

Testosterone—your mojo—is the distilled essence of manhood. Long blamed in certain circles as the stuff of male violence, the hormone in fact plays a more subtle role, the one that impels men toward work, winning and status

THE DOMINATION FACTOR

By John Sedgwick

Photographs by Clay Patrick McBride

The Tufts University lab in downtown Boston is nearly all female, and the women laugh when I show up saying that I'm looking for some testosterone. "So are we!" one of them shouts gleefully. No, really, I tell them. I've been researching the male hormone for weeks, learning about its powerful effects on the male physique and behavior, but I've never *seen* any, and I've become curious. In the old days, when testosterone was extracted from mashed bulls' balls, it was exquisitely precious stuff. It took forty pounds of testicles to produce one-thousandth of an ounce of testosterone. But it took less than that to give some eunuchoids their first libidinous thoughts and for them to experience their first ejaculations. By now researchers have figured out the chemical formula and succeeded in synthesizing testosterone from cholesterol. But even that, I tell the women, would be something to see. The women patiently hear me out, then ask a laboratory technician named Nancy to go to the refrigerator. "It's in the red tackle box," one woman says.

I think she is joking, but sure enough, Nancy takes me down the hall to another lab, where she opens up the refrigerator, rummages around on the bottom shelf and extracts a red tackle box wrapped in puffy, diaperlike paper. When she sets the box down on a counter, removes the paper and opens the thing up, I feel my heart thumping in my chest. Before us are a number of small bottles containing various hormones, and Nancy plucks out a yellowish one from the back row. She has put on laboratory gloves, and she lifts it out carefully, respectfully, I think, and holds the bottle well away from her body as she shows me the label. TESTOSTERONE it says in block letters. Inside I can see a white powder. This is the crystallized form, the purest of the pure.

"This wouldn't be stuff I'd want to get on me," Nancy says. No way is she going to open up that bottle. Even a slight exposure to raw testosterone could throw her period out of whack for months—and create who knows what other hormonal havoc. "You all set now?" she asks, obviously eager to move along. When I tell her I'm done, that I've seen what I came for, she puts the testosterone back in the tackle box and quickly returns it to the refrigerator.

But I'm jazzed. At last I've seen the sheer essence of manhood.

Testosterone. Even the word sounds manly, high-octane, full of balls. It's every man's mojo, the *eau de l'homme*, the source of the mighty male river. The squiggly Y of the male's XY chromosome creates the distinctive male genitalia several months after conception. The testes (that's balls to you) then start cranking out the testosterone that, in turn, is singly responsible for just about everything that distinguishes our gender. A massive testosterone surge at puberty fills out the picture of masculinity, dropping a boy's voice a few octaves, starting him shaving, bulking up his muscles, making him potent and boosting his height. And while estrogen, the female hormone, has lately been getting all the ink for its health benefits in women, testosterone does just as much for men: It curbs osteoporosis, restricts the number of colds they catch, limits obesity, wards off heart



attacks and contributes such a sense of general well-being that researchers have now come to acknowledge that men go through their own menopause as their testosterone slowly ebbs in later life. Increasingly, men are being prescribed testosterone-replacement therapy just as women receive estrogen-replacement therapy. The only difference is that, for now, women generally take their hormones as a pill, whereas men get theirs as a shot in the butt.

But these are just the physiological changes that testosterone exerts on the male body. Most of them have been known for some time. What is possibly more impressive is the emerging understanding of testosterone's effect on men's behavior—the software, as it were, that testosterone brings to play on the hardware it has created. Since the '60s, testosterone has been considered little more than the fuel for jack-ass behavior. Feminists still speak freely of testosterone "poisoning," as if the male hormone were somehow toxic. It may be that the decline in the public image of testosterone has paralleled the trimming of masculinity itself, by which maleness is often said to explain high school shootings, road rage, soccer hooliganism and mendacity on Wall Street.

Yet while the culture has continued to bad-mouth testosterone, researchers have, in the past ten years, quietly revised

their opinions of the male hormone upward. And now it's as if Mr. T has gone through rehab, cleaned himself up and lost his criminal-mindedness. Fading are the days when testosterone was thought to be chiefly responsible for mindless aggression. The emerging consensus is that testosterone is the force behind men's urge for *dominance*. The distinction may sound subtle, but to social scientists it's profound, because it takes the propensity for violence largely out of the equation. It also changes the stakes. Instead of encouraging a kind of primal blood lust, testosterone urges men on in what may be the true business of manhood: the unrelenting quest for social status. The real guy thing, it now appears, is not to kill but to come out on top.

"Dominance is status competition," says Alan Booth, a sociologist at Pennsylvania State University and one of the leading researchers in the study of the behavioral effects of testosterone. "What's at stake is a gain or loss in status." As Booth summarizes it, men compete essentially by trying to outstress one another, either in overt struggles, such as making partner or becoming number one in sales, or in the subtler contests, such as the who-can-be-wittiest party chatter or the "just kidding" put-downs that for most men pass for affectionate conversation. And testosterone not only gives men their appetite for such jousts but also provides many of the psychological assets that make victory more likely. "Testosterone makes you feel more ready, gives you more stamina," says Booth. "It also makes you more sensitive, more acute, so you're better able to detect what's going on with an opponent."

In the athletic arena, where so much of this manly competition takes place, testosterone's benefits may have a key biophysical component; several researchers have recently concluded that testosterone is critical for the lightning-fast hand-eye coordination that most sports require. One researcher, John Morley, M.D., an endocrinologist at St. Louis University, goes so far as to call the hormone the major difference between male and female athletes. He notes that even in racket sports, in which physical strength is not so critical as in, say, wrestling, women cannot compete on the same level as men. Morley says that as a junior tennis player back in the '60s, he was able to beat the number one women's player in the world, Brazil's Maria Bueno. "It's not just a man's bulk that makes the difference in sports," he says. "It's his coordinated bulk. It's the thought processes that keep the body organized and in control. That's very visual-spatial, and it's very testosterone dependent."

Another prominent researcher, psychologist James Dabbs of Georgia State University, goes further, describing the peculiar serenity experienced by these high-testosterone men when they enter the competitive arena. Think of St. Louis Rams quarterback Kurt Warner coolly firing the winning TD bomb with two minutes remaining and the world watching in January's Super Bowl. "Testosterone insulates these guys from distractions," he says. "In a fight, they don't think about complicated, extraneous things like why they're there. They're able to focus much more clearly on the matter

at hand." To him, testosterone is the difference between the League of Women Voters and the Marine Corps. In the former, "People sit around thinking about all these different possibilities." But in the latter, "Guys figure they have a job to do and they get at it."

A lot of this new testosterone research stems from the discovery that traces of the hormone show up in one's saliva, so it's relatively easy to get a reading of a man's testosterone level in a variety of situations. During his lifetime, a man's testosterone level tops out in his midtwenties and then slowly declines, accelerating to about 1 percent a year after age 50. But there are seasonal shifts, with a peak in October, and even marked changes during the day, as T levels rise through the night, crest in the morning (which may account for those *good morning!* erections) and then subside through the day.

But testosterone also varies with the situation, and one situation that affects it profoundly is the competitive joust. Lots of competitions have been analyzed by now—tennis, chess, wrestling, skydiving, you name it. According to Booth and his frequent collaborator, Allan Mazur, a sociologist at Syracuse University, the verdict is in: Testosterone rises in anticipation of competition, as men, in effect, gird themselves for battle. The interesting part is that testosterone also rises

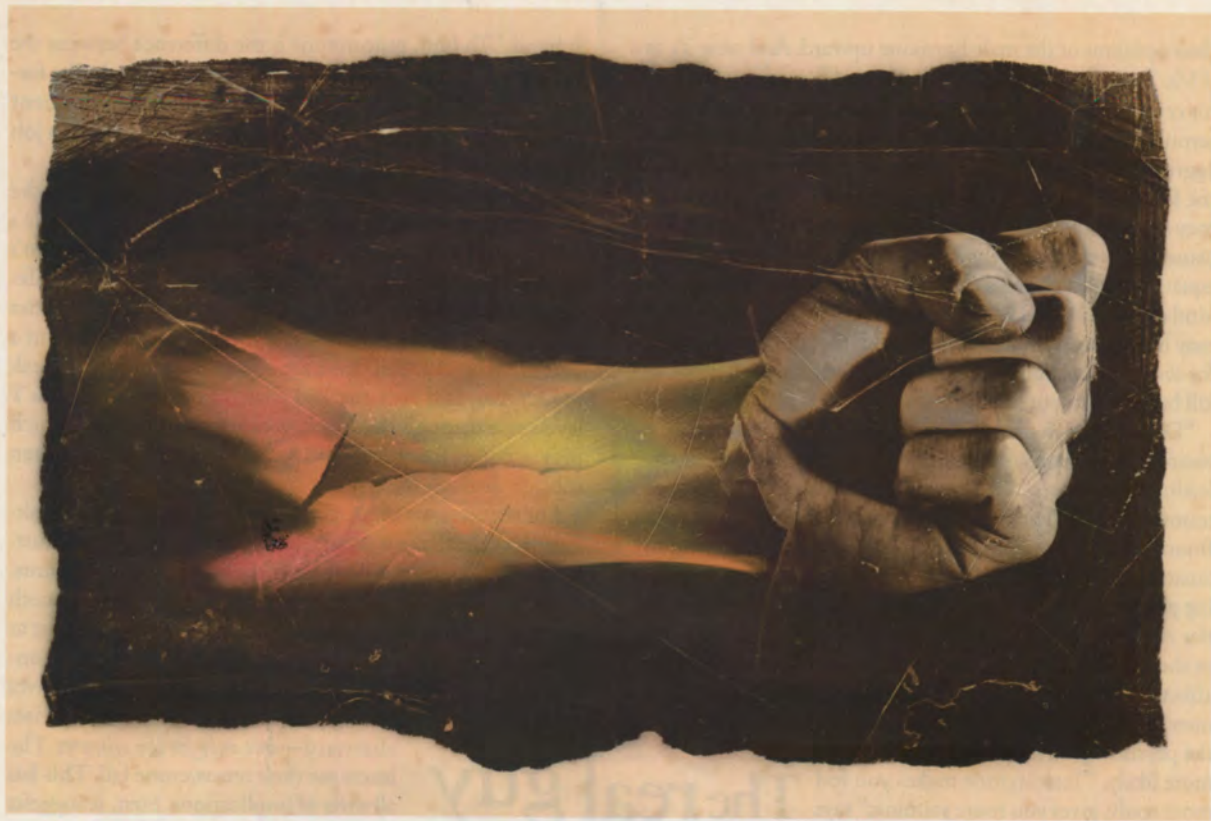
afterward—but *only for the winners*. The losers see their testosterone fall. This has all sorts of implications. First, it suggests that success does indeed breed success, just as your father may have told you. The winner comes out pumped, and therefore primed to win again, while the loser drags himself away to lick his emotional wounds in private. Mazur believes this winning feeling may contribute to

the apparent streakiness of athletics, the hot hand Michael Jordan had most nights, when it was nothing but net, every time. Or that on-a-roll feeling that whole teams sometimes experience, such as the Yankees the past few postseasons. (Actually, statistical research has yet to bear out the existence of such streaks, but what the heck. "Every player who's ever played believes there are," says Mazur.)

As on the playing field, so in life. Mazur has argued that this testosterone surge of winners accounts for that vaguely obnoxious bantam strut of the Donald Trumps of the world. And recent research into testosterone's contribution to bone density has shown why this might be so. Like estrogen, testosterone protects against osteoporosis; as testosterone declines, bones weaken. Although women are often thought to be the sole sufferers of osteoporosis, aging men account for fully 25 percent of cases. But, more broadly, men with high testosterone tend to feel up. Dabbs has conducted a "beeper" study, in which high-T men were asked to jot down their feelings and activities when prompted by an electronic pager. According to Dabbs, the high T's tended to report a "restless energy." They were focused on problems immediately at hand and felt driven and eager for accomplishment *right now*.

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good game of hoops. That is, testosterone may rise in anticipation of a sexual act. One study showed that simple conversation with a friendly young woman is enough to send a man's testosterone upward. And researchers have speculated that women go for men whose facial characteristics look high-T. What characteristics might those be? "A face that suggests a muscular person," says Mazur, who himself is unconvinced. "That's the best way to describe it." Arnold Schwarzenegger, in other words, not Woody Allen. If the sexual act is consummated, testosterone continues to climb. Unlike in sports, it seems, there are only winners in sex. The only losers are the ones who don't play: In Dabbs's studies, testosterone in men declined steadily through the evening if no sex was had. So, coaches, please note: Sex does get guys up for the game.

Another remarkable fact: Testosterone rises not only for the winning players but also for the winning fans. James Dabbs first identified this phenomenon when he studied partisans of the Brazilian and Italian soccer teams during the World Cup finals in 1994. The trait has subsequently been borne out in fans of the University of Georgia basketball team. "It's a striking notion of how much men are affected by fantasies of winning and losing," he says.

The only exception to this dominance-not-aggression redefinition of testosterone is in "honor subcultures," where an affront to a man's social standing is a big deal. The classic example is in the inner city, where you dis someone at your peril. But there are others: prisons, the Mob, the NBA (at least where Latrell Sprewell is concerned). The key ingredient in these cases is a perceived absence of the law,

which can breed a kind of hypervigilance for slights. The thought is that any challenge to a man's honor may presage more serious challenges to his person, property or significant others. So strict countermeasures are called for, turning the rough-and-tumble of status competitions into matters of life and death. Dov Cohen, a social psychologist at the University of Waterloo in Ontario, Canada, has gone so far as to suggest that because of its rural and historical roots, the entire American South is an honor subculture. To test this hypothesis, Cohen took several hundred northerners and southerners from an American college and, while pretending to study something else, exposed them to the fairly modest insult of being called an asshole for bumping into a research colleague while they were passing down a narrow hallway. Among the northerners, the guys' testosterone rose 6 percent after this indignity, but for southerners, it jumped 12. (None of the participants, however, resorted to violence.)

One might think that if, as Mazur and Booth claim, testosterone breeds success and success breeds testosterone, then testosterone would be more heavily concentrated in the upper socioeconomic reaches of society. After all, that's where the winners are. Actually, Mazur and Booth have found that testosterone is fairly uniformly distributed throughout the social classes. Why? Because the urge to dominate can just as likely be, in their terms, "prosocial" as "antisocial." That is, it can provoke you to create Microsoft (good), or it can push you to engage in illegal monopolistic activity (not so good). Plus, testosterone is generated in response to competitive challenges, which are pretty much everywhere, whether it be

the need to take down a barroom lout or to put Trent Lott in his place. Still, there appear to be some differences between groups. When Dabbs measured the T of salesmen, professors, firemen, ministers, pro football players, actors and physicians, he found a clear winner—actors.

Married men tend to have less testosterone than unmarried. Indeed, testosterone declines as a man enters matrimony, and it rises if he divorces. Mazur and Booth suspect that marriage provides a kind of safe haven for men, insulating them from the buffeting of the great status competition that is the dating game.

Now a caveat. Just because testosterone seems to produce a zowie high-T feeling, that does not mean that if a man wants more of it he can get it by goosing his testosterone level. Apparently, the body's testosterone receptors are like cups. Once they're full, they can't be more full, meaning that as long as a man's testosterone is in the normal range—for the record, from 300 to 1,000 nanograms per decaliter of blood—there isn't much to do. Mazur tried a little extra testosterone for a study and, to his disappointment, didn't feel a thing. On the physical side, yes, anabolic steroids do work to bulk a man up, as many linemen and weight lifters know. First developed to restore the wasted muscles of concentration-camp victims after World War II, steroids work on the hardware component of testosterone. (Skip androstenedione, though, despite Mark McGwire's use of it in his summer of record-breaking home runs. Dr. Morley says andro weakens production of testosterone and that if Big Mac had laid off the andro, he probably would have broken Maris's record by a greater margin.)

However, for aging males and other men whose T levels drop below normal, a boost of testosterone can have a rejuvenating effect, and a small but growing industry has begun providing testosterone to those whose T has ebbed. There are various modes of delivery, including the application of a testosterone patch to a man's shaved scrotum. Injections are currently the most popular, but a firm called Unimed has developed a rub-on gel that makes application easier.

Dr. Morley estimates that the number of testosterone-deprived men probably runs in the millions. One of his patients, a 43-year-old bricklayer named Dave O'Neal, felt so blah that his doctor originally sent him to a psychiatrist, sure he was clinically depressed. "I'd get up in the morning, and within two hours I had no energy to do anything," he told me. "It was a struggle to get through the day. I could do it, but I had to push to do it." He lost all desire for everything. Sex was completely unappealing; even conversation was a chore. He used to watch a ton of sports on TV, but now he couldn't even bring himself to watch his beloved Chicago Bears. Finally, in desperation, he went to Dr. Morley's hormone laboratory at St. Louis University and discovered that his testosterone levels were below normal. His wife, a nurse, started administering testosterone shots, and in a matter of months he was back—sexually, emotionally and in every other way. Now he hits the tube with a

vengeance when just about any sports event is playing. "I get pumped again," he says enthusiastically.

Surprisingly, for all the apparent links between T and masculinity, social scientists like Mazur, Booth and Dabbs tend to be leery of drawing too close a connection. They correctly point out that testosterone is not reserved exclusively for males, just as estrogen, the so-called female hormone, is not reserved exclusively for females. Men have about ten times as much T as women do; women have about ten times as much E as men do. But despite all the evidence of obvious physical distinctions between males and females, it's generally not considered p.c. to believe that there might be inherent behavioral differences between the two genders as well. Thus, social scientists retreat before the holy mystery of gender.

So is testosterone manhood in a bottle? Despite the social scientists' demurrals, it is the evidence they have provided that suggests it might be. Dabbs has found, for example, that in lesbian relationships, the butch partners do have more circulating testosterone than the femmes. And Booth has noted that women in traditionally male professions—law and engineering—are likely to have higher testosterone, as well.

At least one social scientist is willing to come out wholeheartedly in favor of the idea that testosterone is synonymous with manhood. "Testosterone has to do with everything that distinguishes males from females," declares Richard Udry, a sociologist at the University of North Carolina, although he admits he "gets slapped" by his colleagues in the social sciences for this belief. Nevertheless, he is confident that testosterone does define manhood from about the fifth month before birth, when a burst of testosterone masculinizes the structure of the male brain, preparing little guys for a lifetime of male behavior. Such as? "Such as any behavior that more or less distinguishes males from females," he says. Like? "Like just about everything. Like yawning." Yawning? "Sure. Females don't yawn as much as males. That's probably testosterone-related behavior." Ditto, he says, for fantasizing about sex, which is another largely male preoccupation. And, on the dominance front, Udry also notes that men tend to "butt into others' conversations" and hog airtime at meetings where women are present.

Possibly, testosterone is as much symbol as substance. After all, no one has a clue exactly how, or even if, testosterone actually produces the behavioral effects it seems to mark. T may not fuel masculinity at all but merely be along for the ride. Still, it does seem uncanny that just about everywhere you see a difference between the genders, you find T. That makes that bottle of raw testosterone I saw at the Tufts lab seem all the more powerful, more menacing. It's the thing that our culture would deny. But there it is in a tackle box, scaring the heck out of women. It is potent stuff. It is huge. It says this, and it says it loud: *Guys are different, OK?* ■

John Sedgwick is a writer-at-large for GQ. His novel, a psychological thriller called The Dark House, will be published by HarperCollins this month.