

# Higher blood concentrations of testosterone associated with reduced risk of developing type 2 diabetes in men under 65

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Testosterone appears protective against developing type 2 diabetes in men who are overweight or obese and under age 65, but not in men over that age, according to a study presented at [ENDO 2024](#), the Endocrine Society's annual meeting in Boston, Mass.

"A low blood [testosterone](#) concentration is an [independent risk factor](#) for developing type 2 diabetes, and high levels of testosterone appear protective against the development of type 2 diabetes," said lead researcher Mahesh Umapathysivam, M.B.B.S., of the University of Adelaide in Adelaide, South Australia, Australia.

"We wanted to better understand the relationship between testosterone and type 2 diabetes risk across the range of testosterone levels, and to examine interactions between testosterone and different diabetes risk factors in middle aged and older men."

The researchers analyzed data from the MAILES Cohort, a group of men ages 35 to 85 years living in urban Adelaide. The study included 1,315 men, none of whom had diabetes, cancer or testosterone treatment at the beginning of the study. After five years, 110 of the men had developed type 2 diabetes (8.4%).

After correcting for known factors that affect type 2 diabetes risk including age, [waist circumference](#), measures of blood sugar, family history of diabetes, smoking, [alcohol intake](#), self-reported [physical activity](#) and medication use, the researchers found that blood testosterone concentration was associated with the risk for developing type 2 diabetes.

They found that in men under age 65, the higher a man's blood testosterone level, the lower their risk of developing type 2 diabetes.

"This implies that higher testosterone blood concentrations are associated with reduced risk of developing type 2 diabetes," Umaphysivam said. "In contrast, there were no detectable effects of blood testosterone levels on [diabetes risk](#) in men over age 65."

Umaphysivam added, "Maintaining a healthy weight, exercising regularly and avoiding alcohol helps maintain a normal testosterone level in most men and also helps prevent type 2 diabetes."

Provided by The Endocrine Society

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