Hughston Health Alert

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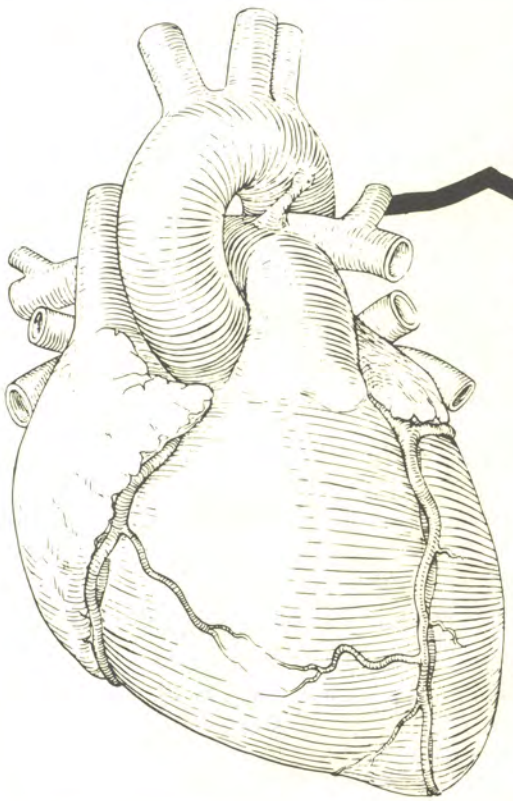

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CARDIAC ARRHYTHMIAS AND EXERCISE

Concern about the safety of exercise has intensified since the recent exercise-related deaths of several prominent athletes. The majority of these sudden deaths were the result of cardiac arrhythmias (variations from the normal rhythm of the heart beat). Although other causes of sudden death such as stroke, pulmonary embolus (blood clots to the lung), seizures and ruptured aneurysms (weak blood vessels) are recognized, cardiac arrhythmias are the primary cause of deaths that occur during or just after exercise.

The heart's sensitive rhythm and regularity are extremely responsive to outside stimulation. We have all felt our hearts race during physical exertion, emotional turmoil, and surprise reactions. Many of us have experienced the extra heart beats caused by too much caffeine, asthma medication, or nicotine. The feeling that the heart is "somersaulting" inside the chest naturally causes concern and can lead one to seek professional advice. The following precautionary guidelines may reduce the risk of exercise-related sudden death.

Have a pre-participation checkup, especially if you are over the age of 40.

A complete examination that sometimes includes additional tests such as an EKG, treadmill, and chest x-ray can uncover conditions indicating possible problems. Hypertension, abnormal heart rhythms at rest or during exercise, and heart murmurs or other abnormalities can be detected and problems can be prevented before they occur.

Exercise within your capabilities and develop an exercise plan that permits conditioning to occur.

Significant problems can occur when one exercises vigorously before conditioning the muscles and adjusting to the environment. A gradual program of increasing intensity and duration is recommended.

For the heart, the cool-down period is the most important part of exercise.

In many cases, exercise-related sudden death occurs in the locker

room or shower--not on the track or court. Vigorous exercise triggers the release of adrenalin in the body. The sudden cessation of exercise combined with high levels of circulating adrenalin can cause fatal heart rhythms. Therefore, the cool-down period is essential.

Learn cardiopulmonary resuscitation (CPR) and encourage those with whom you exercise to do the same.

CPR is easily learned with a few hours of qualified instruction from American Heart Association or American Red Cross volunteers. It is tragic to know you could have saved a life if you had only taken the time to learn how.

If you smoke, please stop. If you are thinking about starting, please don't.

With all that is known about the bad effects of nicotine on the cardiovascular system, isn't it foolish to exercise and then light up a cigarette?

George W. Shannon, M.D.
Columbus, Georgia

Heart Disease: What Are The Risks?

Many people are aware that smoking cigarettes increases the risk of coronary heart disease, but few realize that this factor and others associated with a higher rate of heart disease can often be modified or eliminated. The press, the U.S. government, and organizations such as the American Heart Association play an active role in educating the public about these risks.

What is the most important risk factor that can be modified?

Smoking. The most important change anyone can make is to stop

smoking, which also decreases the risk of cancer and lung disease. Although some people gain weight when they stop smoking, it is better to be 5 to 10 pounds overweight than to be a smoker with a thin waist line.

Can other risk factors be modified?

Yes. Risk factors such as high blood pressure (see Hypertension, p.6), diabetes, high cholesterol, excessive stress, and obesity can be altered through changes in behavior. High blood pressure, diabetes, and increased cholesterol respond to dietary changes and weight loss. A book on nutrition, a physician, or a nutritionist are good sources for learning the right ways to eat and lose weight (see Nutrition, below). The physician may also recommend medications that lower blood pressure, control blood sugar, and decrease cholesterol.

Even modest amounts of exercise protect against heart disease. Walking for 30 minutes, three days a week, can greatly decrease the risk. Regular exercise also helps to relieve stress, reduce weight, control diabetes, and lower blood pressure. Before starting an exercise program, a physician should be consulted.

What risk factors cannot be changed?

Genetic traits predispose some people to heart disease. People who have parents with heart problems are more likely to have heart disease. The risk is even higher for a person whose parent, brother or sister sustained a heart attack or stroke before the age of 55.

Gender is another unalterable factor. Males have a higher risk of heart disease than females. Although the reasons for this are not clear, it is believed that females are somewhat protected from heart disease by the female hormone estrogen. However, in recent years, heart disease rates among females have risen--apparently due to the increased incidence of smoking among women.

Confronting risk factors.

Your family physician can evaluate risk factors and make recommendations for exercise, diet and, if needed, medication. It is important for people to be aware of their particular risk factors and then to deal with those that can be modified. Help is available, but the first step is up to each of us.

Karl L. Barkley II, M.D.
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NUTRITION

Lowering the risk of coronary heart disease: Reduced fat intake and the use of fat substitutes

Restricting fat consumption to less than 30% of total daily calories can lower the risk of coronary heart disease (CHD) and also appears to help lower the risk for certain types of cancer such as colon cancer and breast cancer. Twenty years of research has shown that diets high in fat, especially saturated fat, raise blood cholesterol, a major risk factor in heart disease.

Many Americans have already made significant changes in their eating habits by lowering the amount of fat in their diet. The average intake of fat is now approximately 36% of the total calories consumed. This percentage represents a marked decrease from an average fat intake of more than 45% of total calories just 10 years ago.

Among some ethnic groups such as Mexican-Americans and Afro-Americans, the average intake of fat remains alarmingly high (around 50% of total calories). These groups continue to surpass other Americans in the incidence of heart attacks and deaths from CHD.

Hidden sources of fat are consumed in foods such as meat, dairy products, baked products, and snack foods that are often made from hydrogenated fats, coconut oil, and palm oil. Not only is the amount of fat used significant, but this type of fat (saturated) is more likely to raise blood cholesterol levels.

Despite the abundant information available concerning the relationship between fat intake and health, consumers find it difficult to make changes in their eating habits if taste is compromised. Newly developed fat substitutes are being marketed to help provide food products that retain taste without the high-fat content.

Simplesse, a fat substitute made by the NutraSweet Company, has recently been approved by the FDA for use in foods. According to the manufacturer, Simplesse, an all-natural, protein-based product made from egg whites and milk protein, is cooked and blended in a process that aggregates the protein into small round, hydrated particles that taste and feel like fat. Simplesse contains only 1 to 2 calories per gram, compared to fat, which has 9 calories per gram. If the intake of fat from other foods is moderate, Simplesse has the potential to reduce by 15% the current 36% fat intake by Americans.

Simplesse is currently available in Simple Pleasures, a frozen dessert that is similar to ice cream. Other products containing Simplesse such as sour cream, a butter-like spread, mayonnaise, and salad dressing are expected in supermarkets soon. Simplesse cannot be used for frying or baking because it is heat sensitive.

Olestra, another fat substitute developed by The Proctor and Gamble Company, is currently under FDA scrutiny and should be available soon. According to the manufacturer, Olestra, unlike Simplesse, is made from fat and therefore can be used for frying and baking. However, Olestra differs from ordinary fats because it is a chemical combination of sugar and fatty acids and is larger than a fat molecule. It is not digested and passes through the body unabsorbed, thereby adding no fat or calories to the diet. The color, taste, and stability of Olestra make it comparable to conventional fats.

Olestra is currently being reviewed by the FDA for use in snack foods such as potato chips and corn chips. A separate FDA review and approval will be required for additional use of Olestra in shortening, oils and spreads. Many health care professionals are concerned about Olestra's potential effect on the gastrointestinal system, especially on the absorption of vitamins and minerals. These concerns are the basis for research studies regarding this product.

Other fat substitutes may be in the developmental or approval stages as food companies continue to respond to consumer demand for more health-oriented foods. However, it is important for consumers to realize that there is no substitute for a prudent diet. A balanced intake of numerous nutrients without undue attention to one or a few is the answer to good health.

Jessie Wright, M.S., R.D., L.D.
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Stress and your heart

Taking control of the risk

Your body produces adrenaline and your heart beats faster. You breathe more rapidly, are more alert, and perspire more. These are manifestations of stress, your body's reaction to a new situation. Whether that situation is welcome or unwelcome, the reaction is the same. If followed by a period of relaxation, these responses may be good for you. They may give you a winning edge in sports, allow you to remain alert during a test, or may save your life during an emergency. Unfortunately, if you are constantly "wound up" and cannot relax, these same responses can lead to elevated blood pressure, headaches, anxiety attacks, abdominal pain, and a host of other physical disorders. Increased levels of adrenaline may place you at greater risk for cardiac arrythmias as well.

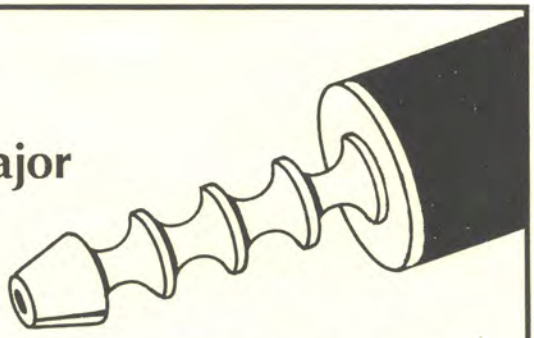
To reduce stress to a manageable level, try to avoid unnecessary stressful situations. If long lines in stores irritate you, consider shopping from catalogues, over the phone, or during hours when the stores are least crowded. Plan your schedule well, avoid interruptions, and turn "wasted" time into a positive experience by taking along a book, magazine, or other enjoyable material when you expect to spend time waiting.

If stressful situations are unavoidable, try to balance periods of stress with short periods of relaxation. Walking, stretching for five minutes, deep breathing, or a period of uninterrupted silence may be all you need to relieve tension and anxiety.

William E. Roundtree, M.D., Columbus, Georgia

RESEARCH

BioTak: Avoiding Major Open Surgery for Unstable Shoulders



A small synthetic device no larger than a thumbtack may one day allow many patients with unstable shoulders to avoid major open stabilizing operations (traditional surgery in which an incision is made to expose the interior of the joint). The BioTak device is designed to provide fixation for arthroscopic Bankart shoulder repair (a procedure in which loose shoulder ligaments are tightened by means of an arthroscope inserted through small portals in the skin). The BioTak also offers the advantage of being absorbed by the body, much like absorbable sutures, so that a later procedure for hardware removal is avoided. Physicians at the Hughston Sports Medicine Foundation, under the direction of Dr. Champ Baker, represent one of several large centers in the United States that are currently collaborating with the FDA in the clinical evaluation of this device.

The shoulder, a ball-and-socket joint, is extremely vulnerable in terms of stability. Because it has one of the greatest ranges of motion of any joint in the body, the shoulder has very little solid (bony) constraint and therefore must rely primarily on its surrounding soft tissue envelope for stability. If this soft tissue becomes chronically stretched and lax, an instability may result. In the past, open procedures were necessary to tighten these loose ligaments. Some athletes are never able to regain their competitive edge after an operation of this magnitude.

In an arthroscopic Bankart procedure, the physician uses an arthroscope to snug the loose ligaments back up to the bony rim of the ball-and-socket joint. In some centers, this procedure is even performed as outpatient surgery. The BioTak represents an attempt to improve the ease and effectiveness with which this type of surgery is performed. The device resembles a regular screw with a series of rings, rather than threads, on the shaft. A special instrument is used to spear the ligament tissue and hold it in the proper position on the bone. The BioTak is then impacted into the bone to secure the ligament. By tightening the tissue around the shoulder joint, stabilization is achieved along with an increase in range of motion and a decrease in pain. The patient then undergoes a short rehabilitation period and, in all likelihood, can return to the same activity level as before surgery.

Current research will help to perfect the BioTak and will have direct bearing on whether the device is ultimately approved by the FDA. Although open shoulder operations will continue to be the mainstay of shoulder stabilizing procedures for many years to come, devices such as the BioTak may offer new hope to athletes who, hampered by instability problems, may otherwise lose their competitive edge.

David Higgins, M.D.
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Mitral Valve Prolapse

It is estimated that as many as 4% to 7% of Americans may have mitral valve prolapse (MVP), although most people have no signs or symptoms. MVP is a common and usually benign heart condition also known as Barlow's syndrome (for the physician who, in 1968, described the association between MVP and a number of its possible complications) and as the "click-murmur syndrome" for the way it sounds through a stethoscope.

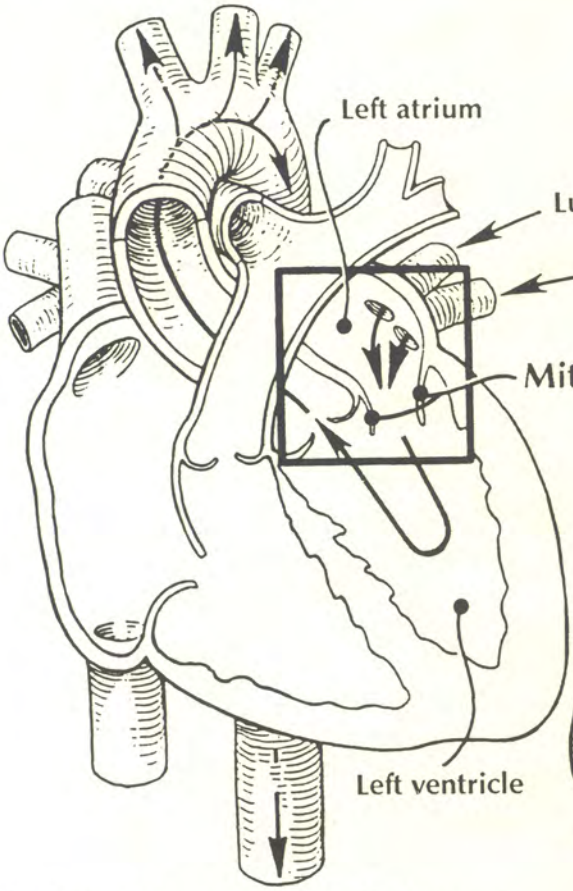
For unknown reasons, more women than men are affected by the condition, and there appears to be a hereditary predisposition. Because MVP is so common, some believe that the condition is simply a normal variant in heart structure rather than a disease.

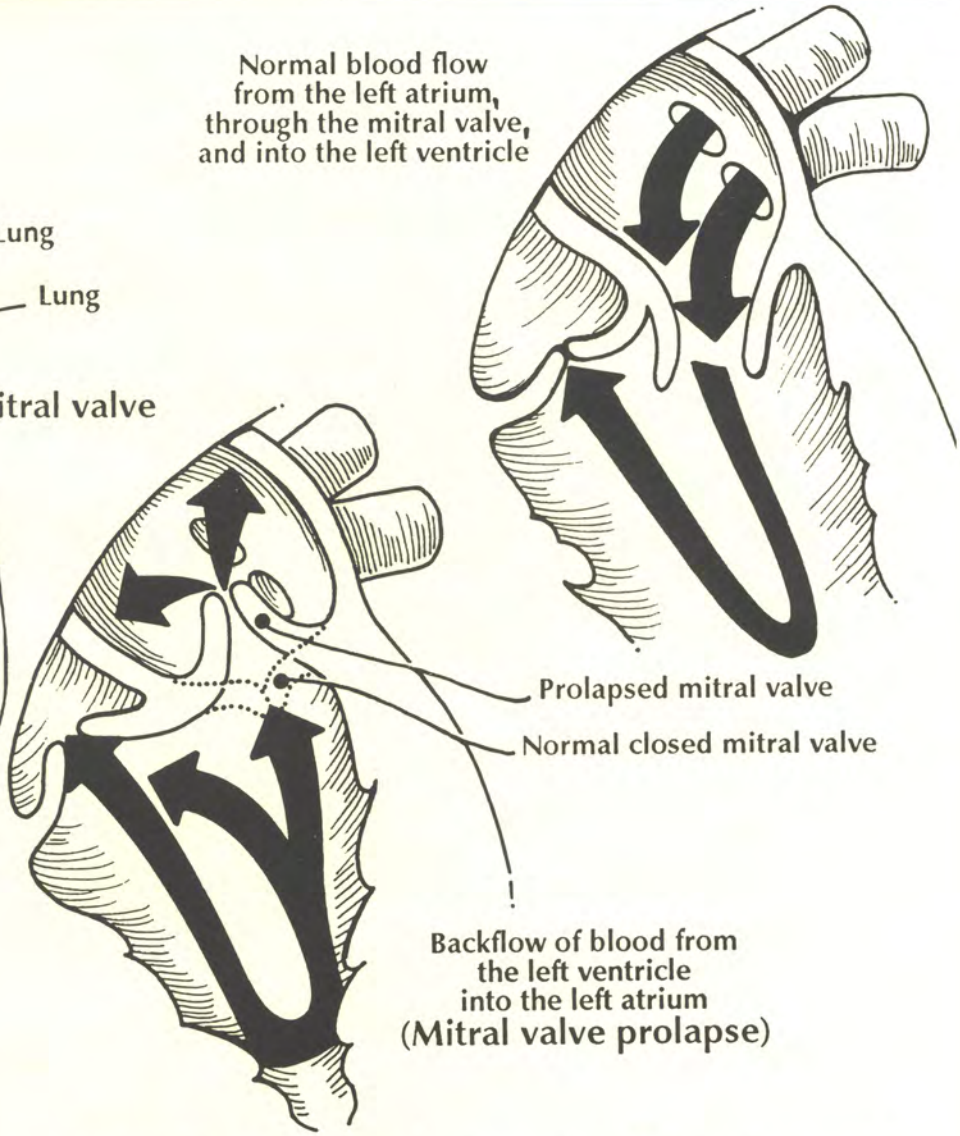
The Mitral Valve

The mitral valve (so-called because its two leaflet flaps look like a bishop's miter) is located on the left side of the heart. Blood returning from the lung moves into the left atrium, then through the mitral valve and into the left ventricle before being pumped through the circulatory system into the entire body. In MVP the mitral valve balloons back into the atrium while the ventricle is contracting to pump blood into the circulatory system. Sometimes this results in a backflow of blood from the ventricle into the atrium (see Figure). This flow, sometimes preceded by a clicking sound, can be heard through a stethoscope as a murmur.

Causes of MVP

Until recently, most cases of MVP were thought to result from structural valve defects caused by rheumatic fever or a congenital condition. However, physicians now recognize that brief murmurs and occasional clicking sounds are present in many completely healthy people. In these cases the mitral valve is not damaged





but is partially prolapsed (pushed too far back) as the heart contracts.

Most people who have MVP never experience any cardiac symptoms. In some cases even the typical murmur and click are not present. People who suffer occasional symptoms such as chest pains or palpitations (disturbances of the normal heart rhythm) rarely require treatment or develop serious complications. When rare complications do develop, a wide range of effective therapies is available.

Symptoms of MVP

One of the two most common symptoms of MVP is chest pain, typically described as "sharp" or "stabbing." The pain, which may be brought on by exertion, may last for a few hours or a few days. The cause of this pain is uncertain, but some believe it may be due to an abnormality in the bony structure of the chest or to changes in the muscle tone of the chest wall. Despite the pain, the prognosis for those with documented MVP is extremely good. Consequently, many people learn to live with the chest pain once other causes have been excluded. In some cases, medication, usually a beta-blocking agent, may be prescribed.

Palpitations may also be associated with MVP. Frequently, palpitations are harmless and treatment is not needed. More serious arrythmias may be treated with standard antiarrhythmic drugs.

Complications of MVP

Although extremely rare, several serious complications have been associated with MVP. Progressively severe mitral regurgitation is a condition in which the heart wall enlarges in an attempt to deal with the extra work load. The patient may experience fatigue, shortness of breath or, in extreme cases, symptoms of congestive heart failure. Mitral regurgitation can usually be treated with medication. Occasionally, surgery is necessary to replace the faulty valve with an artificial one.

Infective endocarditis (inflammation of the lining of the heart, affecting the valves in particular) is another well-recognized complication of MVP. Patients who have MVP with both a constant murmur and a click must have antibiotic treatment before undergoing any dental or surgical procedure that might release harmful bacteria into the bloodstream.

J. Ronald Hunt, M.D.
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Hypertension (High Blood Pressure)

Can Exercise Help?

Although it is estimated that one out of three people in the United States has hypertension (blood pressure greater than 140/90), only one out of five people is aware of having it. High blood pressure is a major risk factor for heart disease because it enlarges the heart muscle (hypertrophy) and may accelerate stiffening of the arteries that supply the heart (artherosclerosis).

A patient is diagnosed with hypertension only after elevated blood pressure readings have been found on several different occasions. Usually the patient is told to lose weight, reduce alcohol consumption, and restrict dietary salt. Exercise, an effective form of therapy for hypertension, helps decrease weight and total cholesterol, increase HDL levels (high density lipoproteins associated with a decreased risk of heart disease), and aid in the cessation of smoking.

A simple exercise program can effectively prevent hypertension. The American College of Sports Medicine (ACSM) recommends that before beginning an exercise program, a screening exercise treadmill test should be performed by those patients who are over the age of 45 or are between the ages of 35 and 45 and have cardiovascular risk factors. The treadmill test, performed in either the physician's office or the hospital, requires the patient to walk or jog on a moving treadmill. The grade (incline) and speed increase every three minutes. During the test, patients are continually monitored for heart rate, blood pressure, and heart rhythm changes in response to controlled exercise. Treadmill testing for hypertension allows the physician to determine a patient's heart rate limit so that blood pressure is kept within a safe range during exercise.

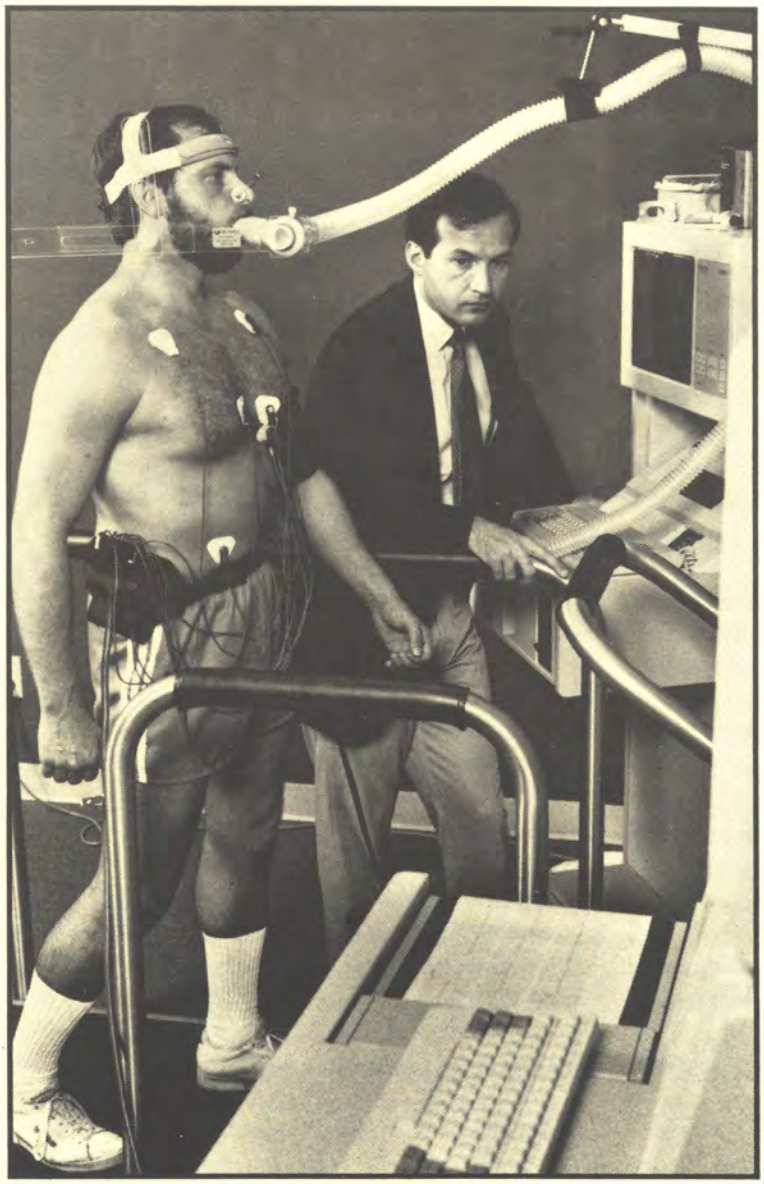

Photo by Yvonne C. Ehrhart

After a patient has been cleared to begin an exercise program, the physician should provide specific exercise guidelines. For people with normal blood pressure, the ACSM recommends 20 to 30 minutes of aerobic exercise, three to four times a week, at 70% to 85% of maximum heart rate. People who have higher blood pressure may be told to modify their exercise programs. Ongoing research is examining whether low intensity exercise (60% to 70% of maximum heart rate) may be better for people with mild hypertension.

For the first several months of an exercise program, the patient's blood pressure should be monitored by the physician in regular office visits to ensure satisfactory progress.

Some good aerobic exercises are walking, running, cycling, and swimming. In addition, **high**-repetition, **low**-resistance circuit weight-training can be used to achieve fitness and is preferable to **high**-resistance training for those with high blood pressure.

The key to any successful exercise program is to make it enjoyable. Nothing is abandoned sooner than boring, exhaustive exercises that are considered a chore. Relaxation is one of the benefits of exercise and may be one mechanism by which exercise helps to control blood pressure. Exercising with a partner helps to keep one's mind off each step and provides some socialization. When exercising with a companion, exercise at speeds that allow conversation.

Remember, for good health, exercise regularly!

Ken Bielak, M.D.
Columbus, Georgia

Flexibility: Stretching Your Performance

Physical fitness depends on four major components: strength and muscular endurance, optimal per cent body fat, cardiorespiratory endurance, and flexibility. Although these components are inseparable to some degree, muscle responsiveness is most dependent on adequate flexibility.

Flexibility is the suppleness or resiliency of a muscle and its ability to stretch far enough to permit the joint on which it acts to have completely normal range of motion without injury. Exercises to improve and maintain flexibility should be done slowly and statically. These static flexibility exercises, called "holds," require staying in a given position for a given length of time and can be done without special exercise devices.

Follow these guidelines to achieve the maximum flexibility from your exercises:

- Perform exercises properly to the best of your ability, but do not force the muscles to do more than they are ready for.

- When stretching one set of muscles, also stretch the opposing set. For example, if you stretch the abductor muscles, stretch the adductor group also (see Figure).

- Use a complete stretching program rather than limiting your work to one area of the body. If you spend more time on an area that has special needs, do it in the context of a complete program. The functioning of one muscle group is usually related to the functioning of another.

- Learn to recognize stretch pain and use it to your advantage. Stretch pain, the tension and discomfort that accompanies stretching exercises, is a form of feedback from your body that puts you in touch with the needs of your muscles. You will soon learn to recognize normal tensions and discomfort that can be relaxed away.

- Learn to relax while stretching. Breathe normally instead of "fighting" the exercise by holding your breath. You will benefit more from exercise by relaxing your way through it.

- Do not bounce as you perform an exercise. Bouncing, also called ballistic stretching, does not allow time for the muscle to sustain its stretched length and benefit from it. Bouncing activates the body's neuromuscular protective mechanisms, which cause the muscle to contract or shorten. It is believed that static, slow stretching prevents the jerks and bounces that may lead to muscle injury.

- Finally, do not stretch a "cold" muscle. Warm up for 4 to 6 minutes, stretch, perform the major activity, then stretch again. Stretching **after** exercise is more important than stretching before exercise.

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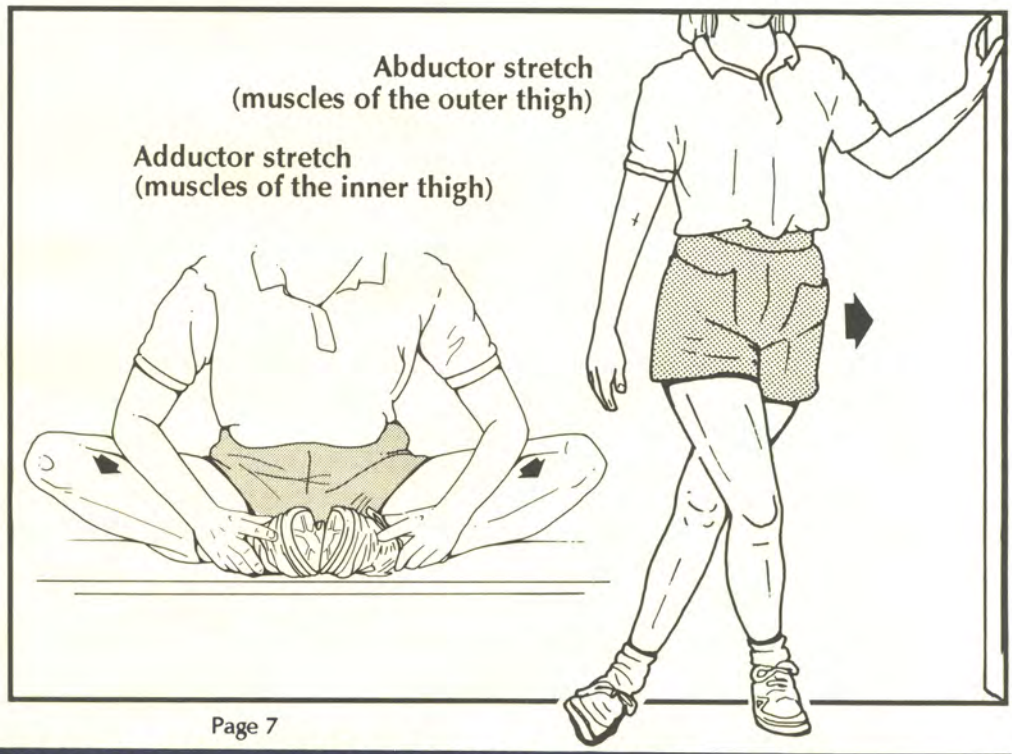
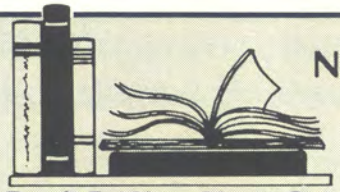
Athletic Training Corner

How to select an athletic shoe

Today's athletic shoe market offers a variety of choices: high tops, low tops, 3/4 high tops, or the new athletic shoes that can be "pumped up." The newest fad is often what sells regardless of quality. Some guidelines for purchasing athletic shoes for basketball and other indoor sports might be helpful.

- A good quality athletic shoe costs approximately $45 to $80. Less expensive shoes should not be expected to handle the stress to which an athlete's foot and ankle are subjected.
- Although high tops give many athletes a sense of additional support, no research indicates that taller shoes reduce the chances of injury.
- Use comfort as a guide and stay with well-known, reputable brands because they are produced by companies that have demonstrated a commitment to improvement based on sound research.





New Books

Don't Eat Your Heart Out Cookbook, by Joseph C. Piscatella, Workman Publishing Company, 1987 (paperback).

Piscatella, who underwent coronary bypass surgery at the age of 32, takes the reader through his experience of changing his eating style from a high-fat diet to a low-fat, high-carbohydrate diet as recommended by the American Heart Association and other major health organizations. Although the author does not have a medical background, he adequately discusses in layman's terms both the development and prevention of heart disease. He also gives helpful diet tips for weight control, menu planning, and eating away from home. Piscatella's wife provides some delectable "heart healthy" recipes, although she does not specify yields or serving sizes. This book adds to the growing number of excellent books on a "new American cuisine" that promises a healthier future for those who accept the challenge.

Belinda Barron, R.D., L.D.
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., 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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