

Lusuceutics: Opportunity or Curse?*

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The use of performance-enhancing drugs—precisely and appropriately categorized as “doping”—has spread like a pandemic through sports. Bicycle racing, sprinting, and baseball are only a few examples, with tennis seemingly the least tainted, yet even that may be only a question of time. Increasingly, just as in the field of conventional “social” drug abuse, serious observers have proposed that such abuse be tolerated if not actually legalized. A relevant example is a recent column in the *Frankfurter Allgemeine Sonntagszeitung*,^[1] which proposed that in competitive sports, we might as well appoint drug advisors in addition to the conventional sport coaches so as to ensure that the least harm be done to the doped athlete. Such proposals are based on the not unreasonable premise that huge resources are expended in what are essentially Sisyphean efforts to criminalize drug (mis)use by athletes. Why expend lavish resources on attempting to prevent what cannot be controlled? Let us accept the fact that novel performance enhancers will continue to be developed that for limited periods will be beyond detection; in other words, there will be a perpetual technological race between improvements in pharmaceutical efficacy versus improvements in detection limits.

Proponents of such tolerance might well argue that legalization of drug use by athletes will happen through societal acceptance in the same manner as has already occurred with the misuse of potency-enhancing agents such as Viagra, exemplified by the collective shrug of the public as well as the media to the extraordinary misuse of such drugs. Although originally designed for the treatment of clinical erectile dysfunction (for instance in certain diabetics or post-prostatectomy patients), these drugs are now used much more widely for purposes that can only be described as adjuncts to penile erectile performance sport activities by men who do not actually

suffer from physiological erectile dysfunction.

But why be surprised? Drug-promoted performance enhancement started through the misuse of anabolic steroids that chemically were closely related to the male hormone testosterone but were designed to separate (alas, incompletely) the male sex characteristic aspects of testosterone from its anabolic (muscle-building) properties. Since this is a field in which I as a steroid chemist was also active some 50 years ago, let us recall that initially such research was intended for the treatment of physically debilitated patients for very serious postoperative consequences and that these anabolic drugs had to pass through the standard scrutiny of the USFDA and other regulatory agencies. They were only employed upon medical prescription and supervision for limited periods of time. The misuse by athletes of such drugs some decades later has stimulated an illegal research activity in which other closely related steroids have been synthesized that are more difficult to detect. These were then consumed, in the absence of regulatory safety approval, by athletes who paid little attention to potential side effects, because their entire focus was on short-term solutions during athletic competitions.

This brings me back to the argument^[1] about a “safe” use of performance-enhancing drugs to satisfy the desire of athletes to exceed the natural limit of their athletic capability by artificial means. This, the author suggests, could be done through the establishment of a new professional category: accredited drug advisers who will point athletes to the most efficacious performance-enhancement drugs with the fewest side effects. In my opinion, though logical, such acceptance or legalization of so-called “ergogenic” (performance-enhancing) aids immediately moves us onto a very slippery slope. I predict that a new subset of drugs—for which I propose the term “*lusu-ceuticals*” (after the Latin *lusus* for play or sports)—will arise, following the model of successful products labeled “nutraceuticals” and “cosmeceuticals”, which have already crossed the sharply defined boundaries of standard pharmaceuticals designed to treat diseases.

Aside from its obvious economic potential, one might be tempted to argue that the new specialty of *lusu-ceutics* will have the virtue of being regulated in terms of safety evaluation and demonstration of efficacy. Market pressures would then drive the direction in which such research will be channeled. But will *lusu-chemists* (another new discipline!) limit themselves to much safer anabolics—now that detectability will be of no concern—or will they head into much more questionable directions, such as working on growth hormone analogues that will lead to 7.5-foot-tall pole vaulters or basketball players? Such chemical efforts, however, will be trivial once genetic manipulators enter that field, which would almost certainly be unavoidable, given the all-too-frequent ambitions of certain parents to sacrifice their children’s upbringing on the altar of super-athletic performances. How early in life will parents be allowed to make such decisions once genetics becomes a sub-specialty in the field of *lusu-ceutics*: ex utero, in utero, or at the pre-implantation stage of an embryo? Irrespective of the ultimate focus of new applications of *lusu-ceuticals*, once drug-induced performance enhancement becomes de rigueur, should national health services pay for the use of such drugs so as not to discriminate against the poor?

Whatever we do in terms of legalizing drug abuse in athletics, we are heading in the direction of changing the Olympics from a competition of athletes to one of chemists, where the emphasis will shift abruptly from body to mind. Will new sport records then be recognized with double gold medals: one to the athlete and the other to the *lusu-chemist* who really made the newest record possible? As an emeritus chemistry professor, I ought to welcome such prospects, as the mind does not deteriorate as rapidly as the body. Nevertheless I dread such a future.

[1] H. J. Gumbrecht, “Über die Geheuchelte Wut” in *Frankfurter Allgemeine Sonntagszeitung*, July 29, 2007.

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[**] Based in part on the article by C. Djerassi, “Olympiade der Chemiker” in *Frankfurter Allgemeine Sonntagszeitung*, August 12, 2007, No. 32, p. 26.