



*Promoting Health and  
Preventing Complications  
Through Exercise*

*Rehabilitation Research and Training Center on Spinal Cord Injury*

# Coronary Heart Disease and SCI

2005

## What is Coronary Heart Disease?

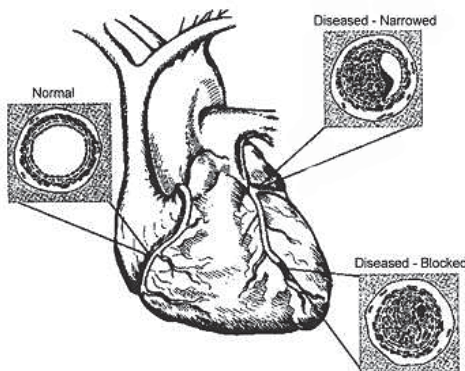
**C**oronary heart disease (CHD) is one of several diseases that may affect the heart and circulatory system. CHD is also known as coronary artery disease. The circulatory system includes the heart, arteries (blood vessels that carry blood from the heart to all parts of the body), and veins (blood vessels that carry blood from all parts of the body back to the heart). The underlying disease process that causes CHD is “atherosclerosis”, a blocking of arteries (“athero” refers to gruel or paste and “sclerosis” means hardness).

Atherosclerosis, or this blockage, results from fatty deposits in the walls of arteries. Over time, more and more deposits collect that restrict the flow of oxygen that is transported in the blood.

This process may occur in any artery in the body and the location of the diseased artery or arteries determines the type of disease that develops. If it occurs in arteries that supply the brain with blood and oxygen, a stroke may result. If it involves arteries that supply blood to the legs, it is called peripheral artery disease. When atherosclerosis occurs in the relatively narrow arteries that supply blood and oxygen to the heart muscle, it is termed CHD (corona=arteries of the heart circle the heart like a crown).

The heart muscle needs a constant supply of oxygen in order to properly do its job of pumping blood to all parts of our body 24 hours a day, seven days a week. So if this supply of blood and oxygen is significantly reduced, it can have a negative effect on the heart’s function and may even cause damage to the heart muscle (heart attack) or death.

Enlarged View of Heart Showing Cross Section of Arteries



Source: NHLBI

## Am I at risk for CHD?

The established risk factors for developing CHD for all of the population include:

- Abnormal levels of certain fats in the blood:
  - High levels of bad cholesterol or low density lipoprotein cholesterol (LDL-C),
  - Low levels of good cholesterol or high density lipoprotein cholesterol (HDL-C)
- High blood pressure (hypertension)
- Cigarette smoking
- Lack of physical activity or exercise
- Diabetes mellitus
- Being overweight or obese
- Older age
- Family history of premature CHD

## What role does my SCI play?

Having a spinal cord injury (SCI) may increase the risk for CHD because many of the risk factors for CHD are magnified for people with a SCI:

- Advanced age is a predisposing risk factor for CHD. People with SCI are now living longer after their injury and therefore have a longer period of time during which to develop atherosclerosis and CHD.
- Physical inactivity is a risk factor for CHD and persons with SCI tend to have low levels of regular exercise and physical activity.
- Abnormal levels of cholesterol is a risk factor for CHD and many people with SCI have high levels of bad cholesterol (LDL-C) and low levels of good cholesterol (HDL-C).



While having a spinal cord injury does not directly increase your risk for developing CHD, lower levels of physical activity and fitness do. To stay healthy, it has been recommended that adults engage in exercise or physical activity for 30 minutes at least 5 days of the week. Participation in regular exercise or physical activity poses unique challenges for most people with SCI. Barriers include physical limitations, access to standard and adapted exercise equipment, and transportation issues.

Another lifestyle issue related to CHD risk is diet. Persons who eat a diet that is high in calories (at least relative to the number of calories that are used for exercise) and fat content can often be overweight or obese and have high levels of LDL-C in the blood.

Since lack of physical activity, elevated levels of LDL-C, diabetes, and overweight/obesity are all risk factors for CHD and are sometimes more common in persons with SCI, you can see how these factors are interwoven with each other and can result in increased risk for CHD. This information should also be helpful to you in understanding why the Rehabilitation Research and Training Center at the National Rehabilitation Hospital is emphasizing physical activity as a means of improving the health status in persons with SCI.

## How do I know my risk for CHD?

**R**isk for CHD must be calculated on an individual basis based on your own health information. If you do not have a history of CHD, there is a system called the Framingham Risk Score that can calculate your personal risk percentage for developing CHD over the next 10 years. This score incorporates your gender, age, total cholesterol, HDL-C, systolic blood pressure (the top number of your blood pressure), and whether or not you are a smoker. If you know all of this information, you can calculate your 10 year risk of having a heart attack (<http://hin.nhlbi.nih.gov/atpiiii/calculator.asp?usertype=pub>). We recommend that you speak with your personal physician about this and other possible personal issues related to CHD.

## How can I reduce my risk?

**B**efore beginning any lifestyle changes, you should always discuss the idea with you doctor. Here are some ways to improve your heart health:

- Try to be physically active for 30 minutes on at least 5 days each week. This could involve several shorter sessions during the day (e.g., three 10-minute sessions) or one session of 30 minutes or more of continuous activity.
- Stop smoking.
- Know your blood pressure and work with your doctor to keep it below 140/90 mm Hg.
- Know your bad cholesterol value (LDL-C). A value of less than 130 mg/dL is recommended and less than 100 mg/dL is optimal.
- Know your good cholesterol value (HDL-C). A value of less than 40 mg/dL is low and 60 mg/dL or higher is good.
- Eat a diet that is low in saturated fats (for example, meats and dairy products) and trans-fats (for example, certain types of margarines and oils), and high in grains, fruits, and vegetables.
- Do not eat more calories than is needed to meet your daily energy needs.



## Take Home Tips

1. Exercise at least 5 days every week. If you are not physically fit now, regular exercise will improve your level of fitness.
2. Eating a healthy diet ([www.nal.usda.gov/fnic/dga/index.html](http://www.nal.usda.gov/fnic/dga/index.html)) will not only improve your heart health but will also be helpful in reducing your risk for certain other diseases (for example; diabetes and colon cancer).
3. Know what your values are for blood pressure and total and LDL-C. If they are not in the recommended range for good heart health, talk with your doctor about a plan to get them into the healthy range.

For more information or alternative formats, please visit our website at [www.sci-health.org](http://www.sci-health.org) or call 1-866-380-4344.

### Disclaimer

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