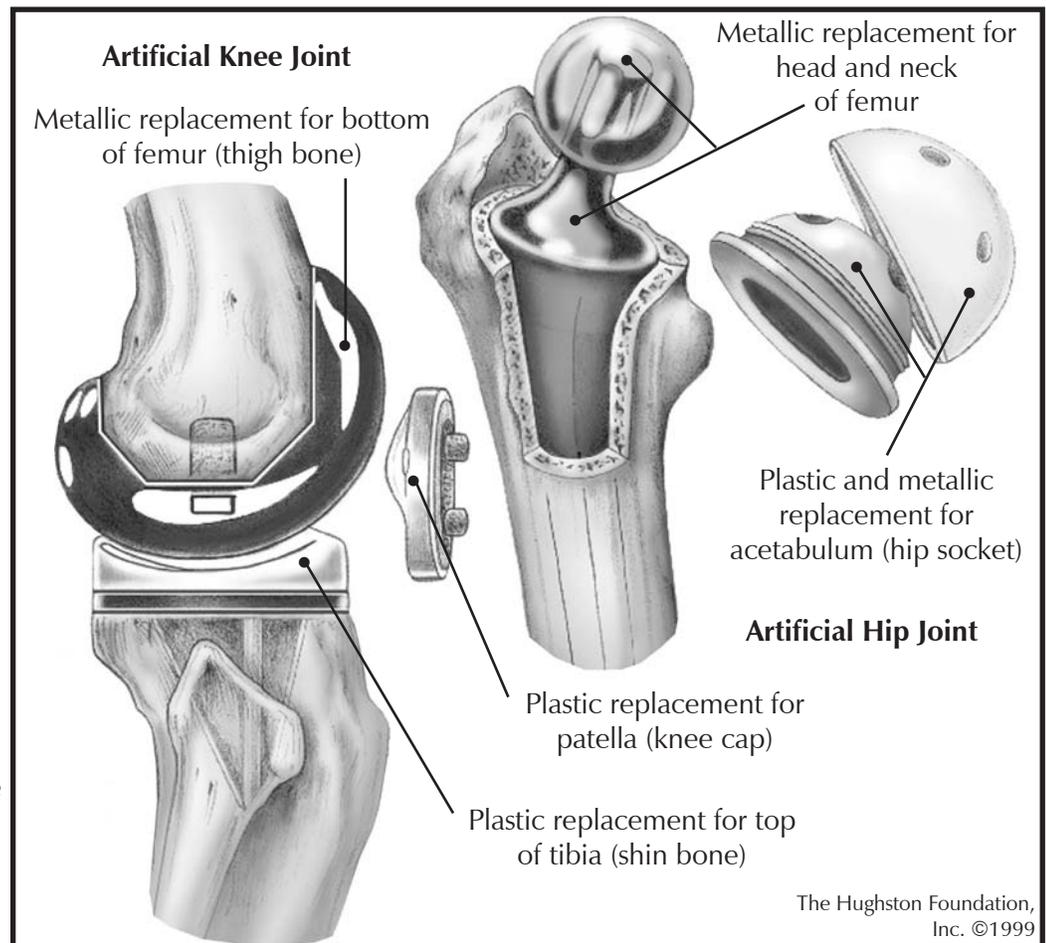
For a Healthier Lifestyle

SPRING, 1999

## Total Joint Replacement

### Getting "Physical" without Overdoing It

Total joint replacements of the hip and the knee have become an extremely successful and relatively common way to relieve pain and restore motion to these joints. As a result of these successes, approximately 200,000 knees and hips are replaced annually in the United States. Because of their physical improvement after surgery, people who have a total joint replacement often expect to be able to participate in any and all types of activity. However, by engaging in certain strenuous activities, a patient can potentially destroy the artificial joint. As younger and younger people have joint replacements, failure of artificial joints is becoming an increasing problem. Although people who have a total joint replacement should limit their participation in



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some sports after surgery, they can participate in a wide variety of activities that will not damage their new joint.

#### Causes of failure

All joint replacements will fail if given enough time and activity. Most joint replacements fail because the replacement becomes loose

or because of osteolysis (bone loss around the artificial joint). These two reasons for failure are intimately related and, for the most part, are due to wear of the joint's weightbearing surfaces. Wear of the joint generates debris. In response to this debris, osteolysis occurs and the replacement subsequently loosens. These failures may require surgical revision.

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In people less than 30 years of age, the single most common factor in failure seems to be increased activity, such as participation in heavy labor, baseball, basketball, and running. Increased activity causes increased wear of the joint's weightbearing surfaces. In fact, about twice as many people under 40 as people in their 40s and 50s need revision surgery, and this need probably results from increased activity. Total hip and knee replacement can provide acceptable results in patients 30 to 50 years of age, and the results can be reasonably long lasting if patients avoid strenuous activity.

In impact-loading activities (such as jumping, running, and lifting more than 40 pounds), more forces than normal are placed on the implant (artificial joint). Impact loading also increases wear on the implant. Researchers have analyzed the forces generated in and around the hip and knee joints, including ground reaction forces, muscle forces, and joint reaction forces. For example, walking

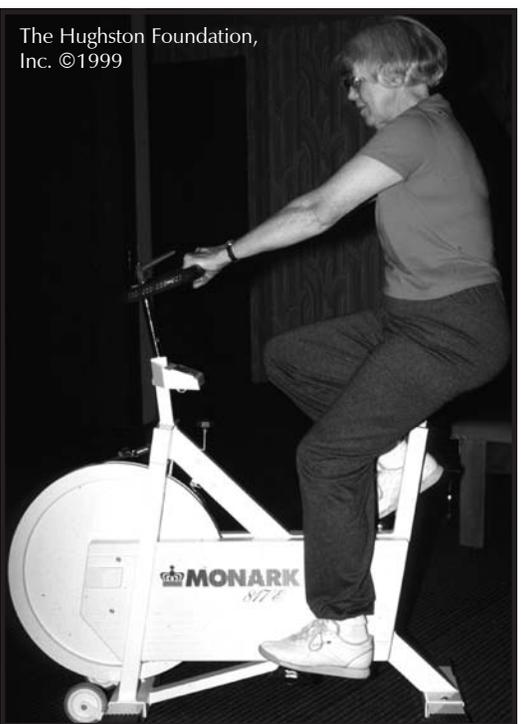
puts forces of approximately 1.2 times body weight on the implant. With running, these forces double to approximately 2.5 times body weight. In sprinting, the reaction forces are tripled to roughly 3.6 times body weight. The greater the forces, the greater the wear on the implant; therefore, forces should be minimized to minimize wear on the implant.

### Alternatives to total joint replacement

People considering total joint replacement need to let their surgeon know what their postoperative goals are. If the goal is to become much more active, then the surgeon may be able to suggest an alternative type of surgery that is more compatible with the patient's expectations. These alternatives include lifestyle changes, the use of external supports, and medical management. Arthroscopic treatment (small camera and instruments inserted in the joint) may be an option if your symptoms are primarily mechanical (catching and locking); however, use of this treatment for joint disease is still debated among physicians. Arthrodesis (fusion of the joint) is an alternative form of hip treatment for young people who have disease in only one hip joint. Nonetheless, convincing people to try such an alternative is difficult because of the outstanding results of joint replacement.

### Sports participation

For the most part, after total hip or total knee replacement, a patient can participate in low-impact sports, such as archery, bicycling, billiards, pool, bowling, cross-country skiing, fishing, golf, non-aggressive doubles tennis, horseback riding, hunting, low-impact aerobics, most shooting sports, rowing, sailing, scuba diving, swimming, and walking. Sports



that generally are unacceptable after total hip or total knee replacement include baseball, basketball, climbing, downhill skiing, football, martial arts, parachuting, racquetball, running, soccer, sprinting, and volleyball. In general, if participation in a sport places undue stresses on the artificial joint, the patient should be a spectator at that activity rather than a participant.

Total joint replacement of the hip or knee is one of the most successful ways to relieve pain and restore function, but remember, you have to take care of the new joint so that it will last. Limiting sports participation to activities that put minimal stress on the joint will enable patients to be active without excessively increasing the need for more surgery.

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*This article is adapted from "Total Joint Replacement Patients Should Stick to Low-Impact Sports," which originally appeared in BioMechanics 5(3):71-75, 1998.*



# Strengthening Your New Joint

After a total knee or hip replacement, you should do exercises to strengthen the muscles that surround and support these joints. Strong leg muscles can help you return to your daily activities after surgery and participate in low-impact sporting activities.

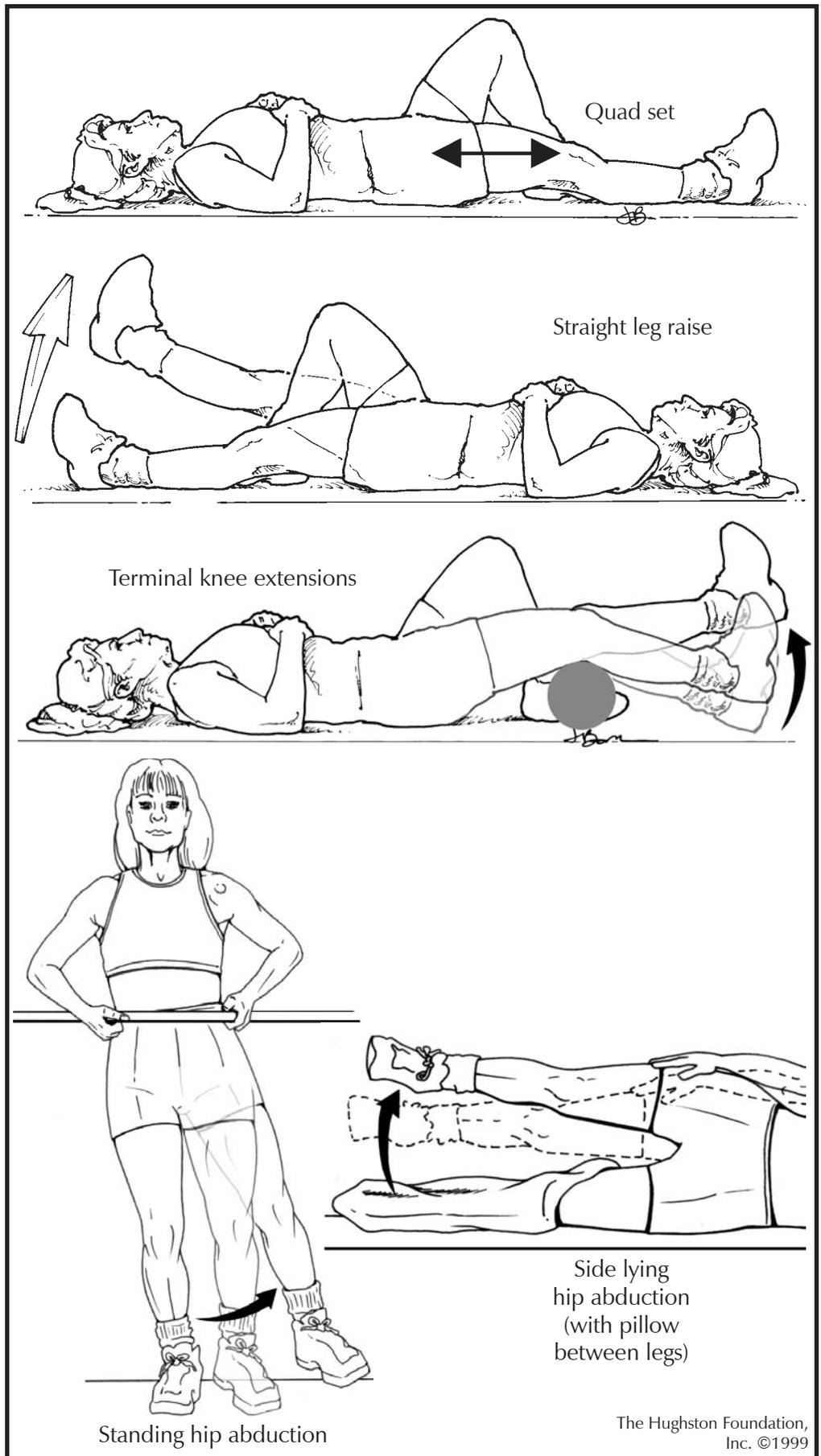
Your exercise program begins in the hospital with a physical therapist. The initial exercises focus on strengthening the quadriceps muscle — the large muscle in the front of the thigh. They include quad sets and straight leg raises after a total knee replacement and quad sets and terminal knee extensions after a total hip replacement.

Once your wound has healed well, your doctor may permit you to progress to hip abductor strengthening exercises, first standing and then lying on the opposite side of the new joint. The hip abductor muscles lie on the outside of your hip and thigh and provide support to your leg while you walk. If these muscles are weak, you may limp and place undue stress on your new joint.

Riding a stationary bike is a good way to continue strengthening your thigh and hip muscles. Your doctor will tell you when you can ride a bike. A good rule of thumb is to wait until six weeks after surgery and to keep the bike seat high.

Before starting any new exercises, be sure to get permission from your doctor and instruction by a physical therapist, including precautions. Remember, while exercising after a total hip replacement, you must follow your hip dislocation precautions. You want your new joint to last for as long as it can!

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Standing hip abduction

Side lying hip abduction (with pillow between legs)

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## Anabolic Steroids

Muscle strength and size play an integral part in the performance of some sports. Building muscle takes time, and each person's body develops differently. Many athletes look for an easier way to build substantially bigger muscles, and more than one million people in the United States find this muscle enhancer in anabolic steroids.

The concept of creating a drug to build muscle originated in the early 1950s. American physicians realized that Soviet athletes were dominating international strength events. They attributed this domination to the athletes' use of testosterone. In their quest for strength, the Soviet athletes also suffered from a large variety of very serious side effects due to their testosterone use. These side effects included severe heart problems, sterility, and death.

Led by Dr. John Ziegler, a group of physicians dreamed of developing a drug that would have the same results as testosterone but would not have the adverse side effects. Unfortunately, Dr. Ziegler's dream turned into a nightmare, and he came to regret his role in the invention of anabolic steroids: "I wish I'd never heard the word 'steroid.' These kids do not realize the price they'll pay."

### Side effects

Use of anabolic steroids carries the high price of many dangerous, and often irreversible, side effects. Side effects in men include sterility, impotence, cancer, heart disease, liver damage, and death. Additional side effects that specifically affect women include voice deepening, increased facial hair, and menstrual irregularity. Anabolic steroids also can cause psychological problems. "Roid rage" has become a characteristic of the steroid user. This psychological side effect is a sudden explosion

of violent and destructive behavior that can result in severe personal injury and property damage, often without any recollection on the part of the steroid user. The steroid user obviously is risking a great deal to gain the strength and muscle size that he or she desires.

### Are any steroids safe?

Anabolic steroids are not corticosteroids. Anabolic is a term that describes the muscle-building capacity of the steroid drug. Corticosteroids, such as cortisone, are used to treat many conditions that require an anti-inflammatory

***Anabolic steroids are not corticosteroids. Anabolic is a term that describes the muscle-building capacity of the steroid drug.***

medication. These conditions include asthma, arthritis, and a variety of joint injuries. Physicians have used corticosteroids for many years to safely and effectively treat a wide variety of injuries and illnesses.

### Doping control

Anabolic steroids are not available without a prescription. However, users buy them on a very active black market that earns an estimated \$100 million each year by feeding the users' desire for these drugs. Many efforts have been made to reduce the effectiveness of this illegal activity.

Drug testing has effectively reduced the incidence of steroid use in some sports. The National Collegiate Athletic Association and the International Olympic Committee have both instituted stiff penalties for

athletes who test positive for steroids. Two of the most noted athletes who have tested positive for steroid use are Brian Bosworth of the University of Oklahoma and Canadian Olympic sprinter Ben Johnson.

Drug testing is only as effective as the sanctions that it carries. The penalties must be severe for athletes to realize that it is not worth risking a career by using steroids.

Why would an athlete want to take anabolic steroids? Many steroid users say that they take them to keep up with other athletes in their sport who are taking them. Others feel that they can't bear the pressure of the sport without the added edge that steroids supposedly give them. Most experts believe that the desire to achieve a certain goal drives athletes to use anabolic steroids. Whether it be the Super Bowl, the Olympics, or a national championship, some athletes will do anything it takes to win — even if that means destroying their own bodies.

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## Epilepsy in the Athlete

Epilepsy comes from the Greek word *epilepsia* that means seizure, or abnormal electrical activity within the brain. A sudden discharge of neurons (nerves) in the brain characterizes this disorder. It can cause sudden involuntary movement of the whole body and, sometimes, loss of consciousness (called grand mal seizures). Some seizures affect only part of the body (called focal, or partial, seizures). An epileptic seizure also can simply change your sense of touch, smell, sight, or sound.

The cause of epilepsy usually is unknown. However, brain injuries, abnormal blood vessels in the brain, brain cancer,

developmental problems, or infection sometimes can cause it. Use of anti-seizure medications, such as diphenylhydantoin sodium,

valproic acid, carbamazepine, or phenobarbital, prevents seizures in more than half of the people who have epilepsy.

Proper sleep and adequate nutrition are also part of the treatment plan. The addition of an exercise regimen to this plan can help improve physical conditioning, self-esteem, and confidence.

### **Dispelling some myths about epilepsy**

Contrary to some beliefs, you cannot “catch” epilepsy from another person. People who have epilepsy usually have normal intelligence and generally lead normal lives. At one time, people believed that children who have epilepsy should not participate in sports. However, with appropriate precautions, most people can participate in some type of exercise and sporting activity.

### **Before you participate . . .**

If you have epilepsy, you and your doctor need to consider the following factors before you participate in a sport: 1) the risk of injury that the sport poses and whether you have any physical impairments that would limit athletic participation; 2) the type and timing of your seizures; 3) whether you have seizures at all and how long it has been since you had your last seizure; 4) medications you take and their potential side effects; and 5) your enthusiasm for the sport.

With a few exceptions, you are not at greater risk for injury than your fellow athletes, and you do not put other athletes at a greater risk for

injury by participating in sports with them. If you do not have seizures, you may not need to alter your lifestyle or take many extra precautions to participate in athletics. However,

if you have frequent seizures, you need to take added precautions when participating in sports.

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### **Sport-specific recommendations**

Endurance sports, such as running and cross-country skiing, are unlikely to precipitate a seizure. Therefore, you usually do not have to take special precautions to participate.

If you choose to participate in contact and collision sports (such as football, hockey, or soccer), take the usual precautions, such as wearing a helmet and proper pads. Participants do not seem to be at additional risk for seizures from the minor head trauma that occurs in these sports.

If you swim, row, or sail, make sure that an experienced swimmer or lifeguard is on hand to observe you during participation. You need to wear a lifejacket or use a “buddy” system. If you have frequent seizures, consult your physician for further recommendations before participating in these activities.

The risk of participation in boxing is not clear. Severe head trauma is known to precipitate seizures, but there has been no conclusive evidence that the cumulative trauma of boxing actually increases the risk of having a seizure. You should take caution (including wearing headgear) and participate at your own risk.

You should take extreme caution if you climb mountains or other heights, especially because these

activities often involve risks to other people. If you have ongoing seizures, you should not participate in these activities. Consult a physician who specializes in epilepsy before embarking on such activities.

If you have frequent epileptic seizures, you should not participate in biathlon, archery, shotgun, rifle, pistol, or other target-shooting sports. If a seizure is precipitated, you can cause harm not only to yourself but also to other competitors and observers. If you have not had an epileptic seizure for at least two years while taking appropriate medications, consult your physician and the appropriate sport governing body to determine if the risk of participation is acceptable.

Participation in gymnastics, especially in events like the balance beam and uneven bars, can be risky for people who have frequent seizures. Having a seizure during one of these events can result in a cervical spine (neck) injury, quadriplegia, or death due to a fall. Many authorities recommend that people who have epilepsy should not participate in these events. Before participating, consult your physician and the appropriate sport governing body.

The International League Against Epilepsy recommends that people who have epilepsy, especially those who have ongoing seizures, should not scuba dive or sky dive.

Just because you have epilepsy doesn't mean that you can't get involved in sports. Knowing your abilities and limitations can help you choose a sport that is fulfilling and safe. Be sure to consult your physician before participating in sports that may precipitate a seizure, especially if you have frequent seizures. He or she can advise you on athletic activities best suited to you.

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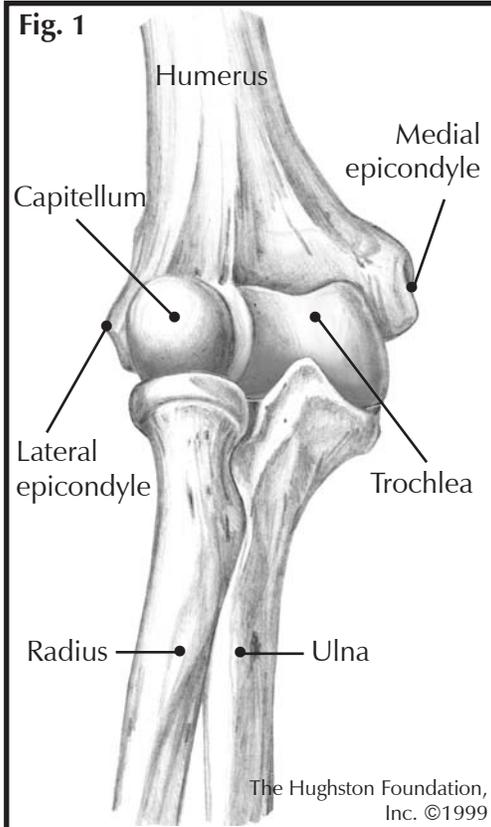
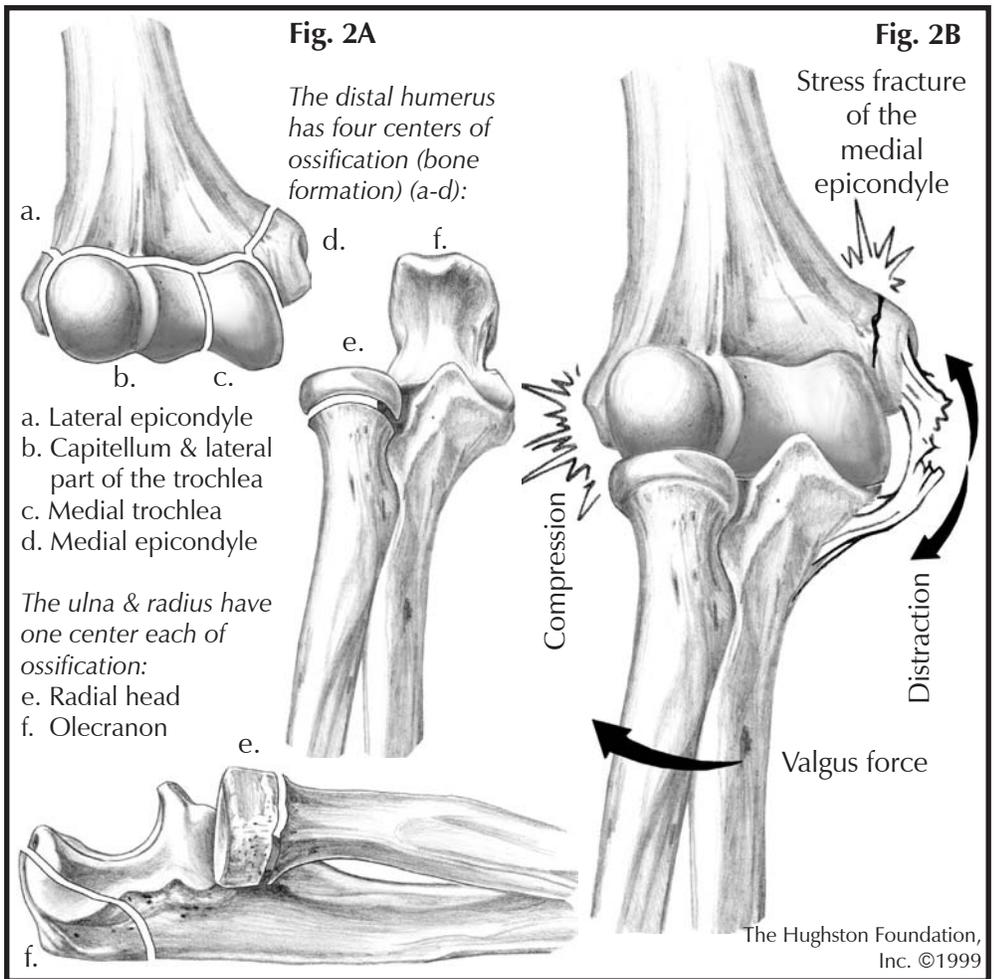
# Little Leaguer's Elbow

## Why Little Leaguer's elbow?

The elbow is the most frequently injured area of the body in children and adolescents who play baseball. Throwing a baseball over and over can lead to chronic (long-standing) elbow pain, changes to the elbow joint, and instability in the elbow. Doctors describe this type of injury as "Little Leaguer's elbow."

## Anatomy and causes of injury

The ends of three bones — the ulna, radius, and humerus — meet to form the elbow joint (Fig. 1). In children, the bone ends have areas called physes (growth plates) where the bone grows (Fig. 2A). Throwing a baseball over and over can stress these growth plates and lead to injury in improperly conditioned elbows. The biggest risk factor for injury is a misguided training regimen — **too much, too soon**.



## What is the most common injury?

A stress fracture (crack in bone caused by overexertion) of the end of the humerus (upper arm bone) is the most common injury. When a youngster repetitively throws a ball, the ligaments (tissues connecting bones) and tendons (tissues connecting muscle to bone) put tension on this bone end. Over time, this tension causes inflammation of the growth plates and, ultimately, a stress fracture (Fig. 2B).

This fracture often causes activity-related pain on the outer side of the elbow, tenderness over the affected portion, and diminished pitching effectiveness. The symptoms usually disappear after resting the elbow for two to three weeks. If the symptoms do not end with rest or if the stress fracture is displaced significantly, the young athlete may need surgery.

## Cartilage injuries

Over time, repetitively throwing a ball may injure the cartilage (tissue that covers and protects the bone ends). The cartilage is fragmented, and small pieces of tissue may become loose in the joint. Symptoms usually include acute (recent), activity-related pain; tenderness in the outer portion of the elbow; and decreased elbow motion. Loose tissue may cause a sensation of catching in the joint.

To treat these disorders, the child first must rest the elbow until the symptoms subside. Next, he or she does exercises to improve elbow motion, eventually participating in a supervised throwing program. If this treatment fails to relieve symptoms or if loose tissue continues to catch in the joint, the injured child may need surgery.

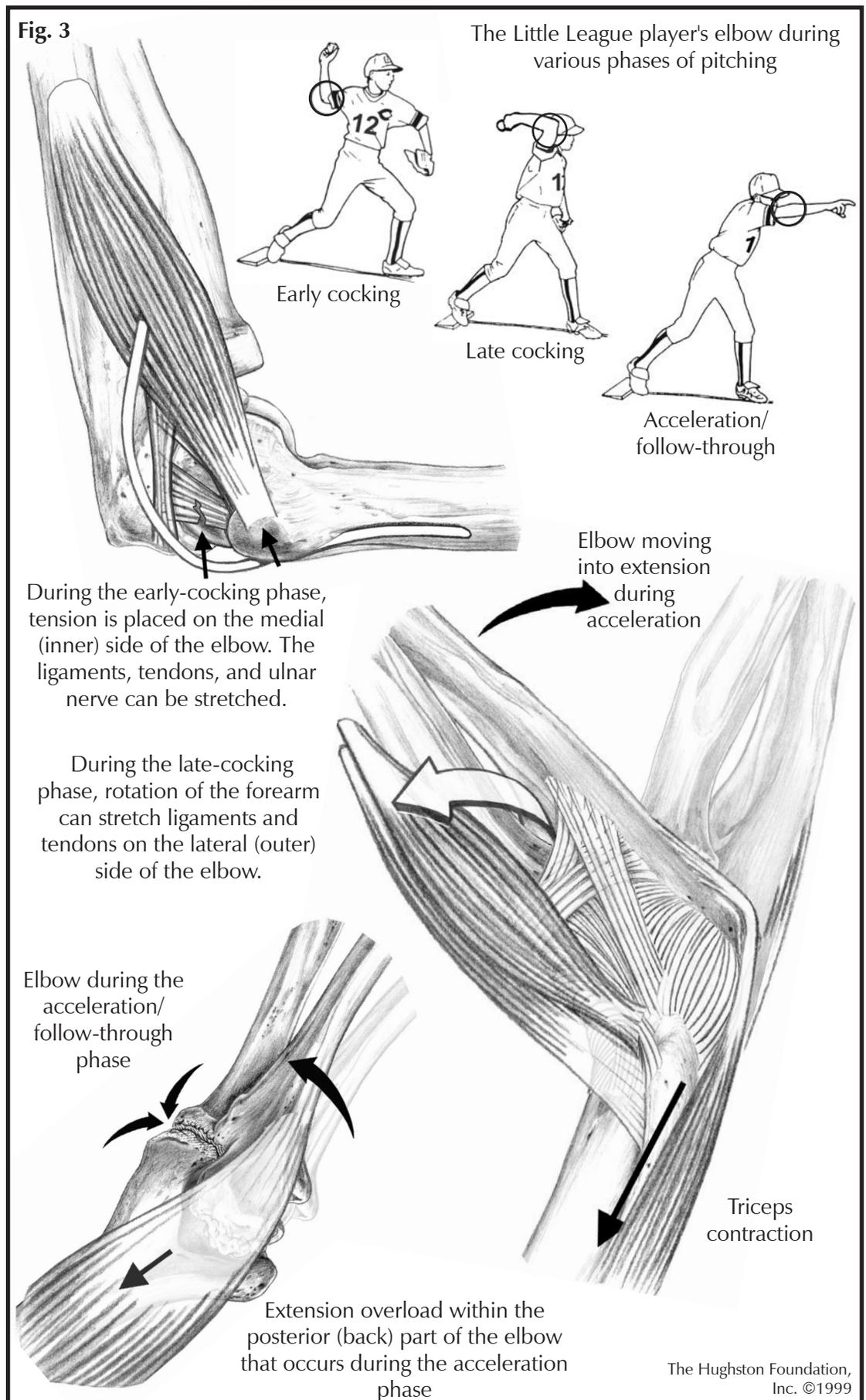
## Forearm injuries

As the triceps muscles pull across the elbow, they can put stress on the back of the joint. Repetitive stress can cause inflammation of the end of the ulna (forearm bone) and stress fractures (Fig. 3). These disorders cause mild pain and tenderness in the back of the elbow. Often, the symptoms go away with rest, the use of ice and nonsteroidal anti-inflammatory medications (such as ibuprofen), and participation in a carefully monitored throwing program. If the child has a fracture that does not heal, he or she may need to have surgery.

## What can we do to prevent this disorder?

Parents and coaches must work with children and adolescents to prevent Little Leaguer's elbow. Little League Baseball, Inc. limits pitching to six innings per week, with mandatory rest periods between the player's pitching appearances. In addition to limiting throwing, prevention can include assessing the way the young athlete throws the ball and initiating an appropriate, gradually increasing, pre-season throwing program. Ultimately, education is the key to prevention. Players, parents, and coaches need to learn about the potential hazards of throwing injuries and excessive pitching. Through education, adults can help children and adolescents have fun and avoid injury.

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## How to Avoid Blisters

Whether you hike, row, run, or shoot hoops, you are always at risk of developing blisters. The primary way to prevent a blister from forming is to reduce friction on the skin. Proper shoe and sock wear plays a key role in preventing blisters from forming on your feet. Choose a good-fitting shoe designed for your specific activity rather than an all-purpose or cross-training shoe. A good fit allows about a thumb's width of space between the end of the shoe and the tip of the longest toe. Wear layers of socks or special double-layered socks instead of one pair of thick socks. Keep your feet as dry as possible during exercise. Polypropylene socks wick moisture away from the skin more effectively than cotton socks do. Conditioning the skin by gradually increasing activity also helps to prevent blister formation. This method allows calluses, rather than blisters, to form.

When participating in certain sports, you can develop blisters on your hands. Protect your hands with gloves appropriate for the sport.

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