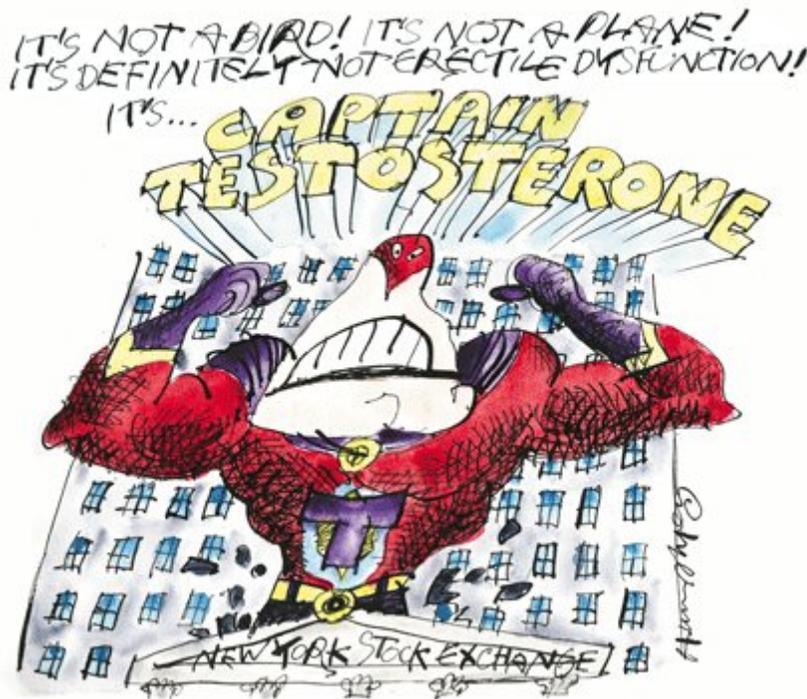


Testosterone

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A sexist short-course in sexual hormones has estrogen as the hormone of beauty and sensitivity and testosterone as the hormone of aggression and war. Research published this year in the Proceedings of the National Academy of Sciences fuels this debate and moves the playing field from war zones and sports arenas to the financial trading floor.

Both men and women make testosterone but circulating levels in men are much higher than in women. Most male testosterone comes from the testicles, while ovaries and adrenal glands manufacture the small but essential levels needed by females.

Over eight consecutive business days, a group of men working on an active trading floor for the same London brokerage company stopped twice a day and spit 1/2-teaspoon of saliva into a small vial. Most traded European fixed income futures but the majority dabble in other areas, including U.S. Treasury notes. The stock

brokerage firm later gave the researchers access to how well the trades executed in those eight days had done financially.

All the saliva samples were coded as to date and time and shipped back to a University of Cambridge laboratory for testing. Advanced laboratory testing can accurately measure testosterone and cortisol levels in saliva. Cortisol, the "stress hormone," surges in response to real or perceived stress, causing shifts in all sorts of physiological functions including blood pressure and blood glucose levels.

The men who made the most money were the ones with the highest testosterone levels in their saliva. Overall, a higher testosterone level in the morning was associated with doing better with the trades. During volatile market times, cortisol levels increased as expected confirming cortisol's link with stress.

A trader whose profits soared to several times his daily average had a 56 percent rise in his testosterone over the next measured days. Another trader on a six-day winning streak had a 74 percent rise in his daily testosterone levels.

Is it cause or effect? It is more difficult to pin down exactly what these hormone levels actually mean. It may be that men with higher testosterone levels are more aggressive but too much aggression can lead to irrational behavior. Cortisol surges may be an important hormonal brake for the well-balanced trader.

And what happens over time? Excessive testosterone and cortisol levels can both cause a variety of health problems. For older men taking excess testosterone, the best documented risk is an increase in prostate cancer. Other adverse effects run the gamut including obnoxious behavior, aggression and heart attacks. Cortisol also fuels hypertension and diabetes.

And what about female stock brokers? How do they fit into this? The studied company had 260 traders but only four were women, a number considered too low to give meaningful results.

Most folks associate testosterone levels with erectile function; however, only a minority of men with erectile dysfunction have a simple testosterone deficiency. Testosterone injections were given to men for decades before Viagra appeared on the scene offering mostly psychological benefit, if any.

In times past, erectile dysfunction was mostly considered an emotional problem. Depression, anxiety, relationship problems and other psychological factors can indeed cause erectile dysfunction but these mental health disorders are in the minority and not the rule when impotency lasts several weeks or longer.

Actually, the term erectile dysfunction was a very successful marketing ploy that made Viagra a blockbusting seller along with its cousins Levitra and Cialis. These drugs aren't as effective if there's a coexisting true testosterone deficiency. Low testosterone drives more than just a limp penis (see box).

The increasing prevalence of erectile dysfunction associated with aging is usually a multifactorial insult on the body fueled by a variety of underlying conditions – hypertension, diabetes, heart disease, smoking, obesity, medications including drug and alcohol use and peripheral vascular disease. Less than five percent of men who see physicians for erectile dysfunction actually have a testosterone deficiency.

Hormone replacement for women is a decades-old moving target with changing indications and recommendations. Most physicians agree that some estrogen supplementations are advisable for women during with troublesome symptoms and sharp falls in estrogen levels surrounding menopause but decade long therapy has fallen out of favor. So how about fair play for men? Why hasn't testosterone supplementation caught the fancy of more aging men?

The sudden squirt of hormones that turns mama's boy into a quivering and fearless heap of testosterone during adolescence peters out gradually over decades compared to the much more precipitous drop in estrogen surrounding menopause. During male adulthood, circulating testosterone levels decline an average of one or two percent yearly.

Sexual hormone imbalances are nowhere as simple as a vitamin deficiency. For example, therapeutic dosages of Vitamin C easily restore any deficiency and too much Vitamin C rarely causes adverse effects. Excess Vitamin C fuels profits of the supplement sellers but it's simply filtered out by the kidneys and flushed down the sewer where it harms neither fish nor fowl.

Companies selling test kits and testosterone replacements are doing their best to influence decision makers to treat low testosterone levels as a disease but thinking physicians and experts in the field don't routinely order testosterone levels unless there are underlying specific problems (see box).

Queries for a specific blood test or testosterone medication signal an industry related advertising campaign at work. Any testosterone therapy should be firmly based first on symptoms and secondly on a well-documented deficiency. The potential benefits of long term hormonal supplements for men with low to low normal testosterone levels and no specific symptoms may not outweigh the very real potential adverse effects.

Remember this: A prescription for supplemental testosterone isn't a panacea for vague symptoms related to natural aging. **Conditions associated with low testosterone levels:**

- Infertility
- HIV/AIDS and weight loss
- Renal dialysis patients
- Moderate to severe chronic obstructive lung disease
- Osteoporosis or low trauma fractures
- Type 2 diabetes mellitus

Note: Routine blood test screening for low testosterone levels is not recommended

Source: adapted from the Journal of Clinical Endocrinology and Metabolism, June 2006.