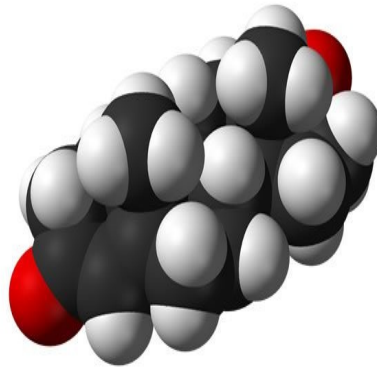




## High Testosterone Levels Increase Risk of Heart Disease



A new study shows that sex hormones testosterone and oestrogen alter cardiovascular risk factors in a way that increases a man's risk of heart disease. The results of this study will be presented at the 97th Annual Meeting of the Endocrine Society in San Diego.

Doctors have long suspected that testosterone may promote cardiovascular disease and oestrogen may protect against it.

This study, conducted by lead investigator Elaine Yu, MD, MSc, Assistant Professor at Harvard Medical School, Boston, included 400 healthy men aged 20 to 50 years.

The researchers found that higher levels of testosterone led to lower levels of HDL cholesterol but oestrogen had no effect on HDL cholesterol. On the other hand, low levels of oestrogen led to higher fasting blood glucose sugar level, worsening insulin resistance and more fat in muscle, markers for developing diabetes, and a risk factor for heart disease. These findings could potentially explain why men have a higher risk of cardiovascular disease.

The researchers compared two groups of men whose hormone levels were temporarily changed with combinations of medications. All men received the drug *goserelin* at the start of the study to suppress the production of testosterone and oestrogen. Then the 198 men in the first group received treatment for four months with either a *placebo gel* or one of four doses of *testosterone gel*, ranging from low to high (1.25 to 10 grams). By doing this, the men's testosterone levels were set from very low to high normal.

The other group of 202 men received the same treatment as group 1 but they also received *anastrozole* to block conversion of testosterone to oestrogen. This resulted in very low levels of oestrogen in the second group.

All participants had their weight measured and had fasting blood tests for markers of heart disease and diabetes. They also had a thigh scan with quantitative computed tomography (CT) at both the start and end of the study.

The study showed that neither testosterone nor oestrogen regulated changes in LDL cholesterol, blood pressure and body weight. "It appears that these common risk factors for cardiovascular disease are not regulated by sex hormones," Yu said.

Overall, the study shows that higher testosterone levels and lower oestrogen levels in men worsen their cardiovascular risk factors. This may also help explain the gender differences in heart disease.

Source: The Endocrine Society

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