

Clarifying the Fat

By John M. Kennedy, MD, FACC
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In the culinary world, *clarifying fat* is a process where unsalted butter is slowly melted causing the water and milk solids to evaporate leading to a golden liquid on the surface. Once the foamy surface is skimmed off the top, the clear (clarified) butter is poured or skimmed off the milky residue and used in cooking. All this fuss allows for cooking with butter at higher temperatures.

I usually tell my patients to take the middle road and enjoy their favorites on occasion. For example, I encourage splurging on your birthday or anniversary and enjoying a decadent piece of chocolate cake.

However, “butter,” a.k.a. saturated animal fat, in any forms whether melted, whipped or clarified, should be avoided as much as possible.

And when talking to my patients about the meaning of their serum cholesterol, a.k.a. serum “fat” which includes LDL, HDL, and triglycerides, *clarification* of fat takes on a whole new meaning.

Furthermore, when clarifying the significance of your lipid levels it’s important to answer two questions:

- 1) What are the definitions of **total cholesterol, HDL, LDL and triglycerides**?
- 2) What are the ideal numbers or levels should you aim for?

What is cholesterol and why is it so bad?

First of all, not all cholesterol is bad. Cholesterol is an important molecule produced in our liver that’s essential for maintaining cell membranes. In addition, cholesterol serves as the back bone and building block for many vital hormones that keep our body functioning properly.

However, when there’s too much cholesterol in our blood it accumulates in the walls of our arteries in a process known as *atherosclerosis*. As the disease progresses the arterial wall weakens and can actually tear or become blocked ultimately decreasing blood flow. When blood flow is impaired the heart muscle gets thirsty which can lead to symptoms known as “angina” or in the worst case scenario, a heart attack.

High cholesterol is one of the major risk factors for heart disease which is the No. 1 killer of American men and women. What's encouraging is that by lowering blood cholesterol levels you can lower your cardiac risk.

Clarification of Fat: Cholesterol, HDL, LDL & Triglycerides

Imagine after fasting for 9 to 12 hours you go to your doctor's office and have your blood drawn to check your lipid panel. The following day you are called with results which include 4 numbers labeled as: Total cholesterol, LDL, HDL, and triglycerides.

Your doctor then offers you the following simplified definitions and ideal numbers that help clarify the significance of your various cholesterol levels.

LDL cholesterol (low density lipoprotein) is often referred to as the "bad" cholesterol because elevated levels of LDL cholesterol are associated with an increased risk of coronary heart disease. LDL lipoprotein deposits cholesterol on the artery walls, causing the formation of a hard, thick substance known as plaque. Goal number <100 mg/dl or <70 mg/dl if you have known atherosclerosis or are at high risk (see below).

HDL cholesterol (high density lipoprotein) is called the "good cholesterol" because HDL prevents atherosclerosis by extracting cholesterol from the artery walls and disposing of them through the liver. Goal number is >40mg/dl (the higher the better).

Triglycerides and VLDL

Triglyceride is a fatty substance composed of three fatty acids. Similar to cholesterol, triglyceride in the blood either comes from the diet or liver. They are packaged in the liver and carried in our blood as VLDL (very low density lipoprotein). It's not clear whether elevated triglyceride levels lead to atherosclerosis and heart attacks yet most doctors believe a high triglyceride level is a risk factor for atherosclerosis. However, what is clear is that elevated triglyceride levels are often associated with other high risk conditions such as obesity, low HDL, diabetes and certain high risk LDL particles. Goal number is <150 mg/dl.

Total cholesterol is the sum of LDL (low density) cholesterol, HDL (high density) cholesterol, VLDL (very low density) cholesterol. Goal number is < 200 mg/dl.

Trimming the Fat—the Big Picture

In summary, high levels of LDL cholesterol and low levels of HDL cholesterol (high LDL/HDL ratios) are risk factors for atherosclerosis. And your goal should be to have a low LDL and high HDL to decrease your cardiac risk.

Your goal numbers are based on whether you have known atherosclerosis or additional risk factors such as high blood pressure, smoking, diabetes and a family history of premature coronary artery disease. Make sure you talk to your doctor about where you fit in and what your goal numbers should be.

And even though I started by telling you to lay off the butter, I hope this information served to *clarify* your fat!

Dr. John Kennedy is an invasive cardiologist and board member of the American Heart Association. He has a particular interest in the negative impact of stress on our cardiovascular system and speaks regularly to businesses about managing stress in the workplace. Dr. Kennedy is co-author of the book "Breathe: Heal Your Heart in Just 15 Minutes a Day," which will be released by John Wiley & Sons in 2009.



John M. Kennedy, MD, FACC

For speaking engagements, please contact:
Caryn Shehi at Speakers Management
Address: 16344 Sharon Way
Grass Valley, CA 95949
Phone: 1-530-277-2008
Email: info@speakersmanagement.com
Website: <http://www.speakersmanagement.com/>