
LISTENING TO STEROIDS

BY JOHN HOBERMAN

For a decade after his reign as the premier American marathoner of the early 1980s, Alberto Salazar failed to win a major race, and no one could figure out why. His years-long quest for medical advice that might salvage a distinguished career became well known among those who follow the running scene. Finally, the long-awaited breakthrough came with a victory in the 56-mile Comrades Marathon in South Africa in June 1994. But this personal triumph was accompanied by an odd and, for some observers, unsettling piece of news. After consulting with a sports physician and an endocrinologist, Salazar had concluded that years of intensive training had "suppressed [his] body's endocrine system." The treatment that he and his advisers chose was a drug that had no previous association with athletic performance and did not violate international rules: the now-legendary antidepressant Prozac.

No one familiar with the history of drug use in sports will be surprised by an athlete's innovative use of a medication, especially one that is prescribed to create courage and self-confidence in timid, lethargic, or demoralized people. Over the past century there have always been athletes willing to ingest substances, including potential poisons such as heroin and strychnine, to boost their performance. That many of them have been assisted by physicians and pharmaceutical companies reminds us that sports medicine has always been part of what one German sports scientist has called "a gigantic experiment on the human organism." At the same time, we must not overlook the quasi-scientific or pseudosci-

entific character of most experimentation. Consider, for example, the fuzzy medical logic employed by Alberto Salazar and his counselors. While Dr. Peter D. Kramer's phenomenal best seller *Listening to Prozac* (1993) makes many claims for the drug, the treatment of endocrinological disorders is not one of them. Equally revealing is the vagueness of the self-diagnosis that pointed Salazar toward the world's most popular antidepressant: "It wasn't that I was depressed or sad," he told an interviewer. "I just never had any energy or zest. I knew there was something wrong with my whole system."

Alberto Salazar's encounter with Prozac forged a high-profile link between doping in sport and the wider world of pharmacology that affects us all. The existence of powerful drugs forces us to think about human nature itself and how it can or should be transformed. As modern science increases our power to transform minds and bodies, we will have to make momentous decisions about how the human beings of the future will look and function, how fast they will run, and (perhaps) how fast they will think. To what extent do we want to preserve—and to what extent do we want to alter—human traits? It is already clear that in an age of genetic engineering advocates of the medical transformation of human beings sound reasonable, while the proponents of preserving human traits (and, therefore, human limitations) are likely to sound naive and opposed to progress in principle. The unequal contest between those who favor experimentation upon human beings

and those who oppose it will be the most profound drama of 21st-century postindustrial society. Yet few people are aware that its essential acts have already been rehearsed during the past century of scientific sport.

Drugs have been used to enhance sexual, military, intellectual, and work performances as well as sportive ones. Yet sport is somehow different. Its exceptional status as a realm of inviolable performances becomes clear if we compare it with some other vocations. Consider, for example, another group of performers for whom mental and physical stress is a way of life. Their life expectancy is 22 percent below the national average. They suffer from tendinitis, muscle cramps, pinched nerves, a high incidence of mental health problems and heart attacks, and anxiety levels that threaten to cripple their performance as professionals. These people are not fire fighters or police officers or athletes; they are orchestral musicians, and many use "beta-blocker" drugs to control their stage fright and thereby improve their performances. The use of these same anti-anxiety drugs has been banned by the Medical Commission of the International Olympic Committee as a form of doping.

What accounts for this discrepancy? What makes sport the one type of performance that can be "corrupted" by pharmacological intervention? One might argue that an orchestral performance, unlike a sporting event, is not a contest. Since the performers are not competing against one another, deceit is not an issue. Yet even if we leave aside the prominent international music competitions, this argument overlooks the fact that an entire field of equally doped runners who knew exactly which drugs their competitors had taken would still violate the ethics of sport, which require

both fair competition and the integrity of the performance itself—an untainted, and therefore accurate, measure of human potential. But why is the same requirement not imposed on the orchestral musician? Indeed, one would expect "high" cultural performances to carry greater ethical and anthropological significance than sportive ones. Sport's role as a special index of human capacity makes drug use by athletes uniquely problematic.

The "doping" issue within pharmacology thus originates in a tension between the licit and the illicit, a conflict that is inevitable in a society that both legitimizes and distrusts pharmacological solutions to human problems. The enormous market for substances that are supposed to boost the human organism in various ways benefits from the universal presumption that almost any attempt to expand human capacities is worth trying. Technological civilization always tends to turn productive activities into measurable performances, catalyzing an endless search for performance-enhancing technologies, from psychotherapy to caffeine tablets.

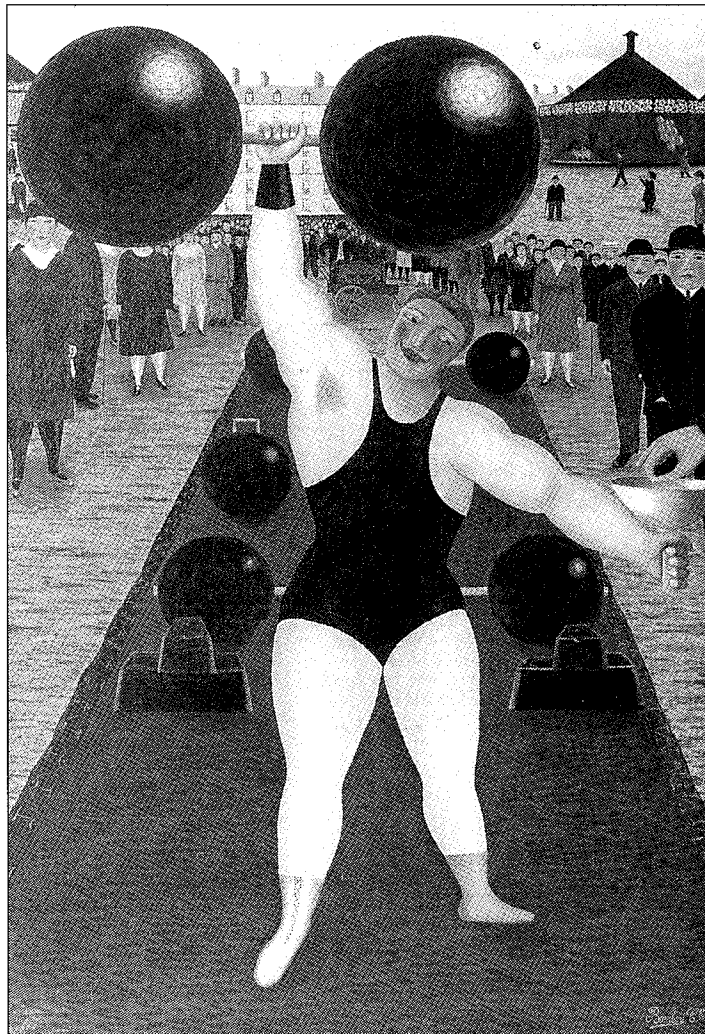
The modern obsession with performance enhancement is reflected in the wide range of substances and techniques enlisted on behalf of improving the human organism and its capacities. Commercial "brain gyms" employ stress-reduction devices such as flotation tanks, biofeedback machines, and somatrons (which bombard the body with musical vibrations) in an attempt to affect the brain waves and thereby increase intelligence, boost memory, strengthen the immune system, and combat phobias. So-called "smart drugs," none of which have been proven effective in scientifically valid trials, are sold to promote

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"cognitive enhancement."

The never-ending contest between the performance principle and the cultural restraints that work against it blurs the line separating the licit and the illicit. Consider, for example, the response in 1993 to charges of steroid doping among Chinese swimmers. A Chinese newspaper responded that the swimmers' world-class performances had been made possible by a "multi-functional muscle-building machine" that sends electronically controlled bursts of electricity through the muscles. That is to say, an accusation of illicit performance boosting of one kind was met with earnest assurances that Chinese athletes had succeeded by employing an equally artificial (but still legal) procedure. Few anecdotes could better illustrate the prevailing opportunism in the field.

Doping in sport has been banned for the past 25 years, yet less than a century ago European scientists were discussing pharmacological aids to athletic performance without any qualms. The physiologists of that time understood that the pharmacologically active substances they worked with displayed a range of effects: they could be medicines, stimulants, depressants, intoxicants, anti-septics, narcotics, poisons, or antagonists of other drugs. But during this phase, physicians and others had little interest in using drugs to improve athletic performance. Sports simply did not have the social and political importance they have today. At the same time, the athletic world did not yet rec-



L'athlète forain (1930) by Camille Bombois

ognize drugs as a threat to the integrity of sport. The distinction between performance-enhancing and therapeutic medications—a prerequisite of the doping concept—was not yet established.

The absence of such a norm explains why the French scientists who gave experimental doses of drugs such as alcohol and kola nuts to cyclists in the 1890s were untroubled by ethical doubts. The pioneering sports physician Philippe Tissié, for example, could both carry out experiments on human subjects and warn against the medi-

cal dangers of stimulants. Tissié saw athletic physiology as one approach to the study of the human organism. His attempt to prolong a cyclist's endurance by feeding him rum and champagne during a 24-hour distance trial may have been the first scientifically controlled experiment of its kind. Yet he was consistently cautious on medical grounds about the use of stimulants.

Tissié's attitude toward athletic stimulants appears strangely conflicted to those of us accustomed to the antidrug propaganda of the sports world today. How could the same physician who had urged his cyclist around the track for the purpose of identifying effective stimulants also condemn them as dangerous? To dissolve this apparent contradiction, we must abandon our conditioned reactions to the idea of doping and project ourselves back into Tissié's world. If he had no qualms about energizing his cyclist, it was because his experiment occurred before stimulants had come to be regarded as a threat to equitable competition. In any event, Tissié was not interested in producing record-breaking cyclists. It was medical prudence, not morality, that prompted his frequent cautionary remarks about stimulants. Indeed, his condemnation of alcohol is immediately followed by a recommendation that "the better beverage" for boosting performance is sugar water.

A similar ethical nonchalance is evident

in a 1913 article, "Sport and Stimulants," by the early German sports physician Ferdinand Hueppe. Modern life is impos-



High ideals in international sports, some critics argue, are not matched within the sports establishment by a strong commitment to drug testing.

sible without stimulants, he wrote, and the task of the physician is to replace harmful substances with more benign alternatives. Hueppe's disapproving references to "doping"—an internationally understood term

even at this early date—concerned the uselessness or potential dangers of drugs, not their possible use as illicit performance-enhancers.

Condemnation of doping on ethical grounds appeared during the 1920s as sport became a genuine mass-cultural phenomenon. The growth of international sporting events after the first modern Olympics, held in Athens in 1896, created a new arena for nationalistic competition that served the interests of various governments. Larger financial investments and the prominence of sport in the emerging mass media gave elite athletes a new social and political significance, which helped foster new suspicions about the competitive practices of others. Having left its age of innocence behind, sports medicine was now embarked upon a new experimental phase involving the collaboration of athletes, trainers, physicians, and the pharmaceutical industry. At the same time, a new international sports establishment arose championing an ideal of sportsmanship that was threatened by the use of drugs.

The debate over doping in Germany during the 1920s and '30s anticipated today's doping controversy in almost every respect. Drug use among German athletes was widespread and openly discussed. The German sports literature of this period offered antidoping sermons, justifications for the use of various substances, and rationales for drawing lines between what should and should not be forbidden. Some German physicians clearly believed that certain substances did improve athletic performance, and they were not reluctant to prescribe them. The prominent sports physician Herbert Herxheimer, for example, claimed in 1922 that the commercial product "Recresal" (primary sodium phosphate) produced a detectable increase in physical fitness. More interesting than his endorsement, however, were the verbal gymnastics that followed. With the approach of the

spring sports season, he said, the aspiring athlete would need his full dose of phosphates. Without mentioning the word "doping," he went on to assure his readers that this ergogenic "aid" was not comparable to the many "stimulants" in use, since it merely "supported" basic physiological processes. Echoes of Herxheimer's argument have been heard in recent years from former East German sports scientists who still seek to portray steroid use as a form of beneficial "hormonal regulation" for athletes under stress.

By 1930 a less restrained attitude toward the use of Recresal was evident. W. Poppelreuter, a professor of medicine in Bonn, claimed that wartime tests on German troops and later experiments on mountain climbers had confirmed positive laboratory results. Feeding this substance to horses, cows, and pigs had caused them to grow larger, look better, sweat less, work harder, give more milk, and produce better litters. Poppelreuter's own experiments indicated that Recresal also improved arithmetic performance: the speed of mental calculations rose while the number of errors went down—an important finding, he said, because the mental dimension of athletic performance had become increasingly clear. He was adamant about the propriety of Recresal therapy, which he called "a normal hygienic procedure" that merely supported basic physiological processes.

The most controversial technique in Germany at this time was the use of ultraviolet radiation (UV) to invigorate all or part of the athlete's body. From one standpoint, UV was about as invasive and "artificial" a procedure as standing in sunlight. But from another perspective, UV light was the product of "technical and machine-like devices" that threatened to destroy the "honorable competition" sport was meant to be. The debate over UV became a textbook confrontation between the antidoping purists and their more up-to-date opponents for whom per-

formance was the first priority.

Such problematic distinctions between "nutrients" and "stimulants," between supplemental nutrition and more ambitious regimens, constitute the core of the "doping" issue. The sports medical literature of the interwar period is filled with arguments over variations on this fundamental dichotomy: the "natural" versus the "artificial," rehabilitation versus performance enhancement, restoring the organism versus boosting it, and so on. Then as now, debates over specific drugs or techniques were less important than the larger question of whether society should impose limits on athletic ambition and certain methods that serve it, whether athletes should attempt to improve performances by resorting to what one German physician of this period called "deviations from a natural way of life."

Medical objections to doping in Germany did not command universal support among physicians for two reasons. Some of these medical men, like their modern counterparts, were simply spellbound by the prospect of boosting athletic performance in ingenious new ways. But the more fundamental problem, then as now, was that there were simply too many ways to rationalize the use of what were believed to be performance-enhancing drugs within the standard guidelines for medical practice. The line between healing the organism and "improving" it could not be drawn in a clear and definitive way.

Lacking a systematic definition of doping, biomedical conservatives adopted a position based on a kind of moral intuition. Dr. Otto Riesser, director of the Pharmacological Institute at the University of Breslau, was one of the few who understood the biochemical complexities of doping and its uncertain effects. In an address to the German Swimming Federation in 1933, he deplored widespread doping in German sport and blamed physicians for their collusion in

these unethical practices. Riesser's response to the problem of defining doping was to say that in difficult cases "common sense and conscience must be the final judges." Such homespun wisdom, though it could not always prevail over the temptation to cheat, was an important statement of principle. Similarly, when Riesser wrote about digitalis in 1930, he speculated that it might help the long-distance skier. "I don't know whether that sort of thing has been tried," he commented. "But all of us feel a healthy inner resistance to such experiments in artificially boosting athletic performance, and, perhaps, a not unjustified fear that any pharmacological intervention, no matter how small, may cause a disturbance in the healthy organism."

The history of doping tells us that our "healthy inner resistance" to such temptations is constantly being subverted by the problem of distinguishing between licit and illicit techniques. The idea of doping—and its notoriety—are, after all, cultural constructs. The rise of an antidoping ethos during the 1920s shows that the culturally conservative response to drug use in sport required about a generation to formulate itself. The culturally conservative response to performance-enhancing drugs, in society at large as well as in sport, is today under siege as it has never been before. In *Listening to Prozac*, Peter Kramer makes a point of undermining what he calls "pharmacological Calvinism," defined as "a general distrust of drugs used for nontherapeutic purposes." Pharmacological Calvinism, he suggests, "may be flimsy protection against the allure of medication. Do we feel secure in counting on our irrationality—our antiscientific prejudice—to save us from the ubiquitous cultural pressures for enhancement?" As Kramer (and his critics) well know, we do not. Indeed, the transformation of Otto Riesser's "healthy inner resistance" into "antiscientific prejudice" is one more sign that Kramer's enormously popu-

lar brief on behalf of "cosmetic psychopharmacology" has benefited from (and strengthened) an increasingly activist view of therapeutic intervention.

The rise of the therapeutic ideal has made the stigma attached to performance-enhancing drugs seem increasingly implausible. In the therapeutic model, the distinction between enhancement and the treatment of specific disorders is blurred. Therapy aims at human improvement, not necessarily the curing of a specific malady. Precisely because we now treat the legitimacy of "therapy" as self-evident, we overlook its expanded role in modern life. Drugs in particular have a vast range of applications that extend far beyond the treatment of organic diseases. Drugs now in wide use help people cope with such "normal" challenges of daily life as work performance and mood control. The elastic concept of therapy easily accommodates the physiological conditions and psychological stresses experienced by high-performance athletes, and the fusion of everyday stress and extreme athletic exertion makes it difficult to condemn doping in sport on a priori grounds. We simply do not employ a typology of stressful experiences that distinguishes on a deep enough level between the pressures of everyday life and sportive stress. The modern English (and now internationalized) word "stress" homogenizes an entire spectrum of experiences and simultaneously implies the need for "therapies" to restore the organism to its original healthy state.

The power of this therapeutic ideal is already transforming the status of the male hormone testosterone and its anabolic-androgenic steroid derivatives. These hormonal substances have been leading a double life as (legitimate) medications and (illegitimate) doping agents for almost half a century. Over the past three decades, steroid use by male and, more recently, female elite athletes has become epidemic, covertly

supported by a prosteroid lobby among sports physicians that has received almost no media coverage outside Germany.

The legitimate medical career of synthetic testosterone compounds began within a few years of the first laboratory synthesis in 1935. By the early 1940s, methyl testosterone and testosterone propionate were being promoted by pharmaceutical companies and administered to patients as an experimental therapy for a variety of disorders both real and imagined: to treat the "male climacteric" (fatigue, melancholia, and impotence) in older men, to deal with impotence in younger men, to treat hypogonadism (testicular deficiency), to restore libido in women, and to reverse homosexuality—a particularly problematic use of testosterone, as was recognized at the time. Early practitioners groped toward safe and effective treatments, sometimes administering megadoses (for breast cancer) that dwarfed the lifetime consumption of the most heavily doped East German athletes of the 1970s and '80s. These clinicians divided into more and less cautious factions, but no one questioned the legitimacy of hormonal therapy as a medical technique.

Even at this early date, ambitions for testosterone transcended strictly clinical uses. The idea that synthetic testosterone might become a restorative therapy for millions of people dates from the early period of its commercial development. In 1938 a Yale scientist told a meeting of the American Chemical Society that testosterone propionate "rejuvenated" old men by relieving depression. While the idea of using testosterone to boost athletic performance does not appear in the medical literature, it was becoming apparent to this generation of scientists that testosterone played a role in physical fitness. In 1942, for example, three American researchers correctly guessed that the combination of megadoses and exercise would alter "responses to fatiguing exercise"—an early

harbinger of steroid use in elite sport.

Paul de Kruif's popular book *The Male Hormone* (1945) promoted the idea that testosterone would soon become a mass therapy for the fatigue and waning sexual potency of aging males, and pharmaceutical companies advertised testosterone preparations in professional journals during the decade. Yet testosterone never caught on as a mass-market drug.

A half-century later, new developments are again encouraging the widespread use of testosterone. For one thing, hormone therapy is now a conventional procedure, even if certain applications remain controversial. Pediatric endocrinologists, for example, treat thousands of children of subnormal stature with synthetic human growth hormone (HGH). At the same time, they face increasing demands from parents to prescribe the same therapy for children who are only somewhat short. Such pressures are likely to legitimate the wider use of HGH. Inevitably, some parents will want HGH to boost the athletic potential of their children. Others have already requested steroids for the same purpose. A National Institutes of Health (NIH) plan to recruit healthy children to test the efficacy of biosynthetic HGH is yet another sign that social barriers to hormonal treatments are falling. According to the NIH panel that approved this clinical trial several years ago, "There is substantial evidence that extreme short stature carries distinct disadvantages, including functional impairment and psychological stigmatization." The commercial interests of drug companies also play a role in promoting hormone therapies. In October 1994, less than a week before the federal government was to outline complaints at a congressional hearing against the two major manufacturers of synthetic HGH, Genentech and Caremark, Inc., both companies agreed to curtail aggressive marketing campaigns.

Testosterone therapy is now a standard

treatment for hypogonadal males. The resulting demand has stimulated a growing market for testosterone patches that athletes (among others) can use for nonclinical purposes. But again the significance of hormonal therapy extends far beyond the clinic and into the public sphere, where medical "disorders" and "crises" are defined in accordance with social and commercial demands. Thus in 1992 the National Institutes of Health requested research proposals to test whether testosterone therapy can prevent physical ailments and depression in older males. We may now ask whether the aging process itself is about to be officially recognized as a treatable deficiency disease. "I don't believe in the male midlife crisis," commented Dr. John B. McKinlay, an epidemiologist at the New England Research Institute who is a specialist on aging. "But even though in my perspective there is no epidemiological, physiological or clinical evidence for such a syndrome, I think by the year 2000 the syndrome will exist. There's a very strong interest in treating aging men for a profit, just as there is for menopausal women." The emergence of such a syndrome would bring with it new definitions of physiological normality and male identity, and it would help to legitimize other grand ambitions to "boost" the human organism.

The advent of mass testosterone therapy would represent a dramatic cultural change. The use of sex hormones as a "popular nutritional supplement" (as one German expert has put it) to strengthen aging muscles would be a major step toward equating therapy with performance enhancement. And if testosterone products proved to have a restorative effect on sexual functioning in the elderly, this would surely foster a new ideal of "normal" sexual capacity that many people would regard as a "health" entitlement. The certification of low doses as medically safe would transform the image of these drugs, "gentrifying" testosterone products and paving the way for wider use by athletes

and body builders.

The meteoric career of Prozac is culturally significant because Prozac is regarded not strictly as a treatment for a specific disorder but as a performance-enhancing drug for a competitive society. The history of Prozac is a case study in how the legitimization of a performance-enhancing drug proceeds. *Listening to Prozac* is a fascinating book because it presents in autobiographical form the entire cycle of initial discovery, ethical doubt, therapeutic concern, and transformative ambition that constitutes the history of doping in the 20th century. (Whether Prozac has actually transformed the lives of a large number of patients remains a matter of dispute.) The author's periodic references to his own doubts about the ethics of prescribing Prozac function as evidence of his bona fides: "I became aware of my own irrational discomfort, my sense that for a drug to have such a pronounced effect is inherently unnatural, unsafe, uncanny." The resolution of this unethical discomfort is an important aspect of Kramer's narrative, and it is achieved by witnessing the relief afforded his patients by Prozac therapy. The transformative phase is where real ethical peril lies, and once again Kramer sees himself swimming with the historical tide: "If I am right, we are entering an era in which medication can be used to enhance the functioning of the normal mind." It will take bravery for human beings to decide to change themselves, he suggests, but history is on the side of Prozac and psychobiological transformation.

By now the voice of a famous cultural diagnostician from the last century has become faintly audible. We return to the text for further clues and read that Prozac "seemed to provide access to a vital capac-



Scandal du jour: after a string of surprising performances, several members of the Chinese women's swim team tested positive for steroids in 1994.

ity that had heretofore been stunted or absent." The trail grows warmer. We read on and find that Prozac "lends people courage and allows them to choose life's ordinarily risky undertakings." Now the voice is more distinct. Finally, on the last page of the book, the missing theme falls into place. The most profound moral consequence of Prozac, we learn, will be "in changing our sense of constraints on human behavior, in changing the observing self." The idea of human self-transcendence has been the key all along. Now we understand that Kramer is the prophet of a Nietzschean pharmacology that exalts a more dynamic, biochemically enhanced human type.

Doping is Nietzschean pharmacology because it defies biomedical conservatism in the name of a biochemically engineered superperson. But the legitimization of doping takes place not under the charismatic banner of the Nietzschean superman but under the humane rubric of therapy. The use of doping substances is driven by the ambiguous status of drugs that have (or may have) legitimate medical applications as well as performance-boosting value for elite athletes. The "dual-uses" of such drugs make it difficult to argue that they should be banned from sport as medically hazard-

ous. Medical researchers have already confirmed the benefits of human growth hormone for AIDS patients. The amino acid L-carnitine, which appears on a list of legal "steroid alternatives" compiled by the U.S. Food and Drug Administration, is another "dual-use" drug that is targeted at both the physically powerful and the physically enfeebled. Sold to athletes in Europe as "supplementary nutrition," it has also been promoted by researchers who claim that it may play a role in preserving mental and physical capacities in the elderly. Making L-carnitine a standard part of geriatric medicine would certainly promote its legitimacy as a performance-enhancing drug for both athletes and the general public.

The gradual "gentrification" of such drugs will have diverse effects. Testosterone products will be more available to the elderly and thus more acceptable to everyone, creating a market much larger than the estimated one million American males who now buy these drugs on the black market. Gentrification will also undermine the campaign against doping in sport. At the same time, destigmatizing these drugs will enable physicians to treat large groups of patients in new ways. Ironically, the criminalization of steroids has been an obstacle to their use for legitimate purposes. At the Ninth International Conference on AIDS, held in Berlin in 1993, physicians urged that anabolic steroids become a standard treatment for AIDS patients and people who are HIV-positive. The potential market represented by these patients already numbers in the tens of millions around the world.

The official pharmacological Calvinism of organized sport is thus under siege from within and without. While drug use has

been epidemic among elite athletes since the late 1960s, the new respectability of testosterone products will put international sports officials in an unprecedented bind. How will the Medical Commission of the International Olympic Committee maintain the official notoriety of steroids once these drugs have become a standard medical therapy for millions of ordinary people? In a word, the hard line against doping is not likely to survive the gentrification process. This outcome of the contest between our "healthy inner resistance" to doping and ambitions to "improve" the human organism will have fateful consequences. New roles for drugs will promote the medicalization of everyday life at the expense of our sense of human independence from scientific domination. It will certainly affect our thinking about licit and illicit applications of genetic engineering.

While it is easy to endorse the medical wisdom of warnings against the widespread use of steroids and other potentially dangerous drugs, the history of athletic doping in this century shows that it has been very difficult to enforce such pharmacological Calvinism in the face of growing demands for the "therapeutic" benefits of enhanced performance. The elastic concept of therapy will help to legitimize hormonal manipulation as a mass therapy of the future. It is interesting to speculate about how the advertising experts will promote these products. It is hard to imagine that they will not turn to elite athletes, portraying them as pharmacologically improved examples of supercharged health. One can see the athletes now, lined up at the start of an Olympic final early in the next century, their drug-company logos gleaming in the sun.