

# HEALTH AND THE ENVIRONMENT: Testosterone Levels Fall Worldwide

By [Washington's Blog](#)

Theme: [Science and Medicine](#)

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Men's testosterone levels across all age groups have been plummeting over the last couple of decades, probably due to environmental factors. As Reuters [reported](#) in 2006:

A new study has found a "substantial" drop in U.S. men's testosterone levels since the 1980s, but the reasons for the decline remain unclear. This trend also does not appear to be related to age.

The average levels of the male hormone dropped by 1 percent a year, Dr. Thomas Travison and colleagues from the New England Research Institutes in Watertown, Massachusetts, found. This means that, for example, a 65-year-old man in 2002 would have testosterone levels 15 percent lower than those of a 65-year-old in 1987. This also means that a greater proportion of men in 2002 would have had below-normal testosterone levels than in 1987.

"The entire population is shifting somewhat downward we think," Travison told Reuters Health. "We're counting on other studies to confirm this."

Travison and his team analyzed data from the Massachusetts Male Aging Study, a long-term investigation of aging in about 1,700 Boston-area men. Data from the men were collected for three time intervals: 1987-1989, 1995-1997, and 2002-2004.

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The researchers observed a speedier decline in average testosterone levels than would have been expected with aging alone.

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It's likely that some sort of environmental exposure is responsible for the testosterone decline, Travison said, although he said attempting to explain what this might be based on the current findings would be "pure conjecture."

Men's Health [wrote](#) in 2007:

In the summer of 2006, Travison attended an Endocrine Society meeting where another researcher, Antti Perheentupa M.D., Ph.D., from the University of Turku, in Finland, presented evidence of a similar decline. The Finnish results suggested the change was happening among younger men, too. A man born in 1970 had about 20 percent less testosterone at age 35 than a man of his father's generation at the same age. "When I saw another group reproducing our results," says Travison, "that was convincing to me that we were seeing a

true biological change over time, as opposed to just some measurement error.”

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Mitch Harman M.D., Ph.D., an endocrinologist at the University of Arizona college of medicine and the director of the Kronos Longevity Research Institute, sees the shadow of Silent Spring. Back in 1962, when Rachel Carson published her environmental classic, estrogen-like substances in the insecticide DDT were making eggshells so thin that they were crushed by nesting parents; populations of eagles and other large birds plummeted. And today? Dr. Harman says, “I’m concerned that we’re just pouring chemicals out into our environment that are endocrine-suppressing, estrogen-like compounds,” possibly causing similar disruptions in human reproduction. The authors of a recent article in the Medical Journal of Australia likewise suggest that from early fetal life onward, male hormonal and reproductive functions are under “xenobiotic attack,” meaning chemicals not naturally found in the body appear to be disrupting normal biological development.

For instance, 90 percent of American men have evidence of chlorpyrifos in their urine. This shouldn’t be surprising, since up to 19 million pounds of the stuff was distributed across the United States in 1999 alone, much of it in household products like tick-and-flea powder for pets, lawn treatments, and common insecticides. Though residential use is now restricted, chlorpyrifos is still common in agriculture, as well as in some professional applications; for most people, diet is now the main source of exposure. In a recent Harvard study, men with the highest chlorpyrifos exposure typically had 20 percent less testosterone than those with the lowest exposure.

Carbaryl is another possible culprit. Detectable levels turn up in 75 percent of American men, and having it in your urine appears to be associated with reduced sperm count and liveliness, or motility, as well as increased DNA damage. And yet we still apply carbaryl to lawns and gardens at a rate of up to 4 million pounds a year, mostly by way of an insecticide known as Sevin. There should be a bumper sticker: Honey, the lawn shrunk my testicles.

Phthalates are also everywhere, almost certainly including your own body. Manufacturers use them in colognes and cosmetics and as softeners in plastics. Baby bottles now come “phthalate-free,” but hospital intravenous bags generally don’t. And yet some phthalates seem to have all of carbaryl’s unpleasant associations with reproductive health. And not just in men: Last year Greenpeace issued a warning against the danger of phthalates in your girlfriend’s sex toys. Then the Danish Environmental Protection Agency came riding to the rescue, declaring such toys safe—as long as she keeps it to an hour or less a day.

Scientists can’t say that any of the suspect chemicals actually cause the reproductive effects that are occurring. They can only point out troubling associations. But these associations seem to be proliferating. About 50 new chemicals come onto the market weekly, says Dr. Harman, and while testing for carcinogenicity is required, “there’s no systematized testing for subtle endocrine effects.”

We’re not likely to have good answers anytime soon. The reproductive problems of human males will remain understudied, says Dr. Harman, in part because federal research dollars are being diverted to issues like biological warfare and terrorism. “We might just wind up disappearing from the planet quietly,” he says, “because we were too busy fighting wars to figure out that our reproductive systems were going south.”

Moreover, as [noted](#) by the The Internet Journal of Urology in 2004:

There have been a number of studies over the past 15-20 years ... which suggest that sperm counts in man are on the decline. Since these changes are recent and appear to have occurred internationally, it has been presumed that they reflect adverse effects of environmental or lifestyle factors on the male rather than, for example, genetic changes in susceptibility. If the decrease in sperm counts were to continue at the rate that it is then in a few years we will witness widespread male infertility.

Studies published in the [Journal of the American College of Cardiology](#), the journal [Diabetes Care](#), the journal [Heart](#) and other [major medical journals](#) show that low testosterone levels not only lead to obesity, loss of muscle, weak bones and depression, but also increase the odds of heart disease, diabetes, Alzheimers and other major health problems.

In addition, low testosterone levels are correlated with decreased [confidence, drive, ability to concentrate](#), and [cognitive abilities](#).

The bottom line: Most men - and especially those over 30, fathers, or men who have been exposed to toxic chemicals or potent medications - need to maintain their testosterone levels to keep their health, power and confidence.

#### How to Boost Your Testosterone Level

There are numerous ways to boost your testosterone (we'll call it "T") level. Choose what works for you, depending on your health, finances, time and temperament.

#### Sprint

The International Journal of Sports Medicine found that, in young men, a six-second bout of [sprinting increased serum total testosterone levels](#). Levels remained elevated during recovery.

#### Lift

Numerous studies have shown that [resistance training is a powerful stimulant for testosterone production](#). So - if you are physically able - be sure to lift heavy things every now and again.

The rest intervals between sets can also stimulate different hormonal responses. A [study](#) published in the Journal of Strength & Conditioning Research found that resting 90 seconds between squat and bench press sets boosted post-workout T-levels the most.

#### Snooze

The Journal of the American Medical Association reports that [lack of sleep dramatically lowers testosterone](#) in healthy young men. Peak testosterone levels [coincide with rapid-eye movement \(REM\) sleep onset](#). Getting 7-8 hours sleep a night - to make sure you get your REM sleep - will boost your T levels.

## Chill Out

As shown by studies published in the [Journal of Hormones and Behavior](#), the [European Journal of Applied Physiology](#) and elsewhere, prolonged stress produces cortisol, which reduces T levels.

So take breaks and play sports, go for a walk, meditate, do yoga or do whatever else de-stresses you.

## Get Excited

Newsweek [reported](#) in 2009:

Monkeys that see sexually active females register as much as a 400 percent jump in testosterone (nature's own performance-enhancing drug) promoting lean muscle and quick recovery times, according to the Yerkes Center for Primate Research at Emory University. In humans, [German researchers](#) have found that just having an erection is enough to spur testosterone levels. It makes no difference whether a man is watching sex on a screen or having it in real life, his testosterone levels will go up. Just having an erection, in fact, is enough to spur production.

Such findings, along with work that shows family life to be a drain on testosterone levels, prompted Rutgers University sex researcher Helen Fisher to advise this month that males in the "captivity situation"-her term for married with kids-"go on the Internet and look at porn" as a kind of hormone-replacement therapy. "[Porn] drives up dopamine levels, which drives up your testosterone," she tells NEWSWEEK, while kissing your wife or hugging your kids drives it down.

Indeed, [marriage](#) and [fatherhood](#) have both been shown to decrease testosterone levels.

(This post concentrates on science, not objectification of women, relationships, ethics, or addictions ... all important things to reflect on. I am an ethical, happily-married man with kids, and I value all of those things tremendously. But I also know that if I didn't have a strong sex drive, my T levels would be lower.)

## Keep Your Vitamin D Levels Up

Vitamin D positively correlates with testosterone levels in men, according to the [Journal of Clinical Endocrinology](#) and researchers at the [Medical University of Graz in Austria](#).

So make sure you get enough vitamin D.

## Magnesium

The [Journal of Pharmaceutical and Biomedical Analysis](#) reports that magnesium levels correlate with T.

## Calcium

[Biological Trace Element Research](#) notes that calcium levels correlate with T, at least in people who exercise a lot.

## Zinc

The Journal [Nutrition](#) reports that a zinc deficiency predicts lowered testosterone in men.

But don't take extra ... supplementary doses of the mineral [don't boost T levels beyond normal](#) in men with adequate dietary intake.

## Eat Monounsaturated and Saturated Fat

We've previously documented that fats have gotten a bad rap, and that they are essential for our health. See [this](#), [this](#) and [this](#).

The Journal [Lipids](#) reports that olive oil - a monosaturated fat - converts cholesterol more easily into testosterone. So use raw olive oil on salads and in other dishes. (Coconut oil - a saturated fat - does the same thing, but to a lesser extent.)

## [While cholesterol has gotten the worst rap:](#)

Cholesterol is actually a [vital precursor](#) to vitamin D, and to basic hormones such as testosterone, estrogen, and adrenaline. If we don't have enough cholesterol in our body, we will be sickly, impotent and depressed.

The [Journal of Clinical Endocrinology & Metabolism](#) reports that a low-fat, high-fiber diet reduced T levels in middle-aged men. The [Journal of Applied Physiology](#) reports:

Preexercise T was significantly positively correlated with percent energy fat, SFA [saturated fatty acids] and MUFA [monounsaturated fatty acids] ....



(Click image above for larger picture.)

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These data are consistent with the findings of several other investigations that have reported a decrease in T in individuals consuming a diet containing ~20% fat compared with a diet containing ~40% fat ....

The results from several investigations strongly suggest that dietary fat has a significant impact on T concentrations; however, the influence of different types of lipids on T is not as clear. In the present investigation, dietary fat, SFA, and MUFA were the best predictors of resting T concentrations. Interestingly, Tegelman et al. observed a significant positive correlation ( $r = 0.76$ ) between percent energy fat and T in young athletic men, which is very similar to the correlation ( $r = 0.72$ ) obtained in this study. Also, Adlercreutz et al. reported significant positive correlations between T and dietary fat, SFA, MUFA, and cholesterol in postmenopausal women. The same nutrients were positively correlated with T in the present investigation except for cholesterol, which showed a correlation of  $r = 0.53$  ( $P = 0.07$ ) with T. In contrast to the results obtained in this study, Key et al.

reported a significant positive correlation ( $r = 0.37$ ) between PUFA and T in male vegetarians and omnivores. Our results showed a nonsignificant correlation between PUFA and T and a significant negative correlation between the PUFA/SFA ratio and T. Thus dietary lipids appear to have a significant influence on resting T concentrations; however, the effect of different types of lipids on T regulation and metabolism is complicated and most likely influenced by a complex interaction of several nutritional and metabolic factors. This complexity is illustrated by the findings of Sebokova et al., who reported that alteration in the testicular plasma membrane and changes in the responsiveness of Leydig cells and subsequent T synthesis occur as a result of ingestion of different compositions of lipids.

## Avoid Foods that Spike Blood Sugar Levels

Researchers [found](#) that 75 grams of pure glucose – and the resultant spike in blood sugar – was enough to drop T levels by as much as 25% in a random grouping of healthy, prediabetic, and diabetic men.

The [glycemic index](#) measures how much of a food converts into blood glucose. Because refined carbs have a higher glycemic index than even candy, you should watch the refined carbs.

## Get Enough Antioxidants

Oxidative stress may [decrease T](#). So [get enough antioxidants](#), which protect against oxidative stress.

## Herbs

Numerous herbs and other substances have been shown to boost T (at least in rats):

- Ginseng has been shown to boost [testosterone levels](#) and ramp up [sex drive](#) in rats.
- Freshly-squeezed [onion juice](#) (but it's possible that only girls from Transylvania will want to kiss you after drinking onion juice).
- A cocktail containing high doses of [selenium and the amino acid N-acetylcysteine](#)
- [Pomegranate juice](#)
- [D-aspartic acid](#)– a derivative of an amino acid found in the body
- [Saw palmetto](#) extract
- [African pepper](#)
- SAM-e, a compound produced by the liver (see [this](#), [this](#) and [this](#))

*Note: I'm not a medical professional, and this should not be taken as medical - or marital - advice.*

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