

What is CRP and how is it tied to heart disease?

C-reactive protein (CRP) is a substance that is released into the blood in response to inflammation, the process by which the body responds to injury. Elevated levels of CRP in the blood mean that there is inflammation somewhere in the body, but other tests are needed to determine the cause and location of the inflammation.

Physicians now believe that atherosclerosis, or hardening of the arteries, is an inflammatory process. Atherosclerosis causes only a small amount of CRP to be released into the blood. Therefore, a very sensitive test called a high-sensitivity CRP test (hs-CRP) is used to measure CRP levels.

CRP Levels

CRP Risk Levels	
Risk Category	CRP (mg/L)
Low	Less than 1.0
Average	1.0 to 3.0
High	Above 3.0

CRP is measured in milligrams per liter of blood (mg/L). The risk categories above were established by the American Heart Association (AHA) and the Centers for Disease Control and Prevention (CDC) in 2003 using information drawn from largely white populations. Since then, studies have shown that CRP levels vary by race/ethnicity and are higher in women than in men. CRP may be tested in people hospitalized for heart attack or unstable chest pain. In these cases a level above 10 mg/L is considered high.¹ CRP is affected by some medications—[hormone therapy](#) increases CRP levels.

2

Are CRP levels higher in women?

When the AHA and CDC set cutoffs for high and low CRP, it was assumed that levels were similar in men and women. Research now shows that women have higher levels of CRP than men. A Dallas study of nearly 2,750 people aged 30 to 65 years (more than half were women)

found that CRP levels were almost twice as high in women than in men (3.3 vs. 1.8 mg/L).³ Even after accounting for traditional heart disease risk factors and the use of [hormone therapy](#) or the cholesterol lowering [statin](#) drugs (both closely tied to CRP levels), white women were 60% more likely, and black women were 70% more likely to have high CRP than white men. Being [overweight or obese](#) was very strongly associated with high CRP. Excess weight appears to raise women's CRP levels more so than men's.

4

Do CRP levels vary by race/ethnicity?

An analysis of the Women's Health Study that included more than 25,500 female health professionals older than 45 years showed that CRP levels vary by race. Black women had higher CRP levels (2.96 mg/L) than white (2.02 mg/L), Hispanic (2.06 mg/L), or Asian (1.12 mg/L) women.⁵ Asian women had lower, and Hispanic women had similar, CRP levels when compared with white women. A Canadian study of more than 1200 people found that CRP levels are higher in South Asians (2.59 mg/L) than in Chinese men and women (1.18 mg/L).

6

CRP testing of more than 3,200 American Indians aged 45 to 74 years (64% were women) found that levels were much higher than those reported for other populations.⁷ The AHA and CDC cutoffs were not useful for predicting the risk of heart attack or dying from heart disease in this population. The authors suggested an alternative upper cutoff (above 4.0 mg/L) for Native Americans.

[Next: CRP & Heart Risk](#)

[SEO](#) by [AceSEF](#)