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Levels	Your values:	Normal or Desirable	Borderline High	High (need treatment)
<b>Cholesterol</b>		<200	200-239	>239
<b>Triglycerides</b>		<150	150-199	>200
<b>HDL Cholesterol</b>		>59 (great)	45-59 Desirable	<40 Increased Risk
<b>LDL Cholesterol</b>		<70 if high risk <100 Optimal	100-129 Desirable 130-159 Borderline High	>159 High
<b>VLDL</b>		<32 Desirable		
<b>Cholesterol/HDL Ratio</b>		4.4 Average Risk Heart disease	7.1 2x Average Risk Heart disease	11.0 3x Average Risk Heart disease

**What do these numbers mean?**

**Cholesterol:** Your liver makes most of your body’s cholesterol to help carry fat to parts of your body that need fat for energy and repairs, or fat storage sites. Some cholesterol in your body comes from eating high cholesterol foods. High levels have been shown to correlate with an increased risk of cardiovascular disease as the fat is deposited in the arteries.

**LDL:** The LDL or low density lipoprotein is called “bad” cholesterol because it easily becomes adherent to blood vessel walls and contributes to narrowing and damage to the vessel.

**HDL:** The HDL or high density lipoprotein is a complex protein partially made up of cholesterol and triglycerides which transport cholesterol in the blood vessel wall back to the liver for disposal from the body. The higher the HDL value, the lower the risk for cardiovascular disease. Exercise, weight loss and estrogen increase this level.

**VLDL:** The VLDL carries fat from the liver to other parts of your body. VLDL becomes LDL after it unloads fat.

**Triglycerides:** Triglycerides are the storage and transportation system for lipids in the blood. This level rises shortly after a meal and for accuracy must be measured after an eight to ten hour fast. Excess carbohydrate (starch) consumed in the diet that cannot be used immediately for energy is converted into triglyceride and stored in the adipose tissue. A disorder of elevated serum triglycerides is seen secondary to stress, excessive alcohol use and dietary indiscretion. It may be associated with a predisposition to premature coronary artery disease. Weight reduction, when applicable, is the most effective treatment. Medications to lower serum triglycerides are available and are usually prescribed by an internist.

**How to Improve your Cholesterol Profile**

**Diet:** Changing your diet is often the most effective way to lower or maintain your cholesterol at a desirable level, though it may take a few months to begin to see the results. You can do this by eating less fat and cholesterol. The best way to find the fat content in processed food is to read the labels. Aim for less than 20 - 30 grams of fat each day.

**Tips to decrease cholesterol:**

Decrease total fat in the diet. Use less salad dressing, sauces, margarine, fried foods. Restaurant foods are great sources of “hidden fats”. Try some new fat-free products. Learn to love nonfat milk, low fat, and nonfat dairy products.

Polyunsaturated fats (better fats) include safflower, sunflower, corn, and soybean oils. These lower blood cholesterol but shouldn't be consumed in excessive amounts as the “good” fats have the same number of calories as the “bad” fats. Monounsaturated fats include olive, canola, and peanut oils; avocado, and most nuts. These also lower blood cholesterol but again contribute extra calories to the diet. Avoid cashews and macadamia nuts. You should avoid saturated fat from animal sources such as butter, lard and fatty meats. It is also found in vegetable sources such as coconut, palm, and “partially hydrogenated” oils, which are found in many processed foods.

Eat fish two or three times a week. Certain fish are high in Omega-3 fatty acids which are thought to help lower blood cholesterol. The fish highest in these fatty acids include salmon, mackerel, sardines, and trout. However, all fish contain some and are beneficial. DO NOT take fish liver oil capsules as excess can thin the blood, reduce clotting time, and contribute to the risk of stroke.

Eating soluble fiber lowers your cholesterol level by keeping the cholesterol you eat from being absorbed by your body. Oats, beans, and fruit are rich in insoluble fiber. These include oat bran (oatmeal), apples, carrots, and legumes (dried peas and beans).

When you choose margarine, this is how the label should read. First ingredient: “Liquid polyunsaturated oil” (safflower, sunflower, corn, soybean). Second ingredient: “Partially hardened or hydrogenated polyunsaturated oil”. Ratio of polyunsaturated to saturated fats should be 2: 1. Look for no trans fat.

**Weight and Exercise:** If you weigh too much, your body stores more fat and cholesterol than desirable. Regular aerobic exercise program can help raise your HDL level. Regular physical activity of 30 minutes/day is recommended for everyone.

**Other Cardiac Risk Factors:** High cholesterol is only one of the many risk factors for heart disease. You have no control over such factors as your family's history of elevated cholesterol or heart attacks. You can control other risks. Smoking lowers your HDL level and increases your risk of heart attack, stroke, and cancer. High blood pressure and diabetes can be controlled through diet, weight loss and medication. Stress reduction is also important.

**Treatment plan:**

- Dietary reduction in fat – eat plenty of fruits, vegetables, whole grains, and not-fat dairy items
- Continue daily exercise – perform at least 30 minutes of moderate-intensity activity most days
- Weight reduction – Achieve and maintain a BMI of 19 – 24
- Recheck in 3 months – Lab slip attached
- Recheck in 1 year
- See primary care physician for further treatment
- Normal – recheck in 3 to 5 years

**Resources:**

BMI chart: [www.diabetes.org/](http://www.diabetes.org/) or <http://www.losolivos-obgyn.com/gynecologicinformation.htm>

US Department of Health and Human Services: ([www.nhlbi.nih.gov/chd](http://www.nhlbi.nih.gov/chd))

“High Cholesterol: What you need to Know”; “Live Healthier, Live Longer”

“Aim for a Healthy Weight: ([www.nhlbi.nih.gov](http://www.nhlbi.nih.gov))

<http://diabetes.org/weightloss-and-exercise/weightloss/cholesterol.jsp>

[www.nutrition.gov](http://www.nutrition.gov)

[www.fitness.gov](http://www.fitness.gov)

“MedlinePlus” ([www.medlineplus.gov](http://www.medlineplus.gov)) Up-to-Date, quality health information from the National Library of Medicine