Hughston Health Alert

6262 Hamilton Road P.O. Box 7457 Columbus GA 31995-3199

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ANTERIOR KNEE PAIN

Many Causes for Similar Symptoms

JUMPER'S KNEE

Joe just started basketball practice three weeks ago; he hasn't been injured, but now he's complaining that his knee aches.

Jumper's knee is a condition characterized by pain at the front of the knee. It is also known as *patellar tendinitis* or *quadriceps tendinitis*. The pain is usually over the patellar tendon, but it can also occur at the point where the quadriceps tendon attaches to the patella (see Fig.1, p.2). As its name suggests, jumper's knee is usually seen in running and jumping athletes such as basketball players.

The first symptom is a mild ache during sports that goes away shortly after playing. There may be some mild stiffness after sitting or squatting. If the offending activity is continued, the pain becomes more and more severe and lasts longer and longer after the activity is stopped. Symptoms can progress to the point of being disabling--not only for athletic performance but for activities of daily living. Even simple walking can result in pain.

Although x-rays are normally taken to rule out other causes of knee pain, a physician can usually make the

Continued on page 2, column 1

OSGOOD-SCHLATTER APOPHYSITIS

Osgood-Schlatter apophysitis is the most common condition of a whole group of disturbances sometimes called "growing pains." It occurs in adolescence and is seen most frequently in boys, and occasionally in girls, who are between the ages of 11 and 15 and who are active in sports. The onset of symptoms can often be associated with a recent period of rapid growth.

Complaints include pain, swelling, and tenderness over the tibial tubercle, a bony projection just below the knee cap. They can be aggravated by activities such as jumping or going up and down stairs, or by direct pressure such as kneeling. In some cases the tibial tubercle may be enlarged, but there is no effusion, or fluid, in the knee joint.

An *apophysitis* is an inflammation of an apophysis, or bony projection at which a tendon or muscle attaches to a bone. In 1903, Osgood and Schlatter published descriptions of this inflammation of the area where the patellar tendon attaches to the tibia. It is often called Osgood-Schlatter *disease* although it is not actually a disease.

The cause of this apophysitis is not

Continued on page 2, column 2

diagnosis from the patient's history and a physical examination.

Just as there are many degrees of severity of jumper's knee, there are many treatment options. Physical therapists may help by teaching ways to strengthen and stretch the involved muscles. The therapist may show the patient how to use heat before and ice after athletic participation. These are all activities the patient can do on his or her own, several times a day. Modalities, such as ultrasound and iontophoresis, may be used to enhance the exercise program. The physician may also prescribe nonsteroidal anti-inflammatory drugs. These drugs work by decreasing both inflammation and pain.

Only in rare cases are more aggressive measures necessary. Most "jumpers" should expect to return to their sports within several weeks if a proper conditioning program is followed.

David Keyes, M.D.
Miami, Florida

clear but is probably related to the pulling of the patellar tendon on the tibial tubercle, or apophysis (Fig. 1), causing inflammation and perhaps even detachment of fragments of cartilage and bone from the tubercle.

Osgood-Schlatter apophysitis is a self-limiting condition that ends with the closure of the growth plates--that is, when the bones finish growing. Treatment is focused on relieving pain and lessening the pull of the patellar tendon on the tibial tubercle. Stretching the hamstrings can lessen this pull significantly (Fig. 2). Straight leg raises should also be part of the exercise program. Because the symptoms are relieved by rest, limitation of sports activities is sometimes advised during flare-ups. Although symptoms may persist longer than jumper's knee, an ultimate return to full participation can be expected with time and therapy.

Eduardo Robles-Caballero, M.D.
Ensenada, Baja California

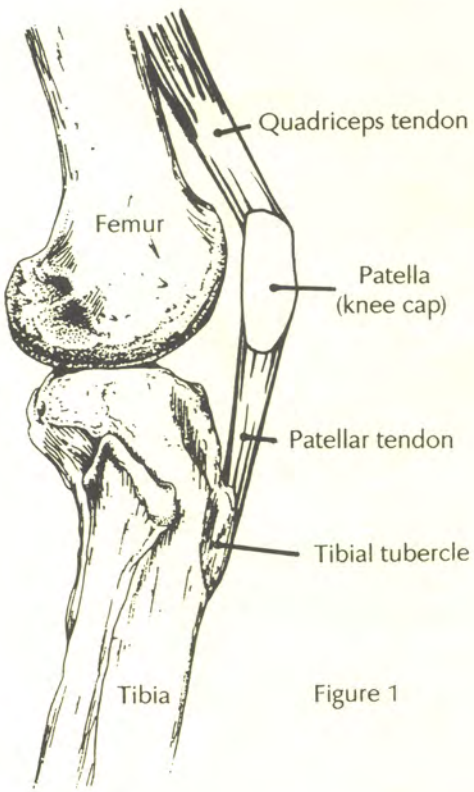


Figure 1

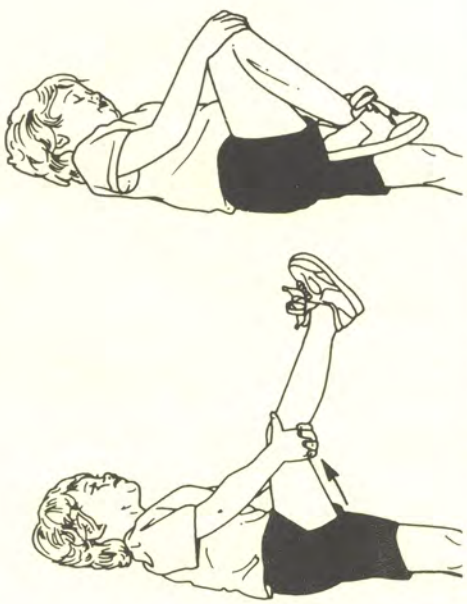


Figure 2
Hamstring Stretch

TRAINING FOR A BETTER LIFESTYLE

Conditioning for Ankles

"Coach, I need my ankles taped 'cause I got weak ankles." What this athlete really has is ankles that have not been properly conditioned. Many athletes may still feel more secure with tape on their ankles, but proper conditioning will help prevent most common ankle injuries.

Ankle structure

The ankle is a hinge-type joint between the bones of the lower leg and the bones of the foot. The major stabilizers of this joint are the medial (inside) and lateral (outside) ligaments. The very strong, fan-shaped deltoid ligament controls the inside of the ankle; the outside ligaments are smaller, but greater in number.

The muscles of the lower leg also contribute to the stability of the ankle. The big, powerful calf muscles are the muscles of plantar flexion, or pointing the toes. They help us push off when we run or jump. The muscles on the front of the lower leg are dorsiflexors that help us pull up our feet and toes when we walk or run to keep us from falling over our feet. It is the dorsiflexors that help the ankle ligaments maintain ankle stability.

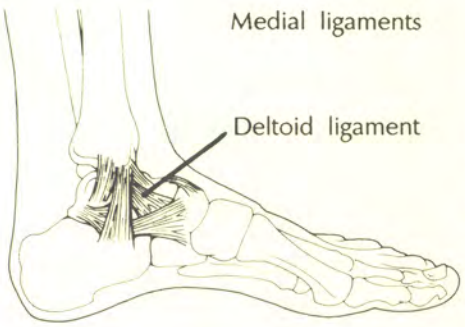
Ankle strengthening

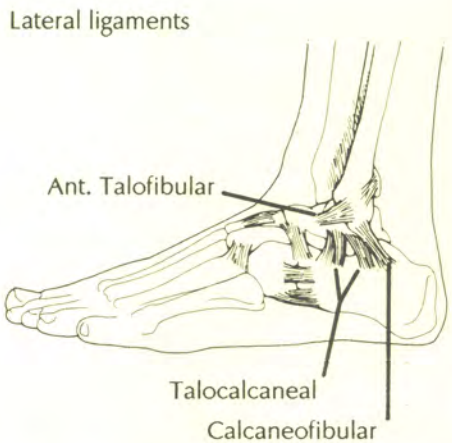
Toe raises and heel raises are helpful strengthening exercises. While standing, pull your toes up off the ground and hold for 5 counts; lower them slowly, and then rise up on your toes for 5 counts; repeat 50 times twice a day. This exercise strengthens the ankle dorsiflexors and plantar flexors.

Specificity of exercise is a principle that should be used in conditioning. For example, basketball players should work on a basketball-related activity. Short sprint work combined with long

distance endurance running is in order. Running on the same type of surface as the competition surface is also important.

Balance is often neglected in helping an athlete compete injury-free. Work on balance by simply standing on one foot for 1 minute, then switch to the opposite foot. As you advance, try this exercise with your eyes closed.





Stretching

Well-conditioned ankle ligaments are vital for ankle strength and stability, but a well-stretched Achilles tendon is equally important in avoiding ankle injury. The how-to's of heel cord stretching were detailed in the last issue of the *Hughston Health Alert* (Vol. 1, No. 3, Summer 1989). This kind of stretching should be part of the ankle conditioning program, and it should also be a routine part of the warm-up period.

Warm up

The warm-up period is a gentle workout over 5 to 10 minutes that includes stretching joints, ligaments, muscles, and tendons. Blood flow to muscles and tendons gradually increases and there is time for lubrication of joints with synovial fluid (a natural lubricant in joints). Most athletes, from the weekend warrior to the professional, want to get out and compete but don't want to take the time to warm up or stretch properly. If they would only realize how important those few minutes are and how much their performance would be improved, they would be more anxious to stretch.

Barney Poole, M.Ed., P.T., A.T.,C.
Columbus, Georgia

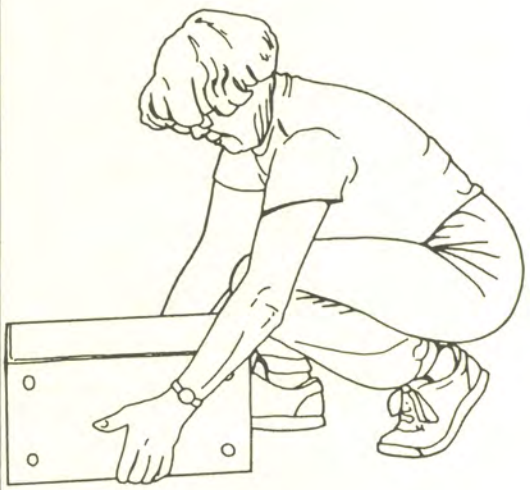
THE AGELESS ATHLETE

Lifting

Are you prepared?

Back sprains and strains are the most common orthopaedic injuries. People seldom realize that a strong back is central to most activities--not only lifting, stooping, pushing, and pulling, but also running, standing, and even sitting. You need strong back muscles for lifting and for prolonged activities like standing and sitting.
Consider that unless you work at keeping your back strong, it's probably weaker than when you were a teenager. Even if you work out in a gym, most exercise regimens ignore the important extensor muscles of the back. Even if you do include these muscles in your exercise routine, 10 to 15 repetitions of an exercise 2 or 3 times a week will not prepare you for a weekend of moving furniture.

Using proper body mechanics will maximize the strength you have as well as help to prevent an injury when you lift and move heavy objects. To use your back properly, hold it as nearly vertical as possible, with a good arch in the lower back. Keep loads close to your body. When lifting, bend your knees so that you can hold your back relatively straight, not bent over the object. It is much easier on muscles to hold bones stationary than to move them back and forth. If you bend over an object and expect the fairly small muscles of your back to straighten up without injury, you're asking for trouble. That is why you should use the broad muscles around your ankles, knees, and hips to move these three larger joints rather than try to coordinate all the small muscles around the multiple small joints of your spine.



When you look at a skeleton, you can see how holding the spine vertically distributes the weight between the facet joints toward your back, the discs in the middle, and the abdominal cavity toward the front. The abdominal muscles contract around the abdominal cavity, making a kind of hydraulic system by compressing the contents of the abdomen and jacking your weight up off your spine.

It is important to "size up" the object before you lift. "Too heavy" means just that, so **don't lift** the object. It only takes one object that is too heavy to injure your back. Also take into account the fact that muscles fatigue. Resting and stretching between each lift will prolong your endurance.

And don't forget that good lifting mechanics includes knowing about **and using** hand-trucks, ropes, pulleys, and levers, all of which were invented to maximize the strength you have.

Herb Silver, P.T.
Columbus, Georgia

Athletic Training Corner

Certification of Athletic Trainers

Athletic trainers are certified by the National Association of Athletic Trainers (NATA). To become an NATA-certified athletic trainer (A.T.,C.), one must meet these requirements:

- Bachelor's degree (either **A** or **B**):

A. Degree in athletic training or sports medicine from an NATA - approved curriculum that includes 800 hours of work experience under the direct supervision of an NATA-certified athletic trainer.

B. Degree in any field (e.g., history, business, physical education), with 1500 hours of work experience under the direct supervision of an NATA-certified athletic trainer. The hours must be completed within 2 to 5 years. Specific courses must include: health, human anatomy, exercise physiology, kinesiology/biomechanics, physiology, basic and advanced athletic training.

For both **A** and **B**, 25% of the work must involve game/practice coverage on location for one or more "high risk" sports (football, soccer, hockey, wrestling, basketball, gymnastics, lacrosse, and rugby).

- Certification in American Red Cross Standard First Aid and Basic CPR.
- Successful completion of the NATA certification examination.

Turf Toe

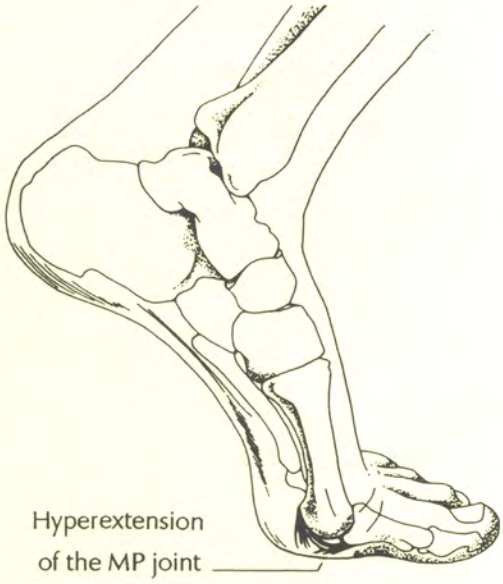
Technology tackles the big toe

Turf toe, an injury to the big toe that commonly occurs in football but has also been reported in other sports, was virtually unheard of before the advent of artificial turf. Turf toe is a sprain or tear of the ligament on the bottom of the joint between the big toe and the rest of the foot (the metatarso - phalangeal, or MP, joint). It is surprisingly disabling and can keep a player out of action for up to 6 weeks.

The reasons that most turf toe injuries occur on artificial turf are not entirely clear. Artificial turf does not absorb shock as well as grass surfaces do and its shock absorption capability deteriorates with use. When a force is exerted on the foot during play, less force can be absorbed by the turf, leaving the foot to suffer the effects of most of the force.

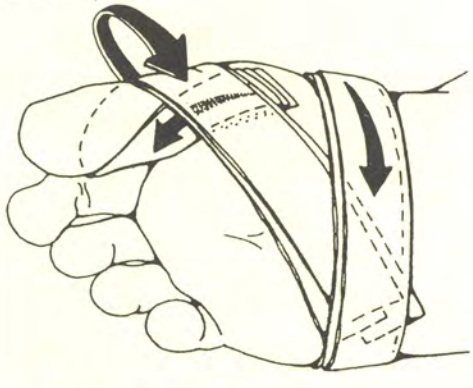
About 85% of turf toe injuries result from forced hyperextension of the big toe that occurs when the heel is off the ground and the toes, especially the big toe, and the ball of the foot are supporting the body's weight. For example, if someone falls across the calf of a runner's back leg as he is pushing off, his big toe may be forced to hyperextend. A player who pushes off too vigorously from a stance position can also hyperextend his big toe. It is not surprising that turf toe is most common among wide receivers, running backs, and offensive linemen.

Many people feel that lightweight, flexible, rubber-soled football shoes are an important factor in turf toe injuries. The "old style" shoe has a steel plate in the forefoot, which severely limits flexibility. It makes sense that a shoe with a flexible forefoot would more readily allow hyperextension, but until there are more studies, it may be premature to incriminate the lightweight shoes. According to information that is available, the best way to prevent turf toe is to avoid playing on artificial turf. However, before we can realistically discuss prevention, the actual relationships of playing surfaces and shoes to turf toe need to be clarified.



Diagnosis is based on what happened, how it happened, and where it hurts. X-rays are needed to rule out fractures; breaks or cracks in the bones of the metatarsophalangeal joint may be the cause of the pain or may occur along with the turf toe injury. The joint is usually red, swollen, and tender, especially on the undersurface, where the ligament has been torn. Within 24 hours, this area may be "black and blue" due to bleeding from the torn structures.

Frequent icing and elevation help decrease swelling. There are various ways to decrease joint movement to relieve pain and allow healing. Taping the joint to prevent extension is one of the simplest.



The toe can also be "buddy-taped" to the next toe. A cast shoe with a rigid sole, an insole that reinforces the forefoot with spring steel or hard plastic, or a custom-fit orthotic with rigid toe support can be used. Crutches or a cane may be necessary right after the injury. The injured athlete should gradually progress to normal pain-free walking, then jogging, then sprinting, and then cutting maneuvers. Insoles or orthotics that reinforce the forefoot and limit movement of the big toe should be used throughout the return to full activity.

Since loss of motion is a common problem after recovery, flexibility and strengthening exercises for the toe should be prescribed. One exercise is curling up a towel with the toes. Picking up small objects with toes can also be helpful.

Dan Joyce, M.D.
Lancaster, Pennsylvania

Smokeless Tobacco

Dipping into danger

Substance abuse by athletes has become an almost routine topic, more common on the daily sports page than in the scientific journals. The addictive substance that may be the most widely abused among athletes, however, is afforded little attention in the press.

Smokeless tobacco has entrenched itself firmly in our culture; it is associated with outdoorsmen, cowboys, and other traditional American male role models. The image of the faded round patch in the dusty back pocket of the jeans is a powerful one, a symbol of the independent American man who is unafraid of defying conventional rules. There is something a little more ominous in that little round can, though, than a dose of independence.

Because the active substance in tobacco is nicotine, smokeless tobacco is highly addictive. This habit-forming property assures long-term exposure, which will aggravate negative health consequences.

What it is

Smokeless tobacco exists mainly in three forms: looseleaf (chew), compressed (plug), and snuff, which can be either moist or dry. Although snuff may be sniffed, the tobacco is usually placed between the cheek or lip and the gums--the practice is called "chewing" for looseleaf and plug, and "dipping" for snuff. Many products are sweetened or have flavor additives, such as licorice. The excess secretions resulting from use are spat (ideally, not swallowed) at regular intervals.

Why it is dangerous

Although smokeless tobacco has been touted as a "harmless" habit, the adverse effects have been well documented. The link to oral cancers, especially with snuff use, is strong. These cancers usually appear only after prolonged and regular exposure, but case reports of fatal malignancies arising from the use of smokeless tobacco do exist.

The mouth's soft tissues are extremely sensitive to changes induced by exposure to tobacco products because of the potent carcinogens they contain. White patches in the mouth, called *leukoplakias* (lu-ko-pla'ki-ahs), commonly develop at the site of tobacco placement. In a recent survey they were seen in almost 50% of professional baseball players who were regular users and who underwent oral examinations. Leukoplakias are pre-cancerous in a small but definite number of cases.

Other mouth problems include bad breath, dental caries (cavities), and gum (periodontal) disease, particularly gum recession, which can cause tooth and surrounding bone loss.

What it does not do

Smokeless tobacco users, especially athletes, claim that dipping or chewing gives them a heightened sense of awareness, thus enhancing reaction time and improving performance. In fact, controlled studies have failed to demonstrate any such improvement. What has been shown is that heart rate and blood pressure increase, and the user may perceive this cardiac stimulant effect as a heightened sense of perception.

Who uses it

There have been many surveys and estimates of the incidence of smokeless tobacco use. About 6 to 10 million Americans dip or chew regularly. What is more disconcerting is the population of users. The highest rates of use are seen among teenage and young adult males; on average, regular use begins by age 12.

What can be done

The notion that smokeless tobacco use is harmful only to the user is false and misleading. Young users are susceptible to influences from peers, from role models and media images, and from family attitudes. They don't really care about statistics, facts, and figures--what their favorite player with the prominent chaw did in last night's game speaks volumes louder.

The burden of education falls not only on dissemination of information, but on modeling behavior. The coach who chews, the athlete who dips, the health professional who looks the other way should remember this burden. After all, there is more hope in preventing the start of this habit than there is in breaking the addictive pattern once it has begun.

Bill Cappiello, M.D.
Santa Clara, California

NUTRITION

Reducing Sodium Intake

Because reducing the amount of sodium in the diet can help reduce high blood pressure and the need for hypertensive medication, physicians usually tell their patients with high blood pressure to restrict or eliminate their use of salt. Salt is certainly the major source of sodium in the American diet, but salt and sodium are not the same. Salt is composed of 40% sodium and 60% chloride. One teaspoon of salt contains 2300 milligrams (mg) of sodium, well above the body's daily requirement of 200 mg. Americans' average daily intake of sodium is 4000 to 5000 mg. Luckily, the taste for salt is acquired, so a gradual reduction in salt intake will make adaptation to a low-sodium diet easier.

Sodium sources

Foods to be avoided on a low-sodium diet include all foods processed with salt (sodium chloride) and other forms of sodium, such as sodium nitrate, sodium propionate, and monosodium glutamate (MSG). Convenience foods and frozen meals are especially high in sodium. Soups, bouillon, canned vegetables, cheese, buttermilk, pickles, soy sauce, salted snack foods, and salted meats (bacon, for example) contain large amounts of sodium. Some of these products are now available in reduced-sodium versions, so some favorites may not have to be given up entirely.

Foods low in sodium include fruits and juices, raw vegetables, fresh fish, meats without added salt, certain breakfast cereals, and seasonings and spices without the word "salt." If in doubt about the sodium content of a food, check the label for the words "salt" and "sodium." If these words are in the top three ingredients, there is usually a significant amount of sodium in the product.

Other minerals

Latest research suggests that low calcium and low potassium intakes may be related to high blood pressure. At the same time that hypertension-prone individuals are lowering their daily intake of sodium, they should be sure that the foods they consume supply ample amounts of calcium and potassium. Low-fat dairy products and leafy dark green vegetables are good sources of calcium. Fruits (especially bananas), green vegetables (especially broccoli), legumes, and potatoes are good sources of potassium. These foods are easy to include frequently in a low-sodium diet plan.

Raette Schafer, R.D.
Columbus, Georgia

Mediterranean Pork Chops

A low-sodium main dish

4 loin pork chops, 1/2 inch thick, well trimmed
1 teaspoon oil
1/2 teaspoon marjoram
1/8 teaspoon garlic powder
1/8 teaspoon onion powder
1/8 teaspoon black pepper
1/2 cup water

Brown chops in oil in large skillet. Pour off fat. Mix seasonings together and sprinkle over chops. Add water and cover tightly. Reduce heat and simmer over low heat 1 hour or until tender. Yield: 4 servings, each about 50 mg of sodium

From: *Cooking Without Your Salt Shaker,*
The American Heart Association
Northeast Ohio Affiliate, 1978

Hypertension?

Don't panic!

Are you "hyper"? Do you feel "tense"? Then maybe you have hypertension, right? Not necessarily so. There is little or no correlation between these feelings and hypertension. The only way to tell if you have hypertension is to have your blood pressure checked.

What is hypertension? This is a commonly misunderstood word that simply means elevated blood pressure. Well then, what does that mean? Blood is a measure of the pressure inside your arteries as the heart pumps blood through them. The measure is given as a ratio, such as 120/80 ("120 over 80"). The top number is the systolic pressure, the peak pressure generated by the pumping action of the heart. The lower number is the diastolic pressure, the pressure remaining in the arteries during the resting phase of the heart's pumping cycle. Thus, if your blood pressure is 120/80, the systolic, or peak, pressure is 120 and the diastolic, or resting, pressure is 80. A blood pressure of 140/90 or greater is generally considered elevated and a blood pressure of 160/95 or greater constitutes hypertension.

Why is a blood pressure of 140/90 considered elevated? More than 20 years ago, the Veterans Administration undertook a long-term study of thousands of men, observing their health and correlating it with their blood pressure. The study had to be terminated early because it was clear that men with severely elevated blood pressure died from strokes or heart attacks at an early age. When the data were analyzed statistically, the conclusion was that blood pressures of 140/90 or greater increased risk for early development of stroke, heart attack, or atherosclerosis (hardening of the arteries).

What is "normal" blood pressure? In practical terms, normal blood pressure has no meaning; a blood pressure is either elevated or it isn't. If it isn't, there's nothing to worry about (unless it's too low); if it is, you need to seek medical advice.

How do I feel if my blood pressure is elevated? The answer is simple--you feel perfectly normal. That is why hypertension is called, somewhat sensationally, "the silent killer." You may have a very elevated blood pressure and not realize it. Periodic blood pressure checks are an important part of anyone's health maintenance.

If my blood pressure is elevated, does that mean I have to take medicine the rest of my life? Not necessarily. When your blood pressure is elevated, you should be under the care of a physician who is accustomed to managing hypertension. If it is extremely high, medication may be started right away. If it is only mildly elevated, medication may not be necessary at all. Three non-medication treatments for elevated blood pressure are a diet low in salt (sodium), weight reduction (if you are overweight), and regular exercise. Not only is regular exercise helpful in controlling weight, but there is evidence that physical conditioning lowers arterial pressure.

Is hypertension dangerous? In the long run, yes, because it can shorten your life expectancy, but in the short run, hypertension rarely represents a crisis or emergency situation. Finding out that your blood pressure is elevated should provoke concern but not panic. A carefully planned program of evaluation and management is more effective than an emergency attack on the problem. In the vast majority of cases, hypertension calls for a lifetime plan rather than stop-gap measures. That is why lifestyle adjustments such as diet and exercise can be so vitally important.

J. Ronald Hunt, M.D.
Columbus, Georgia

Seasoning without Salt

Pork
Rosemary, sage, basil, caraway seeds, cloves, black pepper, marjoram

Beef
Bay leaf, black pepper, onion, green pepper, garlic

Fish
Dill, lemon juice, basil

Lamb
Curry powder, marjoram, mint

Poultry
Sage, thyme, lemon pepper, bay leaf, dill, tarragon, paprika

Veal
Basil, rosemary, lemon juice

Eggs
Mushrooms, onion, parsley, black pepper

Vegetables
Lemon juice, dill, marjoram, nutmeg, onion, thyme, sage, tarragon, dry mustard, curry powder, chives, garlic, basil, rosemary, parsley, red pepper

Read the Label

It says--	It means--
"Reduced sodium"	"Reduced from the food's original content"
"Low sodium"	"Less than 140 milligrams per serving"
"Very low sodium"	"Less than 35 milligrams per serving"
"Sodium-free"	"Less than 5 milligrams per serving"

EQUIPMENT REVIEW

Silicone Casts

Playing with the breaks

The season need not be over just because of a cracked bone in the wrist.

Silicone casting materials protect injured wrists, hands, forearms, and lower legs, and yet allow athletes to continue actively participating in their sport. Because of silicone's semi-rigid properties, it falls within acceptable guidelines outlined in officiating manuals for high school, college, and professional athletics.

RTV 11 is a silicone product of General Electric that has been used for some time as a means of protecting injured athletes. It requires a hardening catalyst and is applied by impregnating a thick layer of gauze wrap over the injured area. Three hours are then needed for the substance to vulcanize. The finished silicone cast is removed with scissors and can be reapplied numerous times just prior to sporting events.

Another silicone product suitable for athletic use is Scotchrap Semi-Rigid Support Wrap, recently introduced by 3M. This is applied like fiberglass casting material; that is, it is rolled on after a brief submersion in water. Since it requires only minutes to set, it may be applied at or during the sporting event.

Henry McRae, O.T.R./L.
Columbus, Georgia

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 Orthopaedic Clinic, P.C., of physical therapists and trainers at Rehabilitation Services of Columbus, Inc. and Committed Fitness Systems, of physicians who trained as residents and fellows under the auspices of the Hughston Sports Medicine Foundation, Inc., of research scientists and other professional staff at the Foundation, and of authorities in related medical disciplines invited to contribute their expertise. 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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CALENDAR

Hughston Sports Medicine Foundation

Chattahoochee Valley Arthritis Club

First Thursday of every month
(Nov. 2, Dec. 7, Jan. 4),
7:00 p.m. to 9:00 p.m.
Call Vivian at (404)323-9424 or
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