

## Heart Disease Health Center

### Heart Disease and C-Reactive Protein (CRP) Testing

C-reactive protein -- or CRP -- appears to be correlated to heart disease risk. Inflammation (swelling) of the arteries has been linked to an increased risk of heart disease, heart attack, stroke, and peripheral arterial disease.

Doctors can test your blood for CRP. The body produces CRP during the general process of inflammation. Therefore, CRP is a "marker" for inflammation, meaning its presence indicates an increased state of inflammation in the body.

#### **C-Reactive Protein and Heart Disease Risk**

In studies involving large numbers of patients, CRP levels seem to be correlated with levels of heart disease risk. In fact, CRP seems to predict cardiovascular risk at least as well as cholesterol levels do. Data from the Physicians Health Study, a clinical trial involving 18,000 apparently healthy doctors, found that elevated levels of CRP were associated with a threefold increase in the risk of heart attack.

In the Harvard Women's Health Study, results of the CRP test were more accurate than cholesterol levels in predicting heart problems. Twelve different markers of inflammation were studied in healthy, postmenopausal women. After three years, CRP was the strongest predictor of risk. Women in the group with the highest CRP levels were more than four times as likely to have died from coronary disease, or to have suffered a nonfatal heart attack or stroke compared to those with the lowest levels. This group was also more likely to have required a cardiac procedure such as angioplasty (a procedure that opens clogged arteries with the use of a flexible tube) or bypass surgery than women in the group with the lowest levels.

#### **How Is C-Reactive protein Measured?**

CRP is measured with a simple blood test, which can be done at the same time your cholesterol is checked. One such test is the high-sensitivity C-reactive protein (hs-CRP, also called ultra-sensitive CRP or us-CRP) test.

Heart disease risk is determined based on your test results.

CRP	Risk for Cardiovascular Disease
Less than 1.0 mg/L	Low
1.0-2.9 mg/L	Intermediate
Greater than 3.0 mg/L	High

It's important to note that inflammation due to other conditions, such as an infection, illness, or a serious flare-up of arthritis, can raise CRP levels. Before getting the CRP test, tell your doctor what other medical conditions you have.

## Should I Have My C-Reactive Protein Level Tested?

The American Heart Association (AHA) states hs-CRP may be useful in evaluating those at moderate risk for heart disease and determining whether or not more intensive treatment is warranted. Those at high risk should be treated aggressively regardless of their hs-CRP level.

The AHA does not recommend hs-CRP testing as routine screening for people who are not at high risk for heart disease.

Having more of the following risk factors increases your risk of heart disease.

- A previous heart attack or stroke.
- A family history of heart disease.
- Elevated total and LDL cholesterol levels.
- Low HDL level.
- High blood pressure.
- Being male or a post-menopausal woman.
- Cigarette smoker.
- Uncontrolled diabetes or high blood pressure.
- Physical inactivity.
- Obesity or being overweight.

In addition, research suggests that it may be beneficial to have your CRP level checked if you are going to undergo a heart treatment such as angioplasty. Studies show that higher levels may increase the risk that the artery will close after it is opened by balloon angioplasty. Ask your doctor for specific guidelines regarding your situation.

It is important for everyone to make these lifestyle changes to reduce your risk for heart disease, especially if your CRP level is intermediate or high:

- Eating a heart-healthy diet.
- Reducing high cholesterol levels.
- Maintaining a healthy weight.
- Exercising regularly.
- Managing diabetes and high blood pressure.
- Quitting smoking or tobacco use.
- Drinking less alcohol.

For those with an elevated CRP level, taking aspirin may provide protection from heart disease. Statins, the most commonly prescribed cholesterol-lowering drugs, may reduce CRP. Your doctor will prescribe the correct medications and dosage to treat your condition.