

C-Reactive Protein and Sleep Apnea

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If you aren't involved in the medical field, it's unlikely you know what C-reactive protein is. You might be surprised by how much this protein plays a role in your body, though!

Overall High levels of C-Reactive Protein in your blood is a definitive marker for Cardiovascular Disease and Sleep Apnea.

What is C-Reactive Protein (CRP)?

The liver produces this protein. It impacts how much inflammation is present in the body. Higher CRP levels mean more inflammation.

The type of inflammation CRP affects is present throughout the whole body. Therefore, it is known as systemic inflammation. Systemic inflammation is a good indicator of different injuries and diseases.

CRP can be measured through blood tests and is usually read to determine the amount of systemic inflammation in one's body. High levels of CRP (and therefore high systemic inflammation) are relatively unnatural for the body and can be a marker for underlying conditions such as rheumatoid arthritis, fibromyalgia, lupus, and many other autoimmune diseases.

Typically, CRP levels aren't detected at all unless there is some form of significant inflammation present in the body.

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Inflammation and the C-Reactive Protein

Inflammation can actually be a good thing — it's the body's response to harmful stimuli like bacteria, viruses, and more. It is kind of like a fever in that it fights this stimuli; its sole purpose is to prevent anymore damage to the part of the body affected by this stimuli. But, like a fever and many other functions of the body, a high level of inflammation becomes a serious concern.

Based on what CRP itself is, there is an obvious link between this protein and inflammation. Because of this, high CRP levels are a concern as well, primarily because they can be an indicator of chronic inflammation. This is true especially if high CRP levels remain for long periods of time without receding.

Chronic inflammation can be incredibly harmful to the body. Why is this? Inflammation signals white blood cells to release "free radicals" into the body and kill harmful stimuli.

The problem with this is that the free radicals damage the surrounding areas of where a harmful stimuli might be, harming and even killing our cells. This process, when prolonged, greatly increases the risk for [cancer](#) cells to develop.

This type of research has discovered that chronic inflammation plays a role in the development of many different diseases and health conditions. Some of these include arthritis, diabetes, heart disease, lupus, [neurodegeneration](#) like Alzheimer's, and even Parkinson's disease. Recent research indicates it might even be linked to depression.

Unfortunately, there is still much more research to be done in regards to actually treating and preventing chronic inflammation, and in turn keeping CRP levels low. As it stands, [Johns Hopkins Medicine](#) states that treating chronic ailments, like high CRP levels, is a challenge.

Causes and Symptoms of High CRP Levels

WHAT CAN GIVE YOU HIGH C-REACTIVE PROTEIN (CPR) LEVELS IN THE BLOOD?

BURNS

Bigger the burn, the more CRP recorded in the blood.

INFECTIONS

Infections like pneumonia and tuberculosis (TB) has higher of levels of CRP due to the inflammation that come with these infections.

HEART ATTACK

If your doctor finds that your arteries are inflamed or are swelling through the CRP test then you are at a higher risk for heart attacks, heart disease and strokes.

CERTAIN CANCERS

Melanoma, ovarian, bowel and lung cancer all have been linked to having a high CRP in the blood.

SOME CONDITIONS THAT CAUSE ELEVATED CRP!

IRRITABLE BOWEL SYNDROME (IBS)

ATHEROSCLEROSIS

Kick High Levels of CRP in the butt

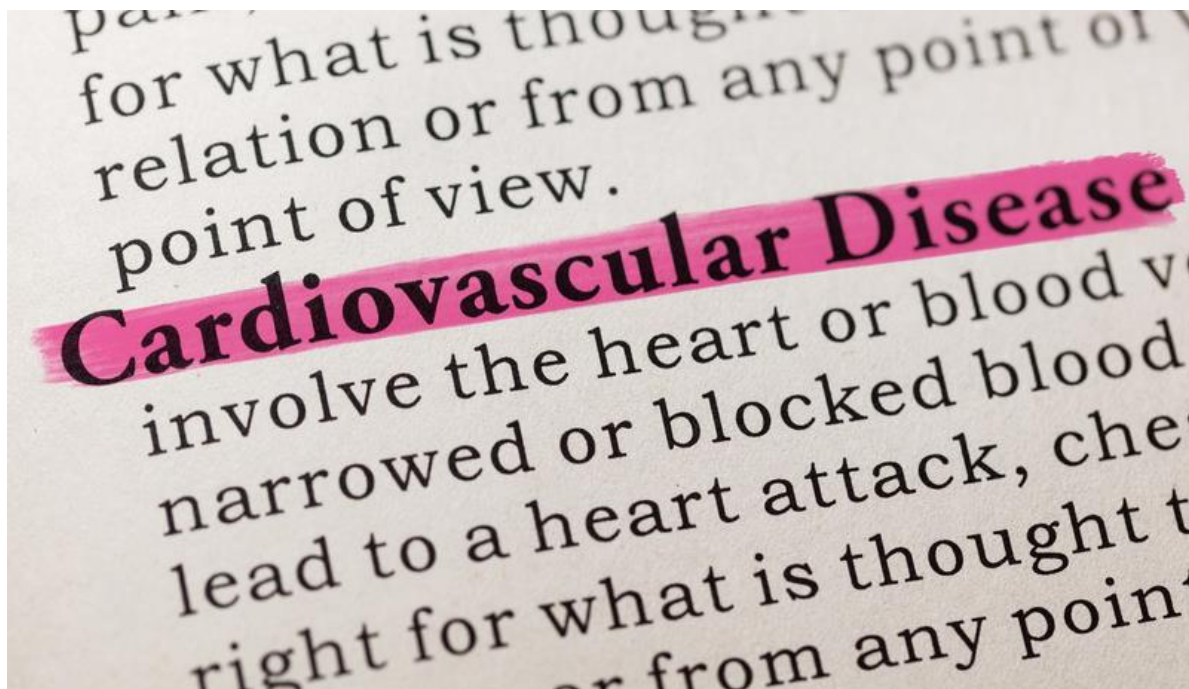
There are many different causes of high CRP and inflammation levels. This includes:

- **Most injuries, like burns or trauma**
- **Infections**
- **Heart attack**
- **Chronic inflammatory diseases like fibromyalgia and rheumatoid arthritis**
- **Inflammatory bowel disease**
- **Autoimmune conditions such as lupus**
- **Some cancers**
- **Obesity**
- **Sedentary lifestyle**
- **Toxins like tobacco smoke or heavy metals**
- **Genetics**
- **High stress levels**

Simply put, anything that causes inflammation can increase CRP levels.

Higher CRP levels can be tricky in identifying because it really requires that the underlying condition causing the inflammation be tested. There aren't any noticeable symptoms of a high CRP level; rather, the symptoms experienced will be from the health condition causing the elevated CRP levels.

The Link Between C-Reactive Protein and Cardiovascular Risk



What is Cardiovascular disease

CRP is directly related to inflammation levels and inflammation levels play a significant role in the development of atherosclerosis, a build-up of cholesterol on blood vessel walls. It is shown that levels of CRP are higher in those with atherosclerosis than those without it.

This common link between CRP and atherosclerosis is actually a great indicator for cardiovascular risk. Dr. Pamela Ouyang, director of the Women's Cardiovascular Health Center at Johns Hopkins Bayview Medical Center, explains that [high-sensitivity CRP](#) is now being considered in the field of cardiology to determine risk for cardiovascular disease.

Knowing CRP levels can now aid in a more clear and personalized treatment level for cardiovascular disease.

CRP: A Marker for Obstructive Sleep Apnea (OSA)

You're probably wondering how exactly this all relates to your sleep... Well, it's actually pretty simple. Aside from all the other things C-reactive protein is linked to, it also has been associated with obstructive sleep apnea.

Obstructive sleep apnea is a specific form of sleep-disordered breathing in which the airway becomes blocked due to soft tissue in the back of the throat collapsing when it relaxes. This disorder has an inflammatory component. Past research has discovered that obstructive sleep apnea has been linked to cardiovascular disease, and in turn, increased CRP levels.

[This particular study](#) tested 22 patients with previously untreated obstructive sleep apnea for high CRP levels. The results: CRP levels were elevated *in proportion to* the severity of OSA.

[Other studies](#) show similar results. There is definitely a connection between obstructive sleep apnea, elevated C-reactive protein levels, *and* cardiovascular risks. Patients with obstructive sleep apnea and a BMI that is greater than or equal to 30 are shown to have significant links with elevated CRP levels and Sleep Apnea.

Because obstructive sleep apnea can cause systemic chronic inflammation, the higher risk for cardiovascular disease is something to be aware of.

Overall, high CRP levels are considered markers for health complications, specifically obstructive sleep apnea and cardiovascular disease.

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Treating High C-Reactive Protein Levels

So high CRP is bad. But what can be done in terms of treating and preventing high CRP levels?

This question remains unanswered fully, because the treatment of an elevated CRP itself doesn't truly matter. Instead, the importance in treatment lies within the treating of the underlying condition that elevates the CRP levels.

The most important thing to consider in treating inflammation is the possibility of sleep-disordered breathing. Once sleep is messed up, the rest of your body is prone to a variety of different issues, including elevated CRP levels and cardiovascular risk.

In the past, CPAP machine therapy was the go-to treatment for sleep apnea, but many other risk factors and problems have been associated with it. Thankfully, there is a much safer, more comfortable alternative to treating sleep disorders like obstructive sleep apnea: [oral appliance therapy](#).

Oral appliance therapy involves wearing an oral appliance, fitting similar to a sports mouth-guard, during sleep. The appliance pushes the lower jaw down and forward to prevent the soft tissues from collapsing and blocking the airway.

Treating obstructive sleep apnea not only helps you get a better night's sleep but also reduces many different health risk the disorder poses, including the cardiovascular risk it's been linked to in the past.

In combining a balanced diet, regular physical activity, and oral appliance therapy, you can successfully treat obstructive sleep apnea and reduce systemic inflammation and elevated CRP levels!

Some dietary Supplements to consider to help lower your CRP

1. [Multivitamins](#): While it's unclear specifically which component of the multi was responsible for the effects, [a 2003 study](#) showed that, after six months, multivitamin users had reduced CRPs compared to placebo-takers.
2. [Magnesium](#): According to [a large recent meta-analysis](#), blood levels of magnesium are inversely associated with CRP.
3. [Vitamin D](#): A [recent study](#) showed vitamin D combats inflammation in obese children.
4. [Vitamin C](#): 1,000 milligrams per day [was found to reduce](#) C-reactive protein as well as some statin drugs
5. [Fish oil supplement](#): Six months of two daily 1,000 milligram softgels of EPA/DHA [were found to](#) significantly lower CRP.
6. [Curcumin](#): A potent extract of the curry spice turmeric, curcumin [has proven effective](#) in lowering a wide variety of inflammatory mediators in the body.

7. **Omega-7**: A newly-discovered way to lower hs-CRP is via palmitoleic acid, a monounsaturated omega-7 oil found predominantly in macadamia nuts and full-fat (but not skim) dairy. In addition to fighting inflammation, omega-7 reduces bad cholesterol, raises the good HDL and helps combat insulin resistance.

Don't Let Inflammation Control You!

Chronic inflammation causes enough issues in itself. The last thing anyone wants is for it to disrupt sleep, too!

If you've been tested for elevated CRP levels or any of the conditions listed above, it's important to consider if obstructive sleep apnea is also playing a role in your health struggles. Since obstructive sleep apnea has a strong inflammatory component, it could very well be the missing piece of the puzzle that is treating inflammation.

If you're having trouble sleeping and showing signs of obstructive sleep apnea, which include excessive fatigue, loud snoring, morning headaches, and abrupt awakenings throughout the night, don't let it go by unnoticed!

Advanced Sleep Centers of Virginia has a highly-trained team of sleep professionals dedicated to your health and wellness. We make the process of diagnosing and treating sleep-disordered breathing, snoring, and more simple with at-home sleep tests, online scheduling, a secure telemedicine portal where you can communicate with a professional at anytime.

Don't let inflammation control your life. If you are struggling with signs of chronic inflammation or obstructive sleep apnea, schedule an appointment [online](#) or call us at (703) 689-2480 for a free consultation. We'll help you get your health back on track!

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By [Dr. Queen](#)