Cholesterol and Heart Health Online Boot Camp

Guide to Heart Tests

by Inger Pols

Quick Tricks

- Divide your total cholesterol by HDL to get an overall sense of heart health. Your total cholesterol/HDL ratio should be less than 3.

- Next divide your Triglycerides by your HDL. If your ratio is less than 2, you have predominantly large, fluffy LDL particles that are not going to do you much harm. If your ratio is greater than 4, you have a lot of small, dense LDL particles that can easily oxidize and accelerate the development of atherosclerotic plaques – regardless of your total cholesterol levels. (If your ratio is high, it's also a good predictor of insulin resistance, which will lead to diabetes.)

Tests Everyone Should Get

LDL Particle Number and Size

Rather than testing LDL as a whole, testing LDL particle umber and size provides a much more accurate assessment of your heart health risk. You will want to see total LDL particles of less than 1000 nmol/L, total small LDL particles of less than 600 nmol/L, and LDL size greater than 21 nm.

In addition, it can be helpful to test HDL size and you should see HDL size of greater than 9 nmol/L. If you test VLDL, you should see a result of less than 0.1 nmol.

HDL

If your HDL is less than 40 mg/dL you are likely deficient in the protective benefits of large HDL and your heart health risks are increased. If your HDL is above 60 mg/dL, you likely have a healthy amount of the large HDL and are receiving heart protective benefits from having good HDL. In between 40 and 60, you may or may not be deficient but you are not getting the heart protective benefits high HDL provides.

Triglycerides

Triglyceride blood levels are classified as follows:

- Triglyceride levels less than 150 mg/dL are considered "desirable."
- Triglyceride Levels between 150 and 199 mg/dL are considered "borderline high."
- Triglyceride levels between 200 and 499 mg/dL are considered "high."
- Triglyceride levels at 500 mg/dL or greater are considered "very high."

C-Reactive Protein or Inflammation

According to the American Heart Association:

You are at low risk of developing cardiovascular disease if your hs-CRP level is lower than 1.0mg/L

You are at average risk of developing cardiovascular disease if your levels are between 1.0 and 3.0 mg/L

You are at high risk for cardiovascular disease if your hs-CRP level is higher than 3.0 mg/L

Blood Pressure

Normal Blood Pressure

For an adult, relaxed at rest	Less than 120/80 mmHg
Pre-Hypertension	Systolic pressure of 120-139 mmHg or Diastolic pressure of 80-89 mmHg
High Blood Pressure Stage 1	Systolic pressure of 140-159 mmHg or Diastolic pressure of 90-99 mmHg
High Blood Pressure Stage 2	Systolic pressure of 160 mmHg or higher or Diastolic pressure of 100 mmHg or higher

Vitamin D

For optimum health, vitamin D blood levels should be around 50-80 ng/mL (125-200 nmol/L).

Please note the different measurements: one is nanograms per millileter and one is nanomolecules per Liter. Doctors and labs use both so you have to be careful that you're looking at the right measurements and ranges.

Fasting Blood Glucose

Traditionally, you will see fasting blood glucose measurements such as those in the following table. **However, more physicians are now suggesting that normal glucose is actually under 80 and levels between 80 and 100 indicate pre-diabetes or insulin sensitivity** and levels between 100 and 125 indicate insulin resistance.

GLUCOSE LEVEL	INDICATION
From 70 to 99 mg/dL (3.9 to 5.5 mmol/L)	Normal fasting glucose
From 100 to 125 mg/dL (5.6 to 6.9 mmol/L)	Impaired fasting glucose (pre-diabetes)
126 mg/dL (7.0 mmol/L) and above on more than one testing occasion	Diabetes

Additional Tests You May Wish to Consider

OMEGA 3 Index TEST

A simple new blood test available from your physician or directly through the mail will tell you then status of 26 essential fatty acids and give you an index of your 3-6 ratio. The resulting omega 3 index measures the levels of EPA and DHA omega 3s in red blood cells and is a percent of total fatty acids. Studies have shown the people with low omega 3 indexes are 10 times more likely to die of a heart attack. If your physician doesn't have the test or your insurance won't cover it, you can buy it online from doctors and labs, such as Dr. Mark Hyman at www.drhyman.com.

Calcium Scoring

A normal score is zero, with no calcium being seen and between 1 and 80 or some say 100 as being moderate and over 100 is high risk. Scores of 400 are not unheard of.

PLAC Test

PLAC Test or Lp-PLA2 is a better means of assessing plaque and therefore heart attack and stroke risk with less harmful impact than calcium scoring, especially when the patient is not considered to be high risk. It measures vascular inflammation and is more heart predictive than a CRP test. Desirable results are less than 200 ng/mL.

MPO TEST

If you test for MPO, a white blood cell present with cardiovascular disease, you will want to see a result of less than 400 pM. If your risk factors and/or family history are of concern, this test will tell you your risk of having a heart incident in the next 1-6 months with 95% accuracy.

Other Heart Health Tests Available (but Less Commonly Used)

Homocysteine

Homocysteine is rarely covered by insurance unless you are a high risk patient. If you get tested, you'll want to see a score of below 8.9 units, though some physicians are now saying it should be below 8. (The lower the better). In between 9 and 19.9 units, your risk will increase from significant to extremely high, in correlation with the increase, of dying a premature death from a chronic condition or degenerative disease. Over 20 units, you're at risk of heart attack or stroke, **right now.**

Lpa Testing

Lpa may be tested if heart disease runs in the family. Desirable levels of Lpa are less then 30 mg/dL/

Fibrinogen

Because there are no drug treatments to prescribe, it is unlikely your physician will ever order your fibrinogen to be tested. So while fibrinogen is shown to be directly correlated to increased heart disease risk, especially when CRP levels are elevated as well, if you have this test done, you will need to request it yourself. If you test for fibrinogen to evaluate the stickiness of your blood and the likelihood of clots, the acceptable ranges are not universally agreed upon. Some clinics say that you will want to see levels less than 300 mg/dL, which others provide a range of acceptable levels from 200-400 mg/dL.

N-Terminal proB type Natriuretic Peptide

High or elevated amounts of this blood protein indicate an increased risk of heart failure or heart attack. If your NT-proBNP is tested, desirable results are less than 125 pg/mL.