Low-fat diet linked to lower testosterone levels in men

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For the many men diagnosed with testosterone deficiency, losing weight can help increase testosterone levels. But certain diets—specifically a low-fat diet—may be associated with a small but significant reduction in testosterone, suggests a study in *The Journal of Urology*, Official Journal of the American Urological Association (AUA).

"We found that men who adhered to a fat restrictive diet had lower serum testosterone than men on a nonrestrictive diet," according to the report by Jake Fantus, MD, of the Section of Urology, Department of Surgery, University of Chicago Medicine and colleagues from the Department of Urology, Northwestern University Feinberg School of Medicine, and the Department of Surgery, NorthShore University Health System. "However," the researchers add, "the clinical significance of small differences in serum T across diets is unclear."

Best Diet for Low Testosterone? No Single Right Answer Yet

Dr. Fantus and colleagues analyzed data on more than 3,100 men from a nationwide health study (the National Health and Nutrition Examination Survey, or NHANES). All participants had available data on diet and serum testosterone level.

Based on two-day diet history, 14.6 percent of men met criteria for a low-fat diet, as defined by the American Heart Association (AHA). Another 24.4 percent of men followed a Mediterranean diet high in fruits, vegetables, and whole grains but low in animal protein and dairy products. Only a few men met criteria for the AHA low-carbohydrate diet, so this group was excluded from the analysis.

The average serum testosterone level was 435.5 ng/dL (nanograms per deciliter). Serum testosterone was lower in men on the two restrictive diets: average 411 ng/dL for those on a low-fat diet and 413 ng/dL for those on the Mediterranean diet.

The associations were adjusted for other factors that can affect testosterone, including age, body mass index, physical activity, and medical conditions. After adjustment, the low-fat diet was significantly associated with reduced serum testosterone, although the Mediterranean diet was not.

Overall, 26.8 percent of men had testosterone levels less than 300 ng/dL. Despite the difference in average testosterone levels, the proportion of men with low testosterone was similar across all diet groups.

Low testosterone is highly prevalent in the United States, as approximately 500,000 men are diagnosed with testosterone deficiency each year. Testosterone deficiency can lead to problems, including decreased energy and libido, along with physiological alterations, including increased body fat and reduced bone mineral density.

In addition to medications, treatment for low

testosterone often includes lifestyle modifications, such as exercise and weight loss. But the effects of diet on testosterone levels have been unclear. Because testosterone is a steroid hormone derived from cholesterol, changes in fat intake could alter testosterone levels. This new analysis of how diet affects serum testosterone provides evidence that a low-fat diet is associated with lower testosterone levels, compared to an unrestricted diet.

So what diet is best for men with testosterone deficiency? The answer remains unknown, according to the authors. In overweight or obese men, the health benefits of a low-fat diet likely far exceed the small reduction in serum testosterone. In contrast, for men who are not overweight, avoiding a low-fat diet "may be a reasonable component" of a multifaceted approach to increasing serum testosterone.

Dr. Fantus and coauthors note that further studies will be needed to corroborate their findings, and to clarify the mechanism by which restrictive diets reduce testosterone. But due to the difficulties of large-scale dietary studies, definitive trials are unlikely to be performed. "Therefore, our data represent a valuable approach towards answering this important question," the authors conclude.

More information: Richard J. Fantus et al. The Association between Popular Diets and Serum Testosterone among Men in the United States, *Journal of Urology* (2019). DOI: 10.1097/JU.0000000000000482

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