

LOST TEMPLE FITNESS

Cardiac Disease or Symptoms with Possible Exercise and/or Precautions

Quick Summary

Angina

- A symptom of coronary artery disease. Chest pain or discomfort that occurs when the heart muscle is not getting enough blood

Arrhythmias

- Irregular or unusually fast or slow heartbeats.

Atherosclerosis

- This occurs when plaque builds up in the arteries that supply blood to the heart (called coronary arteries).

Aortic Aneurysm

- An aortic aneurysm is a balloon-like bulge in the aorta, the large artery that carries blood from the heart through the chest and torso.

Atrial Fibrillation AKA A-Fib

- A type of arrhythmia that can cause rapid, irregular beating of the heart's upper chambers. Blood may pool and clot inside the heart, increasing the risk for heart attack and stroke.

Cardiomyopathy

- Occurs when the heart muscle becomes enlarged or stiff. This can lead to inadequate heart pumping (or weak heart pump) or other problems.

Congestive Heart Failure (CHF)

- Often called congestive heart failure because of fluid buildup in the lungs, liver, gastrointestinal tract, and the arms and legs. Heart failure is a serious condition that occurs when the heart can't pump enough blood to meet the body's needs. .

Heart Attack Myocardial Infarction

- A heart attack happens when the flow of oxygen-rich blood to a section of heart muscle suddenly becomes blocked and the heart can't get oxygen. If blood flow isn't restored quickly, the section of heart muscle begins to die.

Palpitations

- You may feel palpitations in your chest, throat, or neck during activity or when you are sitting still or lying down

Peripheral arterial disease (PAD)

- Occurs when the arteries that supply blood to the arms and legs (the periphery) become narrow or stiff. PAD usually results from atherosclerosis, the buildup of plaque and narrowing of the arteries.

Pacemaker

- A pacemaker is a small device that's placed in the chest or abdomen to help control abnormal heart rhythms. This device uses electrical pulses to prompt the heart to beat at a normal rate.

Implantable Cardioverter Defibrillator (ICD)

- An implantable cardioverter defibrillator (ICD) is a small device that your doctor can put into your chest to help regulate an irregular heart rhythm, or an arrhythmia.

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<p>Angina (CDC and MedScape : Specific Exercise Precautions)</p>	<p>A symptom of coronary artery disease. Chest pain or discomfort that occurs when the heart muscle is not getting enough blood. Angina may feel like pressure or a squeezing pain in the chest. The pain also may occur in the shoulders, arms, neck, jaw, or back. It may feel like indigestion.</p> <p>There are two forms of angina—stable or unstable:</p> <ul style="list-style-type: none"> • Stable angina happens during physical activity or under mental or emotional stress. • Unstable angina is chest pain that occurs even while at rest, without apparent reason. This type of angina is a medical emergency. <p>Exercise and/or Precautions</p> <ul style="list-style-type: none"> • Stop exercising immediately if you experience angina. Contact your physician if you experience chest pain, labored breathing, or extreme fatigue. • Upper-body exercises may precipitate angina more readily than lower-body exercises because of a higher press or response. • An extended warm-up and cool-down may reduce the risk of angina or other cardiovascular complications following exercise. • If nitroglycerin has been prescribed, always carry it with you, especially during exercise. • Avoid extreme weather conditions.
<p>Arrhythmias Also see A-fib (CDC and Livestrong (Exercise))</p>	<p>Irregular or unusually fast or slow heartbeats. Arrhythmias can be serious. One example is called ventricular fibrillation. This type of arrhythmia causes an abnormal heart rhythm that leads to death unless treated right away with an electrical shock to the heart (called defibrillation). Other arrhythmias are less severe but can develop into more serious conditions, such as atrial fibrillation, which can cause a stroke.</p> <p>Exercise and /or Precautions (LiveStrong) – Also see A-fib.</p> <ul style="list-style-type: none"> • Do not overexert yourself during exercise; take breaks as needed, particularly if you feel your heart behaving abnormally. • Cool down by gradually reducing your activity after exercise to slowly return your heart rate back to a normal pace. For example, take a gentle 10-minute walk and stretch. • If a certain type of exercise causes heart arrhythmias, discontinue it. • Avoid caffeinated beverages or foods and stop smoking. • Chronic heart arrhythmias may require an antiarrhythmic medication to help control episodes.
<p>Atherosclerosis AKA Arteriosclerosis OR Hardening of the Arteries (CDC & NIH)</p>	<p>This occurs when plaque builds up in the arteries that supply blood to the heart (called coronary arteries). Plaque is made up of fat, cholesterol, calcium, and other substances found in the blood. Over time, plaque hardens and narrows your arteries. This limits the flow of oxygen-rich blood to your organs and other parts of your body. Atherosclerosis can lead to serious problems, including heart attack, stroke, or even death.</p> <p>Atherosclerosis-Related Diseases (See Disease for More Information)</p> <ul style="list-style-type: none"> • Atherosclerosis can affect any artery in the body, including arteries in the heart, brain, arms, legs, pelvis, and kidneys. • Coronary Heart Disease / Coronary Artery Disease • Peripheral Artery Disease • Chronic Kidney Disease: Can occur if plaque builds up in the renal arteries. These arteries supply oxygen-rich blood to your kidneys. Over time, chronic kidney disease causes a slow loss of kidney function.

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Aortic Aneurysm

(CDC - Aortic Aneurysm, Livestrong and E-Pain assist)

An aortic aneurysm is a balloon-like bulge in the aorta, the large artery that carries blood from the heart through the chest and torso.

Aortic aneurysms work in two ways:

- The force of blood pumping can split the layers of the artery wall, allowing blood to leak in between them. This process is called a dissection.
- Rupture. The aneurysm can burst completely, causing bleeding inside the body. Dissections and ruptures are the cause of most deaths from aortic aneurysms.

Thoracic Aortic Aneurysms. A thoracic aortic aneurysm occurs in the chest. Men and women are equally likely to get thoracic aortic aneurysms, which become more common with increasing age. Thoracic aortic aneurysms are usually caused by high blood pressure or sudden injury. Sometimes people with inherited connective tissue disorders, such as Marfan syndrome and Ehlers-Danlos syndrome, get thoracic aortic aneurysms.

Signs and symptoms of thoracic aortic aneurysm can include:

- Sharp, sudden pain in the chest or upper back.
- Shortness of breath.
- Trouble breathing or swallowing.

Abdominal Aortic Aneurysms

An abdominal aortic aneurysm occurs below the chest. Abdominal aortic aneurysms happen more often than thoracic aortic aneurysms.

Abdominal aortic aneurysms are more common in men and among people aged 65 years and older. Abdominal aortic aneurysms are less common among blacks compared with whites.

Abdominal aortic aneurysms are usually caused by atherosclerosis (hardened arteries), but infection or injury can also cause them.

Abdominal aortic aneurysms often do not have any symptoms. If an individual does have symptoms, they can include:

- Throbbing or deep pain in your back or side.
- Pain in the buttocks, groin, or legs.

Other Types of Aneurysms

Aneurysms can occur in other parts of your body. A ruptured aneurysm in the brain can cause a stroke. Peripheral aneurysms—those found in arteries other than the aorta—can occur in the neck, in the groin, or behind the knees. These aneurysms are less likely to rupture or dissect than aortic aneurysms, but they can form blood clots. These clots can break away and block blood flow through the artery.

Risk Factors for Aortic Aneurysm

Diseases that damage your heart and blood vessels also increase your risk for aortic aneurysm. These diseases include:

- High blood pressure.
- High cholesterol.
- Atherosclerosis (hardened arteries).
- Smoking.
- Some inherited connective tissue disorders, such as Marfan syndrome and Ehlers-Danlos syndrome, can also increase your risk for aortic aneurysm. Your family may also have a history of aortic aneurysms that can increase your risk.
- Unhealthy behaviors can also increase your risk for aortic aneurysm, especially for people who have one of the diseases listed above. Tobacco use is the most important behavior related to aortic aneurysm. People who have a history of smoking are 3 to 5 times more likely to develop an abdominal aortic aneurysm.

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Aortic Aneurysm

Continued

Treating Aortic Aneurysm

The two main treatments for aortic aneurysms are medicines and surgery. Medicines can lower blood pressure and reduce risk for an aortic aneurysm. Surgery can repair or replace the injured section of the aorta.

Exercise and/or Precautions

Exercise with AAA (LiveStrong)

The root problem with AAAs is a weak vessel wall combined with high blood pressure. If you have been diagnosed with this condition, or there is a family history of aneurysms and dissections, it is important to perform low intensity exercise to avoid increasing your blood pressure to dangerous levels. A 2003 study in "JAMA" recommends patients with known aneurysms to exercise with extreme caution. The study recommends limiting activities such as weightlifting because of the elevated risk of dissection.

What Are the Types of Exercise A Patient with Aortic Aneurysm Should Go for?

(E-Pain Assist).

The patient with aortic aneurysm should consult the doctor before starting with the exercise plan. In general, a patient with aortic aneurysm should keep the following points in mind while exercising-

- **Low Intensity:** A patient with aortic aneurysm may go for any form of low intensity exercise that does not carry a risk of the blood pressure shooting high suddenly.
- **Walking:** Brisk walking for 45 minutes to an hour is considered to be a good form of exercise for patients with aortic aneurysm. It keeps the body active and does not carry the risk of having high blood pressure.
- **Yoga:** The patient can go for yoga classes or aerobic exercises which are of characteristically low intensity to keep the body fit.
- ***Stay Away from Weightlifting:*** A patient having aortic aneurysm should stay away from weightlifting because it tends to create a pressure on aorta which is dangerous. It may cause rupturing of the aneurysm.

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<p>Atrial fibrillation</p> <p>AKA A-fib</p> <p><i>(CDC – A-fib, HealthLine (HL), Living with Atrial Fibrillation and Everyday Health (EH))</i></p>	<p>A type of arrhythmia that can cause rapid, irregular beating of the heart's upper chambers. Blood may pool and clot inside the heart, increasing the risk for heart attack and stroke.</p> <p>A-fib Symptoms:</p> <ul style="list-style-type: none">• Some people who have A-Fib do not know they have it and don't have any symptoms. Others may experience one or more of the following symptoms:<ul style="list-style-type: none">○ Irregular heartbeat○ Heart palpitations (rapid, fluttering, or pounding)○ Lightheadedness○ Extreme fatigue○ Shortness of breath○ Chest pain <p>A-fib increases a person's risk for stroke by four to five times compared with stroke risk for people who do not have A-fib. Strokes caused by complications from A-fib tend to be more severe than strokes with other underlying causes. A-fib causes 15%–20% of ischemic strokes, which occur when blood flow to the brain is blocked by a clot or by fatty deposits called plaque in the blood vessel lining.</p> <p>Treatment for A-fib can include:</p> <ul style="list-style-type: none">• Medications to control the heart's rhythm and rate. Blood-thinning medication to prevent blood clots from forming and reduce stroke risk.• Surgery. <p>Exercise and/or Precautions</p> <p><i>Exercises to avoid with A-fib (HealthLine (HL) and Everyday Health (EH))</i></p> <ul style="list-style-type: none">• If you have not exercised in a while, you don't want to start with intense, high-impact exercise. When you exercise with A-fib, you may want to start with short intervals of low-impact exercise. Then you can gradually increase the length and intensity of your workouts. <i>(HL)</i>• Try to avoid activities with a higher risk of causing injury, such as skiing or outdoor biking. Many blood thinner medications used to treat A-fib may make you bleed more heavily when you're injured. <i>(HL)</i>• If you plan to lift weights, talk to your doctor or a physical therapist about how much weight is safe for you to lift. Lifting too much can put a lot of strain on your heart. <i>(HL)</i>• Do not overheat. Some medications used to treat atrial fibrillation can lower your blood pressure, making you more sensitive to heat. Protect yourself by taking frequent breaks, drinking water, and paying attention to how you feel. If you ever feel dizzy or lightheaded during exercise, stop right away and cool off. <i>(EH)</i>• Use an alternative method of heart rate monitoring. Because atrial fibrillation medications can slow down your pulse, checking your heart rate during exercise may not be effective, Stevens says. Instead, for heart health and exercise safety, she recommends that you push yourself until your level of exertion is "somewhat hard" but you can still speak a full sentence without gasping. "When people push to where they're working 'somewhat hard,' it usually corresponds to their target heart rate," she says. <i>(EH)</i> <p>Beta Blockers and Exercise <i>(Living with Atrial Fibrillation)</i></p> <p>A-fib patients taking beta blockers must be aware that beta blockers naturally slow their heart rate. Your heart may not beat as fast even during exercise. As a result, checking or monitoring your heart rate while on these drugs may not be effective. A better guide in that situation is to listen to your body. If you cannot speak a full sentence without gasping for air, you're pushing too hard. You want to exercise to the point where you're tired and slightly winded, but can still talk without gasping for air.</p>
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Cardiomyopathy

(CDC Cardiomyopathy and Cardiomyopathy UK))

Occurs when the heart muscle becomes enlarged or stiff. This can lead to inadequate heart pumping (or weak heart pump) or other problems. Cardiomyopathy has many causes, including family history of the disease, prior heart attacks, uncontrolled high blood pressure, and viral or bacterial infections.

When cardiomyopathy occurs, the normal muscle in the heart can thicken, stiffen, thin out, or fill with substances the body produces that do not belong in the heart muscle. As a result, the heart muscle's ability to pump blood is reduced, which can lead to irregular heartbeats, the backup of blood into the lungs or rest of the body, and heart failure. Cardiomyopathy can be acquired—developed because of another disease, condition, or factor—or inherited. The cause is not always known.

The main types of cardiomyopathies include the following:

- Dilated: where one of the pumping chambers (ventricles) of the heart is enlarged. This is more common in males and is the most common form of cardiomyopathy in children. It can occur at any age and may or may not be inherited.
- Hypertrophic: where the heart muscle is thickened. This often presents in childhood or early adulthood and can cause sudden death in adolescents and young adult athletes. It is often an inherited condition, and a person may not have any symptoms. If there is a family history of this, other family members can be tested and adjust their activities to reduce the risk of sudden death.
- Arrhythmogenic: where the disease causes irregular heartbeats or rhythms. This is often inherited and more common in males.
- Restrictive: where heart muscle is stiff or scarred, or both. It can occur with amyloidosis or hemochromatosis, and other conditions. This is the least common type.

Some people who have cardiomyopathy never have symptoms, while others may show signs as the disease progresses. These might include the following:

- Shortness of breath or trouble breathing.
- Fatigue.
- Swelling in the ankles and legs.
- Irregular heartbeat or palpitations.
- Syncope, the medical term for fainting or briefly passing out.

Treatment and Prevention

- The goal of treatment is to slow down the disease, control symptoms, and prevent sudden death. If you are diagnosed with cardiomyopathy, your doctor may tell you to change your diet and physical activity, reduce stress, avoid alcohol and other drugs, and take medicines. Your doctor may also treat you for the conditions that led to cardiomyopathy, if they exist, or recommend surgery. Treatment also depends on which type of cardiomyopathy you have.
- Genetic or inherited types of cardiomyopathies cannot be prevented but adopting or following a healthier lifestyle can help control symptoms and complications. If you have an underlying disease or condition that can cause cardiomyopathy, early treatment of that condition can help prevent the disease from developing.

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Cardiomyopathy

Continued

Exercise and/or Precautions (Cardiomyopathy UK)

Exercise and breathing difficulties.

How much your condition affects your ability to do physical activity is sometimes classified by the 'New York Heart Association classification of heart failure'. This looks at difficulty in breathing during different levels of activity for people with heart failure (where the heart is unable to meet the normal demands of the body).

- Class I (unaffected): no limitations to activities. Ordinary activity doesn't cause symptoms.
- Class II (mildly affected): some limitation in activity. Moderately strenuous activity (such as walking up several flights of stairs) causes some symptoms such as tiredness, palpitations, and breathlessness.
- Class III (moderately affected): more limited activity than class II. Symptoms happen at low levels of activity (such as walking on a flat surface).
- Class IV (severely affected): very limited activity as symptoms happen with all physical activity, and the person is breathless even when resting.

Exercise and different types of cardiomyopathies

- **Intensive or competitive exercise is not recommended for anyone with cardiomyopathy.**
- *Arrhythmic cardiomyopathy* (or arrhythmogenic right ventricular cardiomyopathy or ARVC) - some types of exercise make this condition worse and can increase arrhythmias and symptoms of heart failure in some people. Exercise for people with this condition needs to be considered carefully and specifically individualized, as it can be dangerous in people whose condition is unstable.
- *Dilated cardiomyopathy (DCM)* - for people who are on medication, with stable symptoms and who do not have heart failure or arrhythmias, exercise can be important. It can help to improve symptoms and is not likely to affect the underlying condition. How much exercise to do depends on the person's symptoms.
- *Hypertrophic cardiomyopathy (HCM)* - it is not clear whether it can increase the thickening of the heart, and in some people it can cause arrhythmias. If an arrhythmia is picked up during an exercise test during diagnosis, the person may be considered for an ICD (to control any future arrhythmias).

Exercising with an ICD (implantable cardioverter defibrillator).

Some people are concerned that a change in their heart rate due to exercise could cause their ICD to give them a shock. Generally, people with an ICD can exercise, and an ICD is no more likely to give a shock during exercise than at any other time.

- ICDs should give a shock when they detect abnormal, dangerous, heart rhythms (arrhythmias). These arrhythmias are usually faster (higher heart rate) than what happens during normal exercise. An exercise test may be helpful to program the ICD to check that it recognizes the person's normal heart rate and only gives a shock at the appropriate time.
- ICDs are made up of a generator (which generates the shock if it is needed), a battery (to power the device) and leads (wires that connect the ICD to the heart). For many people, after they have recovered from having it implanted, their ICD does not limit their physical movement. However, for some over-stretching the arm and shoulder could affect the leads. This may limit their movement and affect what exercise is suitable. This is something that they can discuss with their doctor.
- For some people, doing regular exercise might help to reduce the risk of arrhythmias. For anyone with an ICD, it is a good idea to warm up before, and to cool down after exercise. This helps to ensure that their heart rate increases and decreases gradually. This also reduces the risk of arrhythmias.

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Congestive Heart Failure (CHF)

AKA
Heart Failure

(CDC and NIH– Heart Failure, (AUSmed, and Doctor’s Handbook (DH))

Often called congestive heart failure because of fluid buildup in the lungs, liver, gastrointestinal tract, and the arms and legs. Heart failure is a serious condition that occurs when the heart cannot pump enough blood to meet the body’s needs. It does not mean that the heart has stopped but that muscle is too weak to pump enough blood. The majority of heart failure cases are chronic or long-term heart failures.

The only cure for heart failure is a heart transplant. However, heart failure can be managed with medications or medical procedures.

Conditions that damage or overwork the heart muscle can cause heart failure. Over time, the heart weakens. It is not able to fill with and/or pump blood as well as it should. As the heart weakens, certain proteins and substances might be released into the blood. These substances have a toxic effect on the heart and blood flow, and they worsen heart failure.

Causes of heart failure include:

- Coronary heart disease
- Diabetes
- High blood pressure
- Other heart conditions or diseases
 - Arrhythmia.
 - Cardiomyopathy.
 - Congenital heart defects. Problems with the heart’s structure are present at birth.
 - Heart valve disease. Occurs if one or more of your heart valves does not work properly, which can be present at birth or caused by infection, other heart conditions, and age.

Common symptoms of heart failure include:

- Shortness of breath during daily activities.
- Having trouble breathing when lying down.
- Weight gain with swelling in the feet, legs, ankles, or stomach.
- Generally feeling tired or weak.
 - All these symptoms are the result of fluid buildup in your body. When symptoms start, you may feel tired and short of breath after routine physical effort, like climbing stairs.
 - As your heart grows weaker, symptoms get worse. You may begin to feel tired and short of breath after getting dressed or walking across the room. Some people have shortness of breath while lying flat.
 - Fluid buildup from heart failure also causes weight gain, frequent urination, and a cough that is worse at night and when you're lying down. This cough may be a sign of acute pulmonary edema. This is a condition in which too much fluid builds up in your lungs. The condition requires emergency treatment.

Treating Heart Failure

- Early diagnosis and treatment can improve quality and length of life for people who have heart failure.
- Treatment usually involves taking medications, reducing sodium in the diet, and getting daily physical activity.
- People with heart failure also track their symptoms each day so that they can discuss these symptoms with their health care team.

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Congestive Heart Failure

Continued

Exercise and/or Precautions (AUSmed (unless specified DH)

- Specific contraindications to exercise in patients with CHF include new onset atrial fibrillation, obstructive valvular disease, especially aortic stenosis, or active myocarditis (either viral or autoimmune). (DH)
- CHF patients with diastolic and systolic dysfunction should refrain from swimming. (DH)
- Recent studies show – if cardiac exercise is properly administered and supervised – a huge spectrum of patients with HF can safely participate, including patients with both systolic and diastolic dysfunction, atrial fibrillation, pacemakers, implantable cardioversion devices, and post-cardiac transplantation.
- Patients who are unstable or decompensated should not participate in exercise until stable; in fact, some programs will not permit patients to exercise until they have been stable for 3 months or more.
- No matter the official diagnoses, no HF patient is considered appropriate for exercise training until they are evaluated and assessed for current physical status, medical regime, and exercise tolerance. Patients should undergo an assessment with particular attention paid to signs or symptoms related to heart failure, such as the presence of new heart sounds, lung crackles, weight gain, or edema.

Chronic Heart Failure and Exercise Red Flags

Signs and symptoms during exercise include:

- Hypotension (typically after exercise),
- Arrhythmias (both atrial and ventricular)
- A general worsening of CHF symptoms (dyspnea, swelling, etc.).
- Many patients with CHF already experience vacillating levels of symptoms from day to day; when this is the case, it is harder to determine if any decline in status is due to the exercise program or the disease itself.

Unstable symptoms may include:

- Dyspnea: at rest/orthopnea (change from baseline), sudden onset of shortness of breath (SOB), worsening SOB, exertional dyspnea, gasping
- Arterial oxygen saturation (SaO₂) less than 90%
- Coughing up pink/frothy sputum
- Dizziness or syncope
- Chest pain
- Systolic blood pressure (BP) less than 80 to 90mmHg and symptomatic
- Evidence of hypoperfusion (cyanosis, decreased level of consciousness, etc.)

Why is the CHF patient a special risk?

- The body reacts differently to exertion and do not experience the normal physiological and compensatory responses that are commonly seen during an exercise session.
- Multiple medications, including beta blockers, ACE inhibitors and diuretics, all of which dramatically alter how the heart responds to exercise stimuli.
- Pacemaker, implantable defibrillator or other device may alter the capacity to respond to exercise.
- Patients who have developed heart failure typically have a history of hypertension, coronary artery disease and/or diabetes. Each of these comorbidities brings its own special needs to the exercise table.

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Heart Attack

AKA

Myocardial infarction

(CDC, NIH and
Cleveland Clinic)

Coronary artery disease (CAD) is the main cause of heart attack. A heart attack happens when the flow of oxygen-rich blood to a section of heart muscle suddenly becomes blocked and the heart cannot get oxygen. If blood flow is not restored quickly, the section of heart muscle begins to die.

A less common cause is a severe spasm, or sudden contraction, of a coronary artery that can stop blood flow to the heart muscle.

Not all heart attacks begin with the sudden, crushing chest pain that often is shown on TV or in the movies. In one study, for example, one-third of the patients who had heart attacks had no chest pain. These patients were more likely to be older, female, or diabetic.

The symptoms of a heart attack can vary from person to person. Some people can have few symptoms and are surprised to learn they have had a heart attack. If you have already had a heart attack, your symptoms may not be the same for another one. It is important for you to know the most common symptoms of a heart attack and remember these facts:

- Heart attacks can start slowly and cause only mild pain or discomfort. Symptoms can be mild or more intense and sudden. Symptoms also may come and go over several hours.
- People who have high blood sugar (diabetes) may have no symptoms or very mild ones.
- The most common symptom, in both men and women, is chest pain or discomfort.
- Women are somewhat more likely to have shortness of breath, nausea and vomiting, unusual tiredness (sometimes for days), and pain in the back, shoulders, and jaw.
- Some people do not have symptoms at all. Heart attacks that occur without any symptoms or with very mild symptoms are called silent heart attacks.

Most Common Symptoms

- Chest pain or discomfort. Most heart attacks involve discomfort in the center or left side of the chest. The discomfort usually lasts for more than a few minutes or goes away and comes back. It can feel like pressure, squeezing, fullness, or pain. It also can feel like heartburn or indigestion. The feeling can be mild or severe.
- Upper body discomfort. You may feel pain or discomfort in one or both arms, the back, shoulders, neck, jaw, or upper part of the stomach (above the belly button).
- Shortness of breath. This may be your only symptom, or it may occur before or along with chest pain or discomfort. It can occur when you are resting or doing a little bit of physical activity.
- The symptoms of angina can be similar to the symptoms of a heart attack. Angina is chest pain that occurs in people who have coronary heart disease, usually when they are active. Angina pain usually lasts for only a few minutes and goes away with rest.
- Chest pain or discomfort that doesn't go away or changes from its usual pattern (for example, occurs more often or while you're resting) can be a sign of a heart attack.

If you have had a heart attack, your heart may be damaged. This could affect your heart's rhythm, pumping action, and blood circulation. You also may be at risk for another heart attack or conditions such as stroke, kidney disorders, and peripheral arterial disease (PAD). You can lower your chances of having future health problems following a heart attack with these steps:

Physical Activity

- Talk to your health care team about the things you do each day in your life and work. Your doctor may want you to limit work, travel, or sexual activity for some time after a heart attack.

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Heart Attack

Continued

Lifestyle Changes

- Eating a healthier diet, increasing physical activity, quitting smoking, and managing stress—in addition to taking prescribed medications—can help improve your heart health and quality of life.
- Ask your health care team about attending a program called cardiac rehabilitation to help you make these lifestyle changes.

Exercise and/or Precautions (Cleveland Clinic)

After a heart attack it is important to begin a regular activity program to help reduce the chance of having additional heart problems. Your doctor will let you know when it is the right time to begin an exercise program. Most patients are given a prescription for Cardiac Rehabilitation. Patients who join cardiac rehabilitation programs have a faster and safer recovery and better outcomes after a heart attack. It is important to follow your cardiac rehabilitation team's instructions for activity.

Everyone recovers at a different pace. This may be related to your activity level before your heart attack or the amount of damage to your heart muscle. It may take many months to develop the optimal exercise program. Here are some general guidelines from our cardiac rehabilitation staff to get started.

- Enroll in an outpatient cardiac rehab program to assist with developing the best exercise program and assisting with lifestyle changes such as heart healthy diet, quitting smoking, weight loss and stress management. Cardiac rehabilitation is covered by most insurance companies for patients after a heart attack.
- Returning to exercise after a heart attack or beginning a new exercise program can be challenging or anxiety provoking. Starting with small amounts and steadily building your program over time will help to set you up for success. A cardiac rehabilitation program will provide you with the support you need to get on a heart healthy path.
- Start slowly and gradually increase your walking pace over 3 minutes until the activity feels moderate (slightly increased breathing but should still be able to talk with someone). If you feel too short of breath, slow down your walking pace.
- Walk at a moderate pace for about 10 minutes the first time and each day try to add one or two minutes. By the end of a month, aim for walking 30 minutes most days of the week.
- Remember to cool down at the end of your exercise by gradually walking slower for the last 3 minutes of your exercise.
- If walking outside, walk with someone or in short distances close to home so you do not get too far away and have a hard time walking home.
- Choose an activity that you enjoy such as walking (outside or on a treadmill), stationary cycling, rowing, or water aerobics.
- Ask your doctor before lifting weights.
- Exercise should be done regularly to gain the benefits; national guidelines suggest most days of the week if not every day.
- Try to exercise at the same time every day to establish a habit and to minimize any variables that may impact your exercise (timing of meals, medications, work schedule, etc.)
- If you notice any symptoms such as excessive shortness of breath, chest discomfort, palpitations that do not go away or increasing fatigue, stop your exercise and notify your doctor.
- After a heart attack many things may have changed including energy level and medications. These may affect your exercise tolerance; keep your exercise expectations day to day as you go through the healing process.

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Palpitations

(NIH palpitations)

You may feel palpitations in your chest, throat, or neck during activity or when you are sitting still or lying down. Strong emotions, physical activity, some medicines, caffeine, alcohol, nicotine, or illegal drugs may cause palpitations. Medical conditions such as thyroid disease, low blood sugar, anemia, and low blood pressure also may cause palpitations. Heart palpitations may be a sign or symptom of arrhythmia, an irregular heartbeat, or other heart conditions such as heart attack, heart failure, heart valve disease, or cardiomyopathy.

Although palpitations are very common and usually harmless, they can be frightening when they happen and may cause anxiety. Most go away on their own. To prevent palpitations, you can try to avoid things that trigger them, such as stress, alcohol, or caffeine. You also may prevent palpitations by treating any other medical condition that may be causing them.

Palpitations may be a sign of more serious heart problems. You should seek medical attention immediately if you have palpitations and feel dizzy or confused, have trouble breathing, thinking you may faint, or have pain or tightness in your chest.

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<p>Peripheral Arterial Disease (PAD)</p> <p>AKA</p> <ul style="list-style-type: none">*Atherosclerotic peripheral arterial disease*Claudication*Hardening of the arteries*Leg cramps from poor circulation*Peripheral arterial disease*Peripheral vascular disease*Poor circulation*Vascular disease <p>(CDC and NIH PAD and Cinahl Information Systems)</p>	<p>Occurs when the arteries that supply blood to the arms and legs (the periphery) become narrow or stiff. PAD usually results from atherosclerosis, the buildup of plaque and narrowing of the arteries. With this condition, blood flow and oxygen to the arm and leg muscles are low or even fully blocked. Signs and symptoms include leg pain, numbness, and swelling in the ankles and feet.</p> <ul style="list-style-type: none">• Blocked blood flow to your legs can cause pain and numbness. It also can raise your risk of getting an infection in the affected limbs. Your body may have a hard time fighting the infection.• If severe enough, blocked blood flow can cause gangrene (tissue death). In very serious cases, this can lead to leg amputation.• If you have leg pain when you walk or climb stairs, talk with your doctor. Sometimes older people think that leg pain is just a symptom of aging. However, the cause of the pain could be PAD. Tell your doctor if you are feeling pain in your legs and discuss whether you should be tested for PAD.• Smoking is the main risk factor for PAD. If you smoke or have a history of smoking, your risk of PAD increases. Other factors, such as age and having certain diseases or conditions, also increase your risk of PAD. <p>The most common cause of peripheral artery disease (PAD.) is <i>atherosclerosis</i>. The disease may start if certain factors damage the inner layers of the arteries. These factors include:</p> <ul style="list-style-type: none">• Smoking• High amounts of certain fats and cholesterol in the blood• High blood pressure• High amounts of sugar in the blood due to insulin resistance or diabetes <p>When damage occurs, your body starts a healing process. The healing may cause plaque to build up where the arteries are damaged. Eventually, a section of plaque can rupture (break open), causing a blood clot to form at the site. The buildup of plaque or blood clots can severely narrow or block the arteries and limit the flow of oxygen-rich blood to your body.</p> <p>Presentation/signs and symptoms</p> <p>Patients might present with a history of chronic and reproducible activity-related IC</p> <ul style="list-style-type: none">• Described as burning, heaviness/deep fatigue, and/or cramping in the legs• Onset often begins in the calf muscles• Bilateral or unilateral• Pain might extend to proximal leg muscles (thigh and buttock) in severe cases• Pain is relieved by slowing or stopping the activity• Only present in 10% of patients with PAD; in fact, the American Heart Association estimates that 75% of the 8-12 million Americans with PAD are asymptomatic• The intensity of IC pain typically increases with the intensity/speed and distance of leg exercise such as walking or cycling• Weak lower extremity pulses and $ABI \leq 90$• Bruit (i.e., vascular sound heard through auscultation when blood flow is abnormal) might be present over carotid arteries, abdominal aorta, and iliac and femoral arteries• Patient might also present with resting leg pain, non-healing wounds, and impotence/erectile dysfunction
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Peripheral Arterial Disease (PAD) *Continued*

Living With Peripheral Artery Disease Symptoms (*Cinahl Information Systems*)

- If you have PAD., you may feel pain in your calf or thigh muscles after walking. Try to take a break and allow the pain to ease before walking again. Over time, this may increase the distance that you can walk without pain.
- Talk with your doctor about taking part in a supervised exercise program. This type of program has been shown to reduce PAD. symptoms.
- Check your feet and toes regularly for sores or possible infections. Wear comfortable shoes that fit well. Maintain good foot hygiene and have professional medical treatment for corns, bunions, or calluses.

Exercise and/or Precautions

Overall Contraindications/Precautions (*Cinahl Information Systems*)

- Obtain physician clearance for patient to participate in individualized exercise training program; adhere to any parameters set by the physician for vitals and exercise intensity.
- Deep vein thrombosis (DVT) with or without critical limb ischemia contraindicates exercise.
- Acute limb ischemia is a medical emergency and any patient suspected of having this (see symptoms listed above, under Description) should be immediately referred to emergency services.
- Ischemic leg pain at rest is a relative contraindication to exercise. However, critical limb ischemia should be immediately ruled out (especially in patients with diabetes, neuropathy, chronic renal failure, or limb infection) as risk of amputation is high.
- Multiple precautions might be warranted depending on any existing comorbidities, scope of disabilities, and weight-bearing restrictions from physician.

LOST TEMPLE FITNESS

Pacemaker

(NIH and
LiveStrong -
Pacemakers)

A pacemaker is a small device that is placed in the chest or abdomen to help control abnormal heart rhythms. This device uses electrical pulses to prompt the heart to beat at a normal rate.

- Used to treat *arrhythmias*. During an arrhythmia, the heart can beat too fast, too slow, or with an irregular rhythm.
- A heartbeat that is too fast is called tachycardia. A heartbeat that is too slow is called bradycardia.
- During an arrhythmia, the heart may not be able to pump enough blood to the body. This can cause symptoms such as fatigue (tiredness), shortness of breath, or fainting. Severe arrhythmias can damage the body's vital organs and may even cause loss of consciousness or death.
- A pacemaker can relieve some arrhythmia symptoms, such as fatigue and fainting. A pacemaker also can help a person who has abnormal heart rhythms resume a more active lifestyle.

Once you have a pacemaker, you must avoid close or prolonged contact with electrical devices or devices that have strong magnetic fields. Devices that can interfere with a pacemaker include:

- Cell phones and MP3 players (for example, iPods)
- Household appliances, such as microwave ovens
- High-tension wires
- Metal detectors
- Industrial welders
- Electrical generators

These devices can disrupt the electrical signaling of your pacemaker and stop it from working properly. You may not be able to tell whether your pacemaker has been affected.

- How likely a device is to disrupt your pacemaker depends on how long you are exposed to it and how close it is to your pacemaker.
- To be safe, some experts recommend not putting your cell phone or MP3 player in a shirt pocket over your pacemaker (if the devices are turned on).
- You may want to hold your cell phone up to the ear that is opposite the site where your pacemaker is implanted. If you strap your MP3 player to your arm while listening to it, put it on the arm that is farther from your pacemaker.
- You can still use household appliances, but avoid close and prolonged exposure, as it may interfere with your pacemaker.
- You can walk through security system metal detectors at your normal pace. Security staff can check you with a metal detector wand as long as it isn't held for too long over your pacemaker site. You should avoid sitting or standing close to a security system metal detector. Notify security staff if you have a pacemaker.
- Also, stay at least 2 feet away from industrial welders and electrical generators.

Some medical procedures can disrupt your pacemaker. These procedures include:

- Magnetic resonance imaging, or MRI
- Shock-wave lithotripsy to get rid of kidney stones.
- Electrocauterization to stop bleeding during surgery.

Let all your doctors, dentists, and medical technicians know that you have a pacemaker. Your doctor can give you a card that states what kind of pacemaker you have. Carry this card in your wallet. You may want to wear a medical ID bracelet or necklace that states that you have a pacemaker.

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<p>Pacemaker <i>Continued</i></p>	<p>Exercise and/or Precautions</p> <ul style="list-style-type: none">• In most cases, having a pacemaker will not limit you from doing sports and exercise, including strenuous activities.• Although there are not many limitations on exercise after a pacemaker, there are some, particularly in the first months after implantation. According to Arrythmia.org, you should avoid exercises like golf, swimming, tennis, or other exercises involving extensive range of motion in the shoulders during the first six weeks after surgery. You should also avoid heavy lifting during this time.• According to Cardiac Athletes.org, contact sports are <i>not</i> suitable for a person with a pacemaker, as these sports may damage your pacemaker. You should also take care, even after six weeks, when doing exercises requiring shoulder motion, as these may cause you to crush the pacemaker wire between your first rib and clavicle. (<i>LiveStrong</i>)
<p>Implantable Cardioverter Defibrillator (ICD)</p> <p>AKA Cardiac implantable devices or Defibrillators</p> <p>(<i>HealthLine</i>)</p> <p>See Cardiomyopathy for Exercise and/or Precautions</p>	<p>An implantable cardioverter defibrillator (ICD) is a small device that your doctor can put into your chest to help regulate an irregular heart rhythm, or an arrhythmia. Although it is smaller than a deck of cards, the ICD contains a battery and a small computer that monitors your heart rate. The computer delivers small electrical shocks to your heart at certain moments. This helps control your heart rate.</p> <p>Doctors most commonly implant ICDs in people who have life-threatening arrhythmias and who are at risk for sudden cardiac arrest, a condition in which the heart stops beating. Arrhythmias can be congenital (something you were born with) or a symptom of heart disease.</p> <p>You might benefit from an ICD if you have:</p> <ul style="list-style-type: none">• A very fast and dangerous heart rhythm called ventricular tachycardia.• Erratic pumping, which is referred to as quivering or ventricular fibrillation.• A heart weakened by a history of heart disease or a previous heart attack.• An enlarged or thickened heart muscle, which is called dilated, or hypertrophic, cardiomyopathy.• Congenital heart defects, such as long QT syndrome, which causes heart quivering.• Heart failure <p>An ICD can also deliver up to four types of electrical signals to your heart:</p> <ul style="list-style-type: none">• Cardioversion. Cardioversion gives a strong electrical signal that can feel like a thump to your chest. It resets heart rhythms to normal when it detects a very fast heart rate.• Defibrillation. Defibrillation sends a very strong electrical signal that restarts your heart. The sensation is painful and can knock you off your feet but lasts only a second.• Antitachycardia pacing provides a low-energy pulse meant to reset a rapid heartbeat. Typically, you feel nothing when the pulse occurs. However, you may sense a small flutter in your chest.• Bradycardia pacing restores to normal speed a heartbeat that is too slow. In this situation, the ICD works like a pacemaker. People with ICDs usually have hearts that beat too fast. However, defibrillation can sometimes cause the heart to slow down to a dangerous level. Bradycardia pacing returns the rhythm to normal. <p>Certain objects can interfere with your device's performance, so you will need to avoid them. These include security systems, certain medical equipment, like MRI machines, power generators. You should also try to keep cell phones and other mobile devices at least six inches away from your ICD.</p>

LOST TEMPLE FITNESS

Hypertension and Hypotension

Hypertension

AKA

High Blood Pressure

(CDC & NIH Blood pressure)

High blood pressure usually has no warning signs or symptoms, so many people don't realize they have it. There is only one way to know whether you have high blood pressure: Have a doctor or other health professional measure it. Measuring your blood pressure is quick and painless.

What Blood Pressure Numbers Mean?

Blood pressure is measured using two numbers. The first number, called systolic blood pressure, represents the pressure in your blood vessels when your heart beats. The second number, called diastolic blood pressure, represents the pressure in your blood vessels when your heart rests between beats. Blood pressure is measured in millimeters of mercury (mmHg).

The chart below shows normal, at-risk, and high blood pressure levels. A blood pressure less than 120/80 mmHg is normal. A blood pressure of 140/90 mmHg or more is too high. People with levels from 120/80 mmHg to 139/89 mmHg have a condition called pre-hypertension, which means they are at high risk for high blood pressure.

Blood Pressure Levels

- Normal
systolic: less than 120 mmHg
diastolic: less than 80mmHg
- At risk (pre-hypertension)
systolic: 120–139 mmHg
diastolic: 80–89 mmHg
- High
systolic: 140 mmHg or higher
diastolic: 90 mmHg or higher

It is important to have regular blood pressure readings taken and to know your numbers, because high blood pressure usually does not cause symptoms until serious complications occur.

Undiagnosed or uncontrolled high blood pressure can cause the following complications:

- Aneurysms
- Chronic kidney disease
- Eye damage
- Heart attack
- Heart failure
- Peripheral artery disease
- Stroke
- Vascular dementia

Controlling High Blood Pressure

Keeping your blood pressure levels in a healthy range usually involves:

- Taking medications
- Heart-healthy eating
- Reducing sodium in the diet
- Getting daily physical activity
- Quitting smoking.

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Hypotension

(NIH Hypotension)

Hypotension is abnormally low blood pressure. Blood pressure is the force of blood pushing against the walls of the arteries as the heart pumps out blood.

- Blood pressure is measured as systolic and diastolic pressures. "Systolic" refers to blood pressure when the heart beats while pumping blood. "Diastolic" refers to blood pressure when the heart is at rest between beats.
- You most often will see blood pressure numbers written with the systolic number above or before the diastolic number, such as 120/80 mmHg. (The mmHg is millimeters of mercury—the units used to measure blood pressure.)
- Normal blood pressure in adults is lower than 120/80 mmHg. Hypotension is blood pressure that's lower than 90/60 mmHg.

There are several types of hypotension.

People who always have low blood pressure have chronic asymptomatic hypotension. They usually have no signs or symptoms and need no treatment. Their low blood pressure is normal for them. The three main types of this kind of hypotension are orthostatic hypotension, neurally mediated hypotension, and severe hypotension linked to shock.

Orthostatic Hypotension. The signs and symptoms of orthostatic hypotension and neurally mediated hypotension (NMH) are similar. They include:

- Dizziness or light-headedness
- Blurry vision
- Confusion
- Weakness
- Fatigue (feeling tired)
- Nausea (feeling sick to your stomach)
- This type of hypotension occurs when standing up from a sitting or lying down position. You may feel dizzy or light-headed, or you may even faint.
- Orthostatic hypotension occurs if your body isn't able to adjust blood pressure and blood flow fast enough for the change in position. The drop in blood pressure usually lasts only for a few seconds or minutes after you stand up. You may need to sit or lie down for a short time while your blood pressure returns to normal.
- Orthostatic hypotension can occur in all age groups. However, it is more common in older adults, especially those who are frail or in poor health. This type of hypotension can be a symptom of another medical condition. Thus, treatment often focuses on treating underlying conditions.
- Some people also have high blood pressure when lying down.
- A form of orthostatic hypotension called postprandial hypotension is a sudden drop in blood pressure after a meal. This type of hypotension mostly affects older adults. People who have high blood pressure or a central nervous system disorder, such as Parkinson's disease, also are at increased risk for postprandial hypotension.

Neurally Mediated Hypotension

- See Orthostatic above for signs and symptoms.
- With neurally mediated hypotension (NMH), blood pressure drops after you've been standing for a long time. You may feel dizzy, faint, or sick to the stomach as a result. NMH also can occur as the result of an unpleasant, upsetting, or scary situation.
- NMH affects children and young adults more often than people in other age groups. Children often outgrow NMH.

Severe Hypotension Linked to Shock

- Shock is a life-threatening condition in which blood pressure drops so low that the brain, kidneys, and other vital organs can't get enough blood to work well. Blood pressure drops much lower in shock than in other types of hypotension.

LOST TEMPLE FITNESS

Hypotension

Continued

- Many factors can cause shock. Examples include major blood loss, certain severe infections, severe burns and allergic reactions, and poisoning. Shock can be fatal if it's not treated right away.
- Signs and Symptoms
 - In shock, not enough blood and oxygen flow to the body's major organs, including the brain. The early signs and symptoms of reduced blood flow to the brain include light-headedness, sleepiness, and confusion.
 - In the earliest stages of shock, it may be hard to detect any signs or symptoms. In older people, the first symptom may only be confusion.
 - Over time, as shock worsens, a person won't be able to sit up without passing out. If the shock continues, the person will lose consciousness. Shock often is fatal if not treated right away.
 - Other signs and symptoms of shock vary, depending on what's causing the shock. When low blood volume (from major blood loss, for example) or poor pumping action in the heart (from heart failure, for example) causes shock:
 - The skin becomes cold and sweaty. It often looks blue or pale. If pressed, the color returns to normal more slowly than usual. A bluish network of lines appears under the skin.
 - The pulse becomes weak and rapid.
 - The person begins to breathe very quickly.
 - When extreme relaxation of blood vessels causes shock (such as in vasodilatory shock), a person feels warm and flushed at first. Later, the skin becomes cold and sweaty, and the person feels very sleepy.
 - Shock is an emergency and must be treated right away. If a person has signs or symptoms of shock, call 9–1–1.

Living with Hypotension

- Doctors can successfully treat hypotension. Many people who had the condition and were successfully treated live normal, healthy lives.
- If you have hypotension, you can take steps to prevent or limit symptoms, such as dizzy spells and fainting.
- If you have orthostatic hypotension, get up slowly after sitting or lying down, or move your legs before changing your position. Eat small, low-carbohydrate meals if you have postprandial hypotension (a form of orthostatic hypotension).
- If you have neurally mediated hypotension, try not to stand for long periods. If you do have to stand for a long time, move around and wear compression stockings. These stockings apply pressure to your lower legs. The pressure helps move blood throughout your body.
- Drink plenty of fluids, such as water or sport drinks that contain nutrients like sodium and potassium. Also, try to avoid unpleasant, upsetting, or scary situations. Learn to recognize symptoms and take action to raise your blood pressure.
- Ask your doctor about learning how to measure your own blood pressure. This will help you find out what a normal blood pressure reading is for you. Keeping a record of blood pressure readings done by health providers also can help you learn more about your blood pressure.
- Severe hypotension linked to shock is an emergency. Shock can lead to death if it's not treated right away. If you see someone having signs or symptoms of shock, call 9–1–1.
 - Signs and symptoms of shock include light-headedness, sleepiness, and confusion. Over time, as shock worsens, a person won't be able to sit up without passing out. If the shock continues, the person can lose consciousness.
 - Other signs and symptoms of shock include cold and sweaty skin, a weak and rapid pulse, and rapid breathing.

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Cholesterol and Triglycerides

Cholesterol

(CDC Cholesterol)

Cholesterol travels through the blood on proteins called “lipoproteins.” Two types of lipoproteins carry cholesterol throughout the body:

- LDL (low-density lipoprotein), sometimes called “bad” cholesterol, makes up most of your body’s cholesterol. High levels of LDL cholesterol raise your risk for heart disease and stroke.
- HDL (high-density lipoprotein), or “good” cholesterol, absorbs cholesterol and carries it back to the liver. The liver then flushes it from the body. High levels of HDL cholesterol can lower your risk for heart disease and stroke.

When your body has too much LDL cholesterol, the LDL cholesterol can build up on the walls of your blood vessels. This buildup is called “plaque.” As your blood vessels build up plaque over time, the insides of the vessels narrow. This narrowing blocks blood flow to and from your heart and other organs. When blood flow to the heart is blocked, it can cause angina (chest pain) or a heart attack.

Overweight and obesity raise levels of LDL (“bad”) cholesterol. Excess body fat affects how your body uses cholesterol and slows down your body’s ability to remove LDL cholesterol from your blood. The combination raises your risk of heart disease and stroke.

There are two sources of cholesterol: cholesterol made by the body and dietary cholesterol.

- Cholesterol is made in your liver. Your body uses cholesterol to make hormones and digest fatty foods. Your body makes all the cholesterol it needs.
- Dietary cholesterol is in animal foods, such as egg yolks, fatty meats, and regular cheese. In general, foods that are high in dietary cholesterol are also high in saturated fat.

Lowering Your Risk

- If you have high LDL cholesterol levels, your health care team may recommend cholesterol-lowering medicine and lifestyle changes to lower your risk for heart disease and stroke.
- If you have low HDL cholesterol levels, talk to your doctor about lifestyle changes that may help raise your levels.

Your body makes all of the cholesterol it needs, so you do not need to obtain cholesterol through foods. Eating lots of foods high in saturated fat and trans fat may contribute to high cholesterol and related conditions, such as heart disease.

What you can do:

- Limit foods high in saturated fat. Saturated fats come from animal products (such as cheese, fatty meats, and dairy desserts) and tropical oils (such as palm oil). Foods that are higher in saturated fat may be high in cholesterol.
- Choose foods that are low in saturated fat, trans fat, sodium (salt), and added sugars. These foods include lean meats; seafood; fat-free or low-fat milk, cheese, and yogurt; whole grains; and fruits and vegetables.
- Eat foods naturally high in fiber, such as oatmeal and beans (black, pinto, kidney, Lima, and others) and unsaturated fats, which can be found in avocado, vegetable oils like olive oil and nuts). These foods may help prevent and manage high levels of low-density lipoprotein (LDL, or “bad”) cholesterol and triglycerides while increasing high-density lipoprotein (HDL, or “good”) cholesterol levels.
- Physical activity can help you maintain a healthy weight and lower your cholesterol and blood pressure levels.

LOST TEMPLE FITNESS

Cholesterol

Continued

- Smoking damages your blood vessels, speeds up the hardening of the arteries, and greatly increases your risk for heart disease. If you don't smoke, don't start. If you do smoke, quitting will lower your risk for heart disease.
- Too much alcohol can raise cholesterol levels and the levels of triglycerides, a type of fat in the blood. Avoid drinking too much alcohol. Men should have no more than two drinks per day, and women should have no more than one.

Types of Cholesterol-lowering Medicine

Several types of medicines help lower LDL cholesterol. The chart below describes each type and how it works.

Type of Medicine

- Statin drugs lower LDL cholesterol by slowing down the liver's production of cholesterol. They also increase the liver's ability to remove LDL cholesterol that is already in the blood.
- Bile acid sequestrants help remove cholesterol from the blood stream by removing bile acids. The body needs bile acids and makes them by breaking down LDL cholesterol.
- Niacin or nicotinic acid Niacin is a B vitamin that can improve all lipoprotein levels. Nicotinic acid raises high-density lipoprotein (HDL) cholesterol levels while lowering total cholesterol, LDL cholesterol, and triglyceride levels.
- Fibrates mainly lower triglycerides.
- Injectable medicine. A newer type of medicine called PCSK9 inhibitors lowers cholesterol. These medicines are primarily used in people who have familial hypercholesterolemia, a genetic condition that causes very high levels of LDL cholesterol.

All drugs may have side effects, so talk with your health care team, including your pharmacist, on a regular basis. Once your cholesterol levels have improved, your health care team will monitor them to ensure they stay in a healthy range.

Who Needs Cholesterol-lowering Medicine?

Your treatment plan for high cholesterol will depend on your current cholesterol levels and your risk of heart disease and stroke. Your risk for heart disease and stroke depends on other risk factors, including high blood pressure and high blood pressure treatment, smoking status, age, high-density lipoprotein cholesterol level, total cholesterol level, diabetes, family history, and whether you have already had a heart attack or stroke.

Your health care provider may prescribe medicine if:

- You have already had a heart attack or stroke, or you have peripheral arterial disease.
- Your LDL cholesterol level is 190 mg/dL or higher.
- You are 40–75 years old with diabetes and an LDL cholesterol level of 70 mg/dL or higher.
- You are 40–75 years old with a high risk of developing heart disease or stroke and an LDL cholesterol level of 70 mg/dL or higher.

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<p>Triglycerides (High Blood) Also called</p> <p>*Hypertriglyceridemia *Dyslipidemia *Lipid Disorder</p> <p><i>(NIH triglycerides)</i></p>	<p>High blood triglycerides are a type of lipid disorder, or dyslipidemia. This condition may occur on its own, with other lipid disorders such as high blood cholesterol or low HDL cholesterol, or as part of metabolic syndrome.</p> <p>Certain medical conditions, genetics, lifestyle habits, and some medicines are all risk factors for high blood triglycerides. Medical conditions that may increase blood triglyceride levels include thyroid disease, diabetes, liver and kidney diseases, and overweight and obesity. Sometimes the gene you inherited can cause high blood triglyceride levels. Being physically inactive, eating foods that are high in fat and sugar, or drinking too much alcohol may increase blood triglycerides. Some medicines used to treat breast cancer, high blood pressure, HIV, and other conditions may also increase triglyceride levels in the blood.</p> <p>High blood triglycerides usually do not cause any symptoms. Untreated or uncontrolled high blood triglyceride levels may increase your risk of serious complications such as coronary heart disease and stroke. Very high blood triglycerides can increase the risk of acute pancreatitis, which is inflammation of the pancreas that causes severe pain in the abdomen.</p> <p>Based on your risk factors and your personal and family health histories, your doctor may recommend testing you for high blood triglycerides with a routine blood test called a lipid panel. A lipid panel measures the total cholesterol, HDL cholesterol, LDL cholesterol, and triglyceride levels in your blood. Your doctor may diagnose you with high blood triglycerides if your fasting blood triglyceride levels are consistently 150 milligrams per deciliter (mg/dL) or higher. Normal fasting blood triglyceride levels are less than 75 mg/dL for children under the age of 10 and less than 90 mg/dL for children aged 10 and older and adults.</p> <p>If you are diagnosed with high blood triglycerides, your doctor may first recommend that you adopt heart-healthy lifestyle changes, such as healthy eating, which includes limiting alcohol, added sugars, and foods high in saturated or trans fats; getting regular physical activity; quitting smoking; and aiming for a healthy weight. Your doctor may also prescribe medicines such as fibrates, omega-3 fatty acids, nicotinic acid, or statins to control or lower your triglyceride levels.</p>
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LOST TEMPLE FITNESS

Stroke aka Cerebrovascular accident (CVA) & TIA's

Quick Summary

Understanding a Stroke

- A stroke, sometimes called a brain attack or CVA, occurs when something blocks blood supply to part of the brain or when a blood vessel in the brain bursts. In either case, parts of the brain become damaged or die. A stroke can cause lasting brain damage, long-term disability, or even death.

Risk Factors

- Certain traits, conditions, and habits can raise your risk of having a stroke or transient ischemic attack (TIA). These traits, conditions, and habits are known as risk factors. The more risk factors you have, the more likely you are to have a stroke.

Signs and Symptoms

- The signs and symptoms of a stroke often develop quickly. However, they can develop over hours or even days. The type of symptoms depends on the type of stroke and the area of the brain that is affected.

Stroke Complications

- After you have had a stroke, you may develop other complications, such as: Blood Clots, Muscle Weakness, Pneumonia, Difficulty Swallowing, Loss of Bladder Control

Hemorrhagic stroke

- A hemorrhagic stroke happens when an artery in the brain leaks blood or ruptures (breaks open). The bleeding causes swelling of the brain and increased pressure in the skull.

Transient ischemic attack (TIA) aka Mini Stroke

- This is different from the major types of stroke because blood flow to the brain is blocked for only a short time—usually no more than 5 minutes.

LOST TEMPLE FITNESS

Stroke aka Cerebrovascular accident (CVA) & TIA's

Stroke

AKA

*Cerebrovascular accident (CVA)

*Brain Attack

* Hemorrhagic Stroke

*Ischemic Stroke

(CDC and NIH Stroke)

A stroke, sometimes called a brain attack or CVA, occurs when something blocks blood supply to part of the brain or when a blood vessel in the brain bursts. In either case, parts of the brain become damaged or die. A stroke can cause lasting brain damage, long-term disability, or even death.

Understanding Stroke

To understand stroke, it helps to understand the brain. The brain controls our movements, stores our memories, and is the source of our thoughts, emotions, and language. The brain also controls many functions of the body, like breathing and digestion.

To work properly, your brain needs oxygen. Although your brain makes up only 2% of your body weight, it uses 20% of the oxygen you breathe. Your arteries deliver oxygen-rich blood to all parts of your brain.

What Happens During a Stroke?

If something happens to block the flow of blood, brain cells start to die within minutes because they cannot get oxygen. This causes a stroke.

There are two types of strokes:

- An **ischemic** stroke occurs when blood clots or other particles block the blood vessels to the brain. Fatty deposits called plaque can also cause blockages by building up in the blood vessels.
- A **hemorrhagic** stroke occurs when a blood vessel bursts in the brain. Blood builds up and damages surrounding brain tissue.

Both types of stroke damage brain cells. Symptoms of that damage start to show in the parts of the body controlled by those brain cells.

See more below in next section on TIA/ Ischemic and hemorrhagic stroke.

Risk Factors

Certain traits, conditions, and habits can raise your risk of having a stroke or transient ischemic attack (TIA). These traits, conditions, and habits are known as risk factors. The more risk factors you have, the more likely you are to have a stroke. You can treat or control some risk factors, such as high blood pressure and smoking. Other risk factors, such as age and gender, you can't control.

The major risk factors for stroke include:

- High blood pressure. High blood pressure is the main risk factor for stroke. Blood pressure is considered high if it stays at or above 140/90 millimeters of mercury (mmHg) over time. If you have diabetes or chronic kidney disease, high blood pressure is defined as 130/80 mmHg or higher.
- Diabetes. Diabetes is a disease in which the blood sugar level is high because the body doesn't make enough insulin or doesn't use its insulin properly. Insulin is a hormone that helps move blood sugar into cells where it's used for energy.
- Heart diseases. Coronary heart disease, cardiomyopathy, heart failure, and atrial fibrillation can cause blood clots that can lead to a stroke.
- Smoking. Smoking can damage blood vessels and raise blood pressure. Smoking also may reduce the amount of oxygen that reaches your body's tissues. Exposure to secondhand smoke also can damage the blood vessels.
- Age and gender. Your risk of stroke increases as you get older. At younger ages, men are more likely than women to have strokes. However, women are more likely to die from strokes. Women who take birth control pills also are at slightly higher risk of stroke.

LOST TEMPLE FITNESS

Stroke

Continued

- Race and ethnicity. Strokes occur more often in African American, Alaska Native, and American Indian adults than in white, Hispanic, or Asian American adults.
- Personal or family history of stroke or TIA. If you've had a stroke, you're at higher risk for another one. Your risk of having a repeat stroke is the highest right after a stroke. A TIA also increases your risk of having a stroke, as does having a family history of stroke.
- Brain aneurysms or arteriovenous malformations (AVMs). Aneurysms are balloon-like bulges in an artery that can stretch and burst. AVMs are tangles of faulty arteries and veins that can rupture (break open) within the brain. AVMs may be present at birth, but often aren't diagnosed until they rupture.

Other risk factors for stroke, many of which of you can control, include:

- Alcohol and illegal drug use, including cocaine, amphetamines, and other drugs
- Certain medical conditions, such as sickle cell disease, vasculitis (inflammation of the blood vessels), and bleeding disorders
- Lack of physical activity
- Overweight and Obesity
- Stress and depression
- Unhealthy cholesterol levels
- Unhealthy diet
- Use of nonsteroidal anti-inflammatory drugs (NSAIDs), but not aspirin, may increase the risk of heart attack or stroke, particularly in patients who have had a heart attack or cardiac bypass surgery. The risk may increase the longer NSAIDs are used. Common NSAIDs include ibuprofen and naproxen.

Signs and Symptoms

The signs and symptoms of a stroke often develop quickly. However, they can develop over hours or even days. The type of symptoms depends on the type of stroke and the area of the brain that is affected. How long symptoms last and how severe they are vary among different people.

Signs and symptoms of a stroke may include:

- Sudden weakness
- Paralysis (an inability to move) or numbness of the face, arms, or legs, especially on one side of the body
- Confusion
- Trouble speaking or understanding speech
- Trouble seeing in one or both eyes
- Problems breathing
- Dizziness, trouble walking, loss of balance or coordination, and unexplained falls
- Loss of consciousness
- Sudden and severe headache
- A transient ischemic attack (TIA) has the same signs and symptoms as a stroke. However, TIA symptoms usually last less than 1–2 hours (although they may last up to 24 hours). A TIA may occur only once in a person's lifetime or more often.

At first, it may not be possible to tell whether someone is having a TIA or stroke. All stroke-like symptoms require medical care.

If you think you or someone else is having a TIA or stroke, call 9–1–1 right away. Do not drive to the hospital or let someone else drive you. Call an ambulance so that medical personnel can begin life-saving treatment on the way to the emergency room. During a stroke, every minute counts.

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<p>Stroke <i>Continued</i></p>	<p><i>Stroke Complications</i> After you have had a stroke, you may develop other complications, such as:</p> <ul style="list-style-type: none">• Blood clots and muscle weakness. Being immobile (unable to move around) for a longtime can raise your risk of developing blood clots in the deep veins of the legs. Being immobile also can lead to muscle weakness and decreased muscle flexibility.• Problems swallowing and pneumonia. If a stroke affects the muscles used for swallowing, you may have a hard time eating or drinking. You also may be at risk of inhaling food or drink into your lungs. If this happens, you may develop pneumonia.• Loss of bladder control. Some strokes affect the muscles used to urinate. You may need a urinary catheter (a tube placed into the bladder) until you can urinate on your own. Use of these catheters can lead to urinary tract infections. Loss of bowel control or constipation also may occur after a stroke. <p><i>Treating Stroke Risk Factors</i> After initial treatment for a stroke or TIA, your doctor will treat your risk factors. He or she may recommend heart-healthy lifestyle changes to help control your risk factors. Heart-healthy lifestyle changes may include:</p> <ul style="list-style-type: none">• Heart-healthy eating• Aiming for a healthy weight• Managing stress• Physical activity• Quitting smoking• If heart-healthy lifestyle changes are not enough, you may need medicine to control your risk factors.
<p>HEMORRHAGIC STROKE</p>	<p>A hemorrhagic stroke happens when an artery in the brain leaks blood or ruptures (breaks open). The bleeding causes swelling of the brain and increased pressure in the skull. The leaked blood puts too much pressure on brain cells, which damages them. High blood pressure and aneurysms—balloon-like bulges in an artery that can stretch and burst—are examples of conditions that can cause a hemorrhagic stroke.</p> <p>There are two types of hemorrhagic strokes:</p> <ul style="list-style-type: none">• Intracerebral hemorrhage is the most common type of hemorrhagic stroke. It occurs when an artery in the brain bursts, flooding the surrounding tissue with blood.• Subarachnoid hemorrhage is a less common type of hemorrhagic stroke. It refers to bleeding in the area between the brain and the thin tissues that cover it. <p>Examples of conditions that can cause a hemorrhagic stroke include high blood pressure, aneurysms, and arteriovenous malformations (AVMs).</p> <ul style="list-style-type: none">• "Blood pressure" is the force of blood pushing against the walls of the arteries as the heart pumps blood. If blood pressure rises and stays high over time, it can damage the body in many ways.• Aneurysms are balloon-like bulges in an artery that can stretch and burst. AVMs are tangles of faulty arteries and veins that can rupture within the brain. High blood pressure can increase the risk of hemorrhagic stroke in people who have aneurysms or AVMs.

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TRANSIENT ISCHEMIC ATTACK (TIA)

Also Called Mini-Stroke

A transient ischemic attack (TIA) is sometimes called a “mini-stroke.” It is different from the major types of stroke because blood flow to the brain is blocked for only a short time—usually no more than 5 minutes. Most strokes (87%) are ischemic strokes. An ischemic stroke happens when blood flow through the artery that supplies oxygen-rich blood to the brain becomes blocked. Blood clots often cause the blockages that lead to ischemic strokes.

Ischemic Stroke and Transient Ischemic Attack

- An ischemic stroke or transient ischemic attack (TIA) occurs if an artery that supplies oxygen-rich blood to the brain becomes blocked. Many medical conditions can increase the risk of ischemic stroke or TIA. For example, atherosclerosis is a disease in which a fatty substance called plaque builds up on the inner walls of the arteries. Plaque hardens and narrows the arteries, which limits the flow of blood to tissues and organs (such as the heart and brain).
- Plaque in an artery can crack or rupture (break open). Blood platelets, which are disc-shaped cell fragments, stick to the site of the plaque injury and clump together to form blood clots. These clots can partly or fully block an artery.
- Plaque can build up in any artery in the body, including arteries in the heart, brain, and neck. The two main arteries on each side of the neck are called the carotid arteries. These arteries supply oxygen-rich blood to the brain, face, scalp, and neck.
- When plaque builds up in the carotid arteries, the condition is called carotid artery disease. Carotid artery disease causes many of the ischemic strokes and TIAs that occur in the United States.
- An embolic stroke (a type of ischemic stroke) or TIA also can occur if a blood clot or piece of plaque breaks away from the wall of an artery. The clot or plaque can travel through the bloodstream and get stuck in one of the brain’s arteries. This stops blood flow through the artery and damages brain cells.
- Heart conditions and blood disorders also can cause blood clots that can lead to a stroke or TIA. For example, atrial fibrillation, or A-Fib, is a common cause of embolic stroke.
- In A-Fib, the upper chambers of the heart contract in a very fast and irregular way. As a result, some blood pools in the heart. The pooling increases the risk of blood clots forming in the heart chambers.

It is important to know that:

- A TIA is a warning sign of a future stroke.
- A TIA is a medical emergency, just like a major stroke.
- Strokes and TIAs require emergency care. Call 9-1-1 right away if you feel signs of a stroke or see symptoms in someone around you.
- There is no way to know in the beginning whether symptoms are from a TIA or from a major type of stroke. Like ischemic strokes, blood clots often cause TIAs.
- More than a third of people who have a TIA and don’t get treatment have a major stroke within 1 year. As many as 10% to 15% of people will have a major stroke within 3 months of a TIA.
- Recognizing and treating TIAs can lower the risk of a major stroke. If you have a TIA, your health care team can find the cause and take steps to prevent a major stroke.

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Mobility and Exercise after a Stroke

(Stroke Foundation - Mobility and Exercise after Stroke fact sheet & NIH)

What you need to know

- A stroke can affect how well you sit, move, balance, stand and walk.
- Your physiotherapist will work with you to set goals and develop a rehabilitation program to meet your needs.
- Exercise will improve your fitness, your general health and reduce your risk of having another stroke.

How a stroke can affect mobility

After a stroke, you may experience:

- Weakness. Your foot and leg may be paralyzed completely or they may be weak. Paralysis on one side of the body is called hemiplegia. Weakness on one side of the body is called hemiparesis.
- Planning or coordinating problems. You may have difficulty planning leg movements. This is called apraxia. You may also have difficulty coordinating movements which makes them feel slow or clumsy. This is called ataxia.
- Changes in the muscles. You may have high tone which makes your muscles stiff and tight. This is called hypertonia or spasticity. Alternatively, your muscles may be floppy or loose. This is called low tone or hypotonia.
- Balance. You may have difficulty keeping your balance, feel unsteady or dizzy.
- Contracture. If your muscles are tight or weak, they can become shorter. This can result in the joint becoming fixed in one position.
- Changes in sensation. You might lose feeling, have pins and needles or have increased feeling (hypersensitivity).
- Swelling. If your leg or foot does not move as well as it used to, fluid may build up.
- Fatigue. You may feel very tired after walking even a short distance. This is made worse because as you may have to concentrate hard on even simplest movements.
- Pain. You may experience pain in your leg after a stroke, most often in the hip. This can make walking more difficult.

Rehabilitation after Stroke (NIH Stroke)

After a stroke, you may need rehabilitation (rehab) to help you recover. Rehab may include working with speech, physical, and occupational therapists.

- Language, Speech, and Memory. You may have trouble communicating after a stroke. You may not be able to find the right words, put complete sentences together, or put words together in a way that makes sense. You also may have problems with your memory and thinking clearly. These problems can be very frustrating. Speech and language therapists can help you learn ways to communicate again and improve your memory.
- Muscle and Nerve Problems. A stroke may affect only one side of the body or part of one side. It can cause paralysis (an inability to move) or muscle weakness, which can put you at risk for falling. Physical and occupational therapists can help you strengthen and stretch your muscles. They also can help you relearn how to do daily activities, such as dressing, eating, and bathing.
- Bladder and Bowel Problems. A stroke can affect the muscles and nerves that control the bladder and bowels. You may feel like you have to urinate often, even if your bladder isn't full. You may not be able to get to the bathroom in time. Medicines and a bladder or bowel specialist can help with these problems.
- Swallowing and Eating Problems. You may have trouble swallowing after a stroke. Signs of this problem are coughing or choking during eating or coughing up food after eating. A speech therapist can help you with these issues. They may suggest changes to your diet, such as eating puréed (finely chopped) foods or drinking thick liquid.

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Mobility and Exercise after a Stroke

Continued

Treatment and Recovery (Stroke Foundation)

Mobility difficulties affect everyone differently. Your physiotherapist will assess how well you move, sit, stand and walk. They will then work with you to set goals and develop a rehabilitation program to meet your needs.

Your rehabilitation will focus on your specific difficulties. You may need to relearn how to:

- Roll over in bed.
- Move from sitting to standing.
- Move from a bed to a chair or a toilet (transferring).
- Walk.
- Exercises
 - Specifically prescribed exercises can improve your strength, coordination, balance, sensation, or fitness. Often this can be done during daily activities such as standing or walking. This is known as task-specific activity and is the most effective way to improve.
 - Repetition is key to improvement, so you may do movements many times. Movement and exercises can help to reduce muscle stiffness and pain.
 - Electrical stimulation may be used to strengthen weak muscles. Equipment such as treadmills may also be used as part of your rehabilitation program. Your therapist may also recommend video games to help you practice.
 - Weakness and contracture can cause 'foot drop'. This is when the foot or ankle drops down when you lift your leg to take a step.
 - A plastic brace known as an ankle-foot orthosis (AFO) may be used for foot drop. These braces support the foot and ankle to help minimize tripping and reduce fall risks.
 - While you may make the most improvement in the first six months, regular activity will help you to continue your recovery. If you have been experiencing fatigue, depression or pain since your stroke regular exercise may help. Exercise improves your fitness, your general health and reduces your risk of having another stroke.
 - You could join a fitness center or an exercise group at your local community health center. Talk to your doctor or physiotherapist before beginning or changing an exercise program.

Falls

- After a stroke, you may be at increased risk of falling. Wear comfortable, firm-fitting, flat shoes with a low broad heel and soles that grip. Do not wear poorly fitted slippers or walk in socks.
- Your therapists can assess how safe you are in different situations, such as going up and down stairs and walking outdoors. Your physiotherapist may advise you to use a walking frame, stick or wheelchair, and will make sure you are using it safely. Your occupational therapist may assess your home for hazards and suggest equipment to prevent falls, such as a handrail or shower chair.

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Exercise and Stroke

The following section is from the **National Stroke Association** booklet **HOPE: THE STROKE RECOVERY GUIDE** (Section 4) The entire PDF can be found at either:

<http://www.stroke.org/stroke-resources/library/hope-stroke-recovery-guide> OR
file:///D:/Documents/Documents/Cardiac/HOPEGuide_2016_FINAL_online.pdf

Movement	The most common physical effect of stroke is muscle weakness and having less control of an affected arm or leg. Survivors often work with therapists to restore strength and control through exercise programs. They also learn skills to deal with the loss of certain body movements.
Paralysis	Paralysis is the inability of muscle or group of muscles to move on their own. After stroke, signals from the brain to the muscles often don't work right. This is due to stroke damage to the brain. This damage can cause an arm or leg to become paralyzed and/or to develop spasticity.
Spasticity	<p>Spasticity is a condition where muscles are stiff and resist being stretched. It can be found throughout the body but may be most common in the arms, fingers or legs. Depending on where it occurs, it can result in an arm being pressed against the chest, a stiff knee or a pointed foot that interferes with walking. It can also be accompanied by painful muscle spasms.</p> <p>Treatment Options for Spasticity</p> <ul style="list-style-type: none">• Treatment for spasticity is often a combination of therapy and medicine. Therapy can include range-of motion exercises, gentle stretching, and splinting or casting.• Medicine can treat the general effects of spasticity and act on multiple muscle groups in the body.• Injections of botulinum toxin can prevent the release of chemicals that cause muscle contraction.• One form of treatment involves the delivery of a drug directly into the spinal fluid using a surgically placed pump.• Surgery is the last option to treat spasticity. It can be done on the brain or the muscles and joints. Surgery may block pain and restore some movement.
Exercise	<p>Walking, bending and stretching are forms of exercise that can help strengthen your body and keep it flexible. Mild exercise, which should be undertaken every day, can take the form of a short walk or a simple activity like sweeping the floor. Stretching exercises, such as extending the arms or bending the torso, should be done regularly. Moving weakened or paralyzed body parts can be done while seated or lying down. Swimming is another beneficial exercise if the pool is accessible, and a helper is available. Use an exercise program that is written down, with illustrations and guidelines for a helper if necessary.</p> <p><i>Fatigue</i> Fatigue while exercising is to be expected. Like everyone else, you will have good and bad days. You can modify these programs to accommodate for fatigue or other conditions. Avoid overexertion and pain. However, some discomfort may be necessary to make progress.</p>

Starting an Exercise Program

Depending on the level of the stroke, you most likely have already participated in a rehab program and will continue advancing with the team's guidance. For those with a TIA or higher level strokes, you may be able to start a program as outlined in the second half of this book after speaking with your physician.

Please consult with your physician or rehab team before starting any exercise program or change in diet.

This book is for reference and does not substitute for advice by your doctor, as every person is different and may have comorbidities along with their primary disease.

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