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Exercise's Effects on the Heart

In-Depth From A.D.A.M.

Inactivity is one of the major risk factors for heart disease. However, exercise helps improve heart health, and can even reverse some heart disease risk factors.

Like all muscles, the heart becomes stronger as a result of exercise, so it can pump more blood through the body with every beat and continue working at maximum level, if needed, with less strain. The resting heart rate of those who exercise is also slower, because less effort is needed to pump blood.

A person who exercises often and vigorously has the lowest risk for heart disease, but any amount of exercise is beneficial. Studies consistently find that light-to-moderate exercise is even beneficial in people with existing heart disease. Note, however, that anyone with heart disease or cardiac risk factors should seek medical advice before beginning a workout program.

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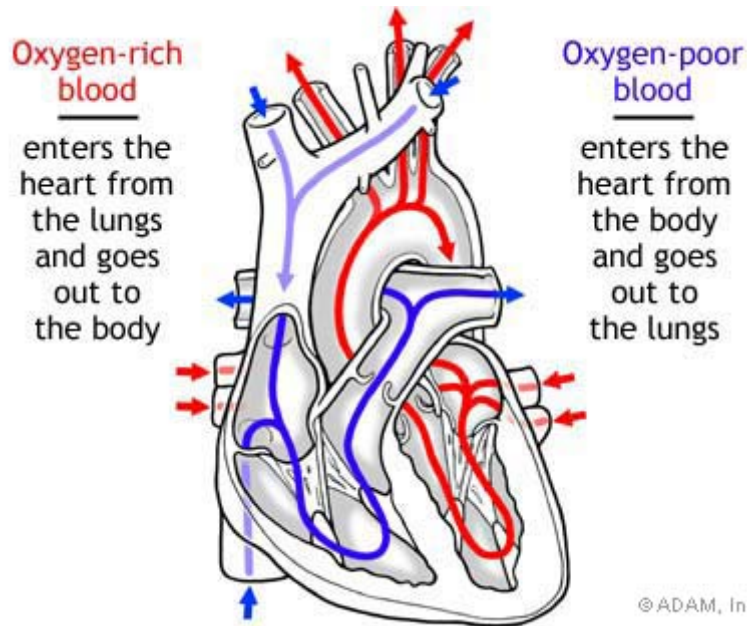
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The heart is a large muscular organ that pumps blood throughout the body. Valves inside the heart open and close. This controls how much blood enters or leaves the heart.

EFFECTS OF EXERCISE ON HEART DISEASE AND CHOLESTEROL

Exercise has a number of effects that benefit the heart and circulation (blood flow throughout the body). These benefits include improving cholesterol and fat levels, reducing inflammation in the arteries, helping weight loss programs, and helping to keep blood vessels flexible and open. Studies continue to show that physical activity and avoiding high-fat foods are the two most successful means of reaching and maintaining heart-healthy levels of fitness and weight.

The American Heart Association recommends that individuals perform moderately-intense exercise for at least 30 minutes on most days of the week. This recommendation supports similar exercise guidelines issued by the Centers for Disease Control and Prevention, and the American College of Sports Medicine.

Coronary Artery Disease. People who maintain an active lifestyle have a 45% lower risk of developing heart disease than do sedentary people. Experts have been attempting to define how much exercise is needed to produce heart benefits. Beneficial changes in cholesterol and lipid levels, including lower LDL ("bad" cholesterol) levels, occur even when people performed low amounts of moderate- or high-

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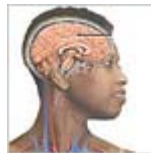
Exercise and
Age

intensity exercise, such as walking or jogging 12 miles a week. However, more intense exercise is required to significantly change cholesterol levels, notably increasing HDL ("good" cholesterol). An example of this kind of intense program would be jogging about 20 miles a week. Benefits occur even with very modest weight loss, suggesting that overweight people who have trouble losing pounds can still achieve considerable heart benefits by exercising.

Some studies suggest that for the greatest heart protection, it is not the duration of a single exercise session that counts but the total weekly amount of energy expended.

Resistance (weight) training has also been associated with heart protection. It may offer a complementary benefit to aerobics. If you have heart disease or risk factors for heart disease, check with your doctor before starting resistance training.

Effects of Exercise on Blood Pressure. Regular exercise helps keep arteries elastic (flexible), even in older people. This, in turn, ensures good blood flow and normal blood pressure. Sedentary people have a 35% greater risk of developing high blood pressure than physically active people do.



[Click the icon to see the risks associated with untreated hypertension.](#)

It should be noted that high-intensity exercise may not lower blood pressure as effectively as moderate-intensity exercise. In one study, moderate exercise (jogging 2 miles a day) controlled high blood pressure so well that more than half the patients who had been taking drugs for the condition were able to discontinue their medication.

Experts recommend at least 30 minutes of exercise on most -- if not all -- days. Studies show that yoga and tai chi, an ancient Chinese exercise involving slow, relaxing movements, may lower blood pressure almost as well as moderate-intensity aerobic exercises.



[Click the icon to see an image of someone practicing yoga.](#)

Anyone with existing high blood pressure should discuss an exercise program with their doctor. Before starting to exercise, people with



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Exercise and
Heart Rate

moderate-to-severe high blood pressure should lower their blood pressure, and be able to control it with medications. Everyone, especially people with high blood pressure, should breathe as normally as possible through each exercise. Holding the breath increases blood pressure.

Effects of Exercise on Heart Failure. Traditionally, heart failure patients have been discouraged from exercising. Now, exercise performed under medical supervision is proving to be helpful for select patients with stable heart failure.

Progressive resistance training may be particularly useful for heart failure patients, since it strengthens muscles, which commonly weaken in this disorder. Simply performing daily handgrip exercises can improve blood flow through the arteries.

Experts warn, however, that exercise is not appropriate for all heart failure patients.

EFFECTS OF EXERCISE ON STROKE

Physical activity lowers stroke risk.

All stroke survivors should have a medical evaluation before starting an exercise program.

The effects of exercise on stroke are less established than those on heart disease, but most studies show benefits.

EXERCISE PROGRAMS FOR HIGH-RISK INDIVIDUALS

Anyone with heart disease or risk factors for developing heart disease or stroke should seek medical advice before beginning a workout program. Patients with heart disease can nearly always exercise safely as long as they are evaluated beforehand. Some will need to begin their workout under medical supervision. Still, it is often difficult for a doctor to predict health problems that might arise as the result of an exercise program. At-risk individuals should be very aware of any symptoms warning of harmful complications while they exercise.

Some believe that anyone over 40 years old, whether or not they are at risk for heart disease, should have a complete physical examination before starting or intensifying an exercise program. Some doctors use a questionnaire for people over 40 to help determine whether they require such an examination. The questions they use are as follows:

Has any doctor previously recommended medically supervised activity because of a heart condition?

Does physical activity bring on chest pain?

Has chest pain occurred during the previous month?

Does the person faint or fall over from dizziness?

Does bone or joint pain intensify during or after exercise?

Has medication been prescribed for hypertension (high blood pressure) or heart problems?

Is the person aware of, or has a doctor suggested, any physical reason for not exercising without medical supervision?

Those who answer "yes" to any of the above questions should have a complete medical examination before developing an exercise program.

Some people should get a full evaluation and a stress test.

Stress Test. A stress test helps determine the risk for a heart problem resulting from exercise. Anyone with a heart condition or history of heart disease should have a stress test before starting an exercise program. Some health care professionals also recommend this test before a vigorous exercise program for older persons who are sedentary, even in the absence of known or suspected heart disease. The test is expensive, however. Many physicians believe that it may not be necessary for older people who start low intensity exercise such as walking, and have no evident health problems or risk factors.

HEART ATTACK AND SUDDEN DEATH FROM STRENUOUS EXERCISE

A small percentage of heart attacks occur after heavy physical work.

High-Risk Individuals. In general, the following people should avoid intense exercise or start it only with careful monitoring:

People who have certain medical conditions: These conditions include uncontrolled diabetes, uncontrolled seizures, uncontrolled high blood pressure, a heart attack within the previous 6 months, heart failure, unstable angina, significant aortic valve disease, or aortic aneurysm.

People with moderate-to-severe hypertension: Moderate or severe high blood pressure (systolic blood pressure over 160 mm Hg or diastolic (lower number) pressure over 100 mm Hg) should be brought to lower levels before a person starts a vigorous exercise program.

Sedentary people should be cautious.

Episodes of exercise-related sudden death in young people are rare but of great concern. Some are preceded by fainting, which is due to

a sudden and severe drop in blood pressure. It should be noted that fainting is relatively common in athletes, and is dangerous only in people with existing heart conditions. Young people with genetic or congenital (present at birth) heart disorders should avoid intensive competitive sports.

Anabolic steroids or products containing ephedra have been associated with cases of stroke, heart attack, and even death.

The risk for heart attack from exercise should be kept in perspective, however. Some form of exercise, carefully personalized, has benefits for most of the individuals mentioned above. In many cases, particularly when the only risk factors are a sedentary lifestyle and older age, exercise can often be increased over time until it is intense.

Hazardous Activities for High-Risk Individuals. The following activities may pose particular dangers for high-risk individuals:

Intense workouts may be particularly hazardous for people with risk factors for heart disease, especially older people. Examples of intense workouts include snow shoveling, running, race walking, tennis, heavy lifting, heavy gardening. These workouts tend to stress the heart, raise blood pressure for a brief period, and may cause spasms in the arteries leading to the heart. (See image: *Coronary Artery Spasm*)

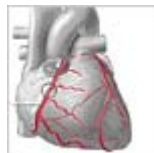
Some studies suggest that competitive sports, which couple intense activity with aggressive emotions, are more likely to trigger a heart attack than other forms of exercise.

Listening for Warning Signs. It should be noted that according to one study, at least 40% of young men who die suddenly during a workout have previously experienced, and ignored, warning signs of heart disease. In addition to avoiding risky activities, the best preventive tactic is simply to listen to the body and seek medical help at the first sign of symptoms during or following exercise. These symptoms include the following:

Irregular heartbeat

Shortness of breath

Chest pain



[Click the icon to see an image of a coronary artery spasm.](#)



[Click the icon to see an image of stable angina.](#)

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