



**If the War on Cholesterol Has Left You Feeling Worn Out,
Get off the Couch and Phone Your Doctor**

By Gerard L. Guillory, M.D.

Over the past few years, I have noted a disturbing trend among patients in my medical practice. Men who develop myopathy (muscle aches) while taking statin medications for their cholesterol are much more likely to have a low testosterone level. Now, after poring over the medical literature, I can't find published reports of this association.

Men as well as women should take note of the link between statins and testosterone, as both men and women produce testosterone. Men just produce more, giving them their male sexual characteristics.

In addition to aiding normal sexual function, testosterone is important for muscle health. There are cells in the body that are either converted to muscle or fat. If sufficient testosterone is present during the growth of these cells, they are more likely to end up as muscle than as fat. Muscle cells are the only cells in the body that burn calories while the body is at rest, raising basal metabolic rate and helping the body stay lean. This may explain why a deficiency of testosterone causes some patients to be overweight and to have elevated blood fats.

How does this relate to statins? Here is a scenario that I see frequently. A gentleman comes into the office, clearly experiencing symptoms of low testosterone. He has no sex drive, difficulty with erections, he is tired, and he can't seem to get the weight off, no matter how much he watches his diet and exercise. He has become a pudgy couch potato.

We ask questions about his health history and learn that he is on a statin medication (examples include Lipitor, Mevacor, Zocor, Pravachol, Lescol, Crestor and the combination medication Vytarin). We know that testosterone and many other hormones in the body are synthesized from cholesterol and, of course, these medications are designed specifically to reduce cholesterol.

Our patient's testosterone may have been low to begin with, and now he is taking a statin medication in order to lower cholesterol. The statin medication further lowers the man's testosterone level, and his muscles begin to ache. Other symptoms of testosterone deficiency worsen.

I have seen enough such cases that I routinely check the testosterone level when I encounter a statin-taking patient who has muscle aches and is feeling sluggish. Almost invariably, I find that testosterone levels are well below the normal range.

In some cases, particularly those involving statin-taking women who develop muscle aches, there may be a deficiency of a related hormone called DHEA. This is the most abundant hormone in the body and is converted to either testosterone or estrogen. DHEA gradually declines with age and is one of the hormones frequently cited for its potential "anti-aging" effects. Like testosterone, DHEA is synthesized from cholesterol. This raises the question: Could statins accelerate the aging process by further lowering an already-low DHEA level?

The good news is that there is a solution. Your hormone levels can be easily checked with a simple blood draw, and, if you are deficient, these hormones can be replaced in men as well as women. Additionally, two supplements can help with the statin-induced muscle aches—coenzyme Q10 and carnitine.

Coenzyme Q10 is a vitamin-like substance that is important for cellular energy. It turns out that statin medications inhibit the body's production of coenzyme Q10. I believe that everyone on a statin medication should take supplemental coenzyme Q10. (Always check with your physician before taking any supplements.)

Carnitine is a compound synthesized from the amino acid lysine and, like coenzyme Q10, is important for cellular metabolism and muscle health. It has been reported that some patients who develop statin-induced myopathy may have a genetic deficiency of carnitine. There may be a link here as well. A study published in the journal *Urology* in 2004 reported that "testosterone increases the tissue carnitine concentration." Could lowering the testosterone, by taking a statin, lead to further lowering of tissue carnitine?

The bottom line is that if you're taking statins and have begun experiencing such problems as muscle aches, fatigue, reduced sex drive and difficulty losing weight, consult your physician and have your testosterone and DHEA levels checked. Consider supplementation with coenzyme Q10 and/or carnitine.