

The number of middle-aged men with prescriptions for [testosterone](#) is climbing rapidly, raising concerns that increasing numbers of men are abusing the powerful hormone to boost their libidos and feel younger, researchers reported on Monday.

Testosterone replacement therapy is approved specifically for the treatment of abnormally low testosterone levels, a condition called [hypogonadism](#). The hormone helps build muscle, reduce body fat and improve sex drive. But a study published in the journal JAMA Internal Medicine found that many men who get prescriptions for the hormone have no evidence of a deficiency at all.

The new study is the largest of testosterone prescribing patterns to date, involving nearly 11 million men who were tracked through a large health insurer. The report showed that the number of older and middle-aged men prescribed the hormone has tripled since 2001.

Men in their 40s represent the fastest-growing group of users. About half of men prescribed testosterone had a diagnosis of hypogonadism, and roughly 40 percent had erectile or sexual dysfunction. One third had a diagnosis of fatigue.

The medical group that sets clinical guidelines for testosterone replacement therapy, the [Endocrine Society](#), recommends treatment only in men who have unequivocally low testosterone levels. That finding requires a blood test. But the new report found that a quarter of men did not have their levels tested before they received the hormone. It was also unclear what proportion of men who did undergo testing actually had results showing a deficiency.

Testosterone therapy can cause thickening of the blood, [acne](#) and reduced sperm counts. Many doctors worry that it also raises the risk of heart disease and [prostate cancer](#), though some experts say that those concerns are unproved.

[Jacques Baillargeon](#), the lead author of the new research, said that the safety of long-term testosterone use had yet to be established in good studies.

“I think these relatively healthy men who are starting testosterone at age 40 are potentially going to be exposed for a very long time, and we don't know what the risks are,” said Dr. Baillargeon, an associate professor of epidemiology at the University of Texas Medical Branch at Galveston.

In men, testosterone levels normally begin a gradual decline after the age of 30. The average levels for most men range from 300 to 1,000 nanograms per deciliter of blood. But testosterone levels can fluctuate so greatly depending on so many factors — sleep, the time of day, medication — that many men who fall into the hypogonadal range one day will have normal levels the next.

Some studies estimate that up to 30 percent of men ages 40 to 79 have a true deficiency, though only a small percentage actually develop clinical symptoms like depression, hot flashes and [erectile dysfunction](#) .

[Dr. Ronald S. Swerdloff](#) , an endocrinologist at the University of California, Los Angeles, and an author of the Endocrine Society's treatment guidelines, said the recommendations were “quite clear” that treatment is for men who have had blood tests showing a testosterone deficiency, as well as symptoms consistent with the disorder. “I don't think it's appropriate for patients to be treated for hypogonadism without chemical evidence to support it,” he said.

Dr. Abraham Morgentaler, a professor of urology at Harvard Medical School and the author of “[Testosterone for Life](#) ,” said the findings were a good sign that more testosterone deficiencies were being diagnosed and treated. While many doctors worry about the side effects of testosterone abuse, he said, there are also studies showing that men with low testosterone levels have shorter life spans and an increased risk of [diabetes](#) , heart disease and [osteoporosis](#) .

“Aging is associated with bad vision, bad hearing, bad teeth, bad arteries, bad joints and [cancer](#) , and we treat all of these things,” Dr. Morgentaler said. “I think it's an unfair stretch to say that because something is common or natural that we shouldn't treat it.”

