



*Promoting Health and  
Preventing Complications  
Through Exercise*

*Rehabilitation Research and Training Center on Spinal Cord Injury*

# Cholesterol, Other Fats, and SCI

2005

What is  
a lipid profile?



Source: CDC/Jim Gathany

A lipid profile is a clinical test obtained through a blood draw. It measures various cholesterol and fats that serve important roles in metabolism (the constant chemical reactions necessary for your body to function normally). A typical lipid profile has various components; most often the profile measures the total cholesterol, low-density lipoprotein cholesterol (LDL or “bad” cholesterol), and triglycerides (another fat found in the blood typically from animal and vegetable sources in the diet). The LDL is an important cholesterol fraction, as it accelerates heart and vascular disease, and also predicts the extent to which individuals are at risk for cardiovascular disease.

A complete lipid profile should definitely include measurement of the high-density lipoprotein cholesterol (HDL or “good” cholesterol), as high levels of HDL help to keep other fats from being deposited on blood vessel walls. Measurement of the HDL is especially important for those with a SCI, as low levels of HDL represent the most common lipid risk for this population. For best accuracy, the lipid profile should be measured following an overnight fast, and at least 8 hours after intake of caffeine or alcohol.

Am I at risk for  
an abnormal lipid  
profile?

About 1 in 3 American adults without disability have a lipid profile in need of improvement. Various factors help to clarify the risk imposed by your lipid profile:

- Genetics play an important part in the lipid profile. If your parents or grandparents had medical histories of heart and vascular disease it is possible that you will have these problems too.

- The lipid profile is worsened by use of tobacco products. Current evidence suggests that cigarettes are the most dangerous of tobacco products, and that smokeless tobacco poses a lesser, but still significant risk.

- An abnormal lipid profile is common in people with elevated blood pressure and diabetes.

- A diet that is high in saturated fat is a common cause for an abnormal lipid profile. The diet posing the greatest risk has an intake of fat that is greater than 30% of total calories, with fats coming from sources such as butter and red meat.

- Physical inactivity is commonly associated with an abnormal lipid profile and having low levels of the “good” HDL cholesterol.

## What role does my SCI play?



About half of all persons with SCI have at least one component (total cholesterol, LDL (or bad) cholesterol, and triglycerides) of the lipid profile that falls outside of the desired range. Various factors associated with SCI worsen the lipid profile and increase the risk of heart and vascular disease:

- Aging with SCI is a concern for patients and health professionals alike, as aging increases the likelihood that you will develop heart and circulatory diseases. These diseases often occur earlier in the lives of persons with SCI than in those without injury, may occur without typical signs and symptoms of impending heart damage, and can make the performance of typical daily activities more challenging.

- Diabetes is common in persons with SCI, especially in persons who are overweight or very sedentary. About 20-50% of persons with SCI have elevated levels of blood glucose that are typical of diabetics.

- While persons with tetraplegia generally have low blood pressure, many of those with paraplegia have elevated blood pressure, which is strongly associated with abnormal lipid profiles and heart disease.

## How do I know if I have a lipid profile that needs attention?

The easiest way is to have blood drawn and have the levels of cholesterol and lipids measured in a laboratory. In clinical use no single value for total cholesterol, LDL, HDL, or triglyceride can predict your risk for developing heart or circulatory disease. However, an elevated LDL is commonly used as the best predictor for disease risk. When elevated, LDL accelerates vascular disease that ultimately restricts the flow of oxygen-carrying blood to the heart.

In general, a healthy blood lipid profile should show the following:

- A total cholesterol less than 200 milligrams per deciliter of blood (mg/dL) to attain low disease risk, and below 240 mg/dL to avoid high risk.

- An HDL greater than 40 mg/dL to reduce risk of disease.

- A ratio of the HDL to total cholesterol (HDL: TC) of less than 4.5 to avoid high disease risk.

- An LDL less than 160 mg/dL to avoid risk. If you are overweight, have elevated blood pressure or diabetes, have a personal or family history of heart disease, or use tobacco products, the LDL level may need to be below 130 mg/dL, and possibly below 100 mg/dL to minimize your risk of developing symptomatic heart or circulatory disease.

How can I  
work with my  
doctor to reduce  
my risk?

**Y**ou've taken an important step toward disease prevention just by knowing whether you are at elevated risk. If your lipid profile is in need of improvement, the following steps taken with support of your physician or health care team will help lower your risk of heart and vascular disease:

- Stop using tobacco products. This is a key step in improving the lipid profile, and may require support of a counselor, group therapy, or medication.

- Improve your diet by reducing calories from saturated fat and by increasing the portions of lean meats, fish, and complex carbohydrates. Find a diet you can live with and stick with it.

- If possible, increase your level of daily physical activity. This is not always easy for persons with SCI, as higher levels of injury may limit duration and intensity of activity, or may require special exercise equipment. Also, certain exercises may worsen upper extremity pain, which is common among persons with SCI. A therapist skilled in treatment of persons with SCI may be able to suggest exercises that will help, without causing pain.

- Find out whether you have diabetes or elevated blood pressure. If diet and physical activity can't correct these diseases, talk to your doctor about being placed on medication to control them.

- Certain prescription medications can improve the lipid profile, and in some cases reduce the risks for heart attack and stroke. These medications should be discussed with your physician if your lipid profile shows you are at high disease risk, and especially if diet and physical activity are ineffective in improving your lipid profile.



## Take Home Tips

1. The amount of physical activity necessary to reduce disease is less than you think. The greatest benefits are achieved by attaining low, not high levels of fitness. If possible, add some activity to your life, such as yoga or light weight dumbbells.
2. Make a change in your diet and stick with it. There is no “one best diet” for those with SCI, although starting and stopping diets will certainly not work. Diets that totally restrict sugars may ultimately risk damage to your kidneys, and should be avoided.
3. Buddy up with someone who wants to achieve the same goals as you do, and support one another.
4. Enjoy small gains that are long-lasting. Everyone wants the big weight loss and grand fitness gain in the short term, but ‘slow and steady wins the race.’

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

### Disclaimer

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