



FROM BIRTH TO DEATH AND BENCH TO CLINIC

THE HASTINGS CENTER BIOETHICS BRIEFING BOOK

for Journalists, Policymakers, and Campaigns

CHAPTER 33

Sports Enhancement

Thomas H. Murray, "Sports Enhancement," in *From Birth to Death and Bench to Clinic: The Hastings Center Bioethics Briefing Book for Journalists, Policymakers, and Campaigns*, ed. Mary Crowley (Garrison, NY: The Hastings Center, 2008), 153-158.

©2008, The Hastings Center

All rights reserved. No part of this book may be reproduced, stored in a retrieval system, or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), without the prior written permission from the publisher, except for the inclusion of brief quotations in a review.

We have attempted to provide complete and accurate information regarding the individuals, organizations, and agencies described in this book. However, we assume no liability for errors, omissions, or damages arising from the use of this Briefing Book.

sports enhancement

by Thomas H. Murray

Framing the Issue

Spring in America brings flowers, sweet warm breezes, and the thwack of a bat striking a baseball. But swings that would once have resulted in a fly ball to the warning track may now, with chemical assistance, deposit the ball in the bleachers. The Mitchell Report, an early Christmas present to baseball fans released in December 2007, confirmed that a number of Major League players have used performance-enhancing drugs.

Athletes using drugs to boost performance is hardly news. Anabolic steroids and stimulants have plagued the Olympics for decades. Professional cycling—including its premier event, the Tour de France—nearly collapsed over reports that drug use was widespread. The 2006 victor, American Floyd Landis had his title stripped because of evidence that his testosterone levels were abnormally high, an indication that he may have boosted them with injections or patches.

An intriguing split has emerged in the public reaction to baseball's drug problem. For some, there's not much to think about: the rules forbid performance-enhancing drugs; breaking the rules is cheating; cheating is wrong—end of story.

Others are not so sure. They raise a variety of objections. Some claim that athletes are just giving people what they want: fans enjoy home runs, athletes who take drugs such as anabolic steroids hit more home runs, what's all the fuss? Of course the fans in the Roman Coliseum may have loved to see lions tearing the arms off Christians or gladiators hacking each other to death. So "what the fans desire" is not an ethically robust defense.

Others say that athletes should be free to do whatever they want to their own bodies. From this point of view, each athlete is best situated to balance the risks and benefits of using performance-enhancing drugs. The principal flaw in this argument is that it fails to understand that what one athlete chooses to do affects everyone in the competition. The athletes I know all crave a level playing field. If my competition is gaining an edge by using a drug that tilts the field in their favor, then their choice pressures me to do the same. Otherwise I may end up losing to someone who is less talented or less dedicated.

Why Prohibit Performance Enhancers?

A more subtle and serious question is why we prohibit certain performance aids in the first place. Sure, the rules of sport may ban anabolic steroids or synthetic hormones like human growth

Thomas H. Murray, PhD, is president of The Hastings Center.

HIGHLIGHTS

- Use of performance-enhancing substances in sport is not new, but the means of enhancement are increasing.
- The 2007 Mitchell Report found that several Major League baseball players had used performance-enhancing drugs; other reports have found doping prevalent in cycling, track and field, and other sports.
- The public reaction to sport doping is split: some categorically condemn it as cheating while others see benefits, such as the potential to give fans more entertainment.
- There are several reasons to ban performance-enhancing drugs: respect for the rules of sports, recognition that natural talents and their perfection are the point of sports, and the prospect of an "arms race" in athletic performance.
- Emerging issues include the creation of drugs that elude drug tests and the possibility of genetic enhancement.
- More research is needed on why athletes turn to doping and effective means of stopping it.

EXPERTS TO CONTACT

Thomas H. Murray, PhD, *President, The Hastings Center* • murrayt@thehastingscenter.org, 845-424-4040, x201

Eric T. Juengst, PhD, *Director, Center for Genetic Research Ethics and Law, Department of Bioethics, Case Western Reserve University* • etj2@po.cwru.edu, 216-368-6207

Erik Parens, PhD, *Senior Research Scholar, The Hastings Center* • parens@thehastingscenter.org, 845-424-4040, x224

Don Catlin, MD, *Chief, Olympic Analytical Laboratory, University of California, Los Angeles* • dcatlin@ucla.edu, 310-825-2635

Theodore Friedmann, MD, *Director, Gene Therapy Program, University of California, San Diego* • tfriedmann@ucsd.edu, 858-534-4268

SPORT ENHANCEMENT: PAST, PRESENT, AND FUTURE

Product	Purpose
Anabolic steroids	Artificial substances related to male sex hormones that are used to build muscles.
Stimulants	Substances such as amphetamines that act on the brain to increase alertness.
Human growth hormone (HGH)	Believed to enhance strength.
Erythropoietin (EPO)	Believed to increase endurance.
Tetrahydrogestrinone (THG); "the clear"	An anabolic steroid once undetectable by anti-doping labs.
Cheetahs	Carbon fiber blades that replace the amputated lower legs of Oscar Pistorius, a South African sprinter.
Gene therapy	Genetic manipulation may one day improve athletic ability.

hormone (HGH), believed to enhance strength, and erythropoietin (EPO,) which stimulates the production of oxygen-carrying cells in the blood and thereby increases endurance. But what makes those means for improving performance bad while other things, from better equipment to more sophisticated training methods or nutrition regimens, are perfectly okay? What makes the use of performance-enhancing drugs in sport an ethical problem?

One common place to look for a response is the distinction between therapy and enhancement. Therapy is good, enhancement is suspect, right? Unfortunately, it's not so clear or simple. The tools biomedical research creates to treat disease are completely indifferent to the fluid and sometimes disputed boundary between therapy and enhancement. A product like synthetic HGH is in certain cases like insulin for people with diabetes. For children who can't make enough HGH themselves, the synthetic form can help replace what is missing. On the other hand, healthy athletes can use HGH to try to build larger-than-normal muscles. The HGH molecule neither knows nor cares whether it is helping a child inch towards normality or making a hugely muscled athlete even more muscular. Somewhere between the two, we've crossed the border from the friendly, familiar land of therapy to the unmapped, vaguely ominous terrain of enhancement.

Nor is biomedical enhancement obviously bad in all circumstances. Imagine a relatively innocuous drug that steadied a neurosurgeon's hand so that her patients healed more rapidly with fewer complications: the ethics of that sort of performance enhancement would focus on whether neuro-

surgeons are ethically *required* to use the drug.

So the mere fact that some drugs enhance performance isn't sufficient to decide whether they're good, bad, or otherwise. The context matters. If it's wrong for athletes to use performance-enhancing drugs, there must be something about sport that

makes it so. I'll discuss three characteristics of sport that provide the context and plausible justification for banning such drugs:

- The significance of rules in sport
- Natural talents and their perfection
- The prospect of an "arms race" in sport, ending in the triumph of the so-called performance principle.

The Significance of Rules in Sport

Every sport has rules (with the possible exception of "Calvinball" from "Calvin and Hobbes," where the only rule is that you can't use the same rule twice). The rules in each sport in effect determine which characteristics among all possible sources of difference influence who wins and who loses. Team A may be wealthier than Team B, but neither is allowed to bribe the umpire—a competition that Team A is likely to win.

Improvements in equipment can transform a sport. When pole-vaulters traded in their wooden poles for fiberglass ones, they were able to leap much higher. Swimmers now have suits available that allow them to slip through the water with a minimum of resistance. Typically, sport deals with innovations in equipment in one of three ways.

Sometimes it embraces the new technology, as track and field did with fiberglass poles. The critical factors here were continuity and equal opportunity. Continuity was assured because the poles still required the same skills from pole-vaulters, such as speed down the runway, strength, and agility. Equal opportunity meant that all athletes had to

have access to fiberglass poles. One controversy over the new slippery swimsuits is whether all competitors will be able to use them. Otherwise, an inferior swimmer wearing the suit might beat out the most talented one. Technology would trump ability.

Sometimes a sport accepts technological innovation as a part of the competition. Skiers use special combinations of waxes, bobsled teams compete to come up with the fastest sled. Even then, sports make and enforce rules. Athletes can compete on technology only up to a certain point: no jet engines allowed on bobsleds, for instance.

Many innovations that would surely improve performance are banned outright. An athlete who showed up for the Boston Marathon wearing Rollerblades would be wheeled right off the start line. The marathon is for runners, not skaters. (Of course, one could try to organize a sport where Rollerbladers competed to cover the same course as the Boston Marathon; but that would be a different sport.) The Tour de France insists on a minimum weight for all bikes. As every road cyclist knows, the lighter the bike, the less energy required to climb the mountains that help make the Tour so famous and so difficult. This rule accomplishes two things. It neutralizes one advantage that the wealthiest or best-supported cyclists would gain by using fabulously expensive, custom-made parts of exotic metals or synthetics. It also protects cyclists against the temptation to shave every last gram off of critical components, increasing the risk of catastrophic failures when the bike is screaming down a switch-back mountain road at 100 kilometers an hour.

Rules are changed at times to preserve a sport. Basketball banned goaltending—swatting the ball away just as it was about to go into the hoop—when players became so tall and athletic that they could stand by the basket and prevent most shots from having a chance to go in. Later, basketball created the three-second lane to keep offensive players from camping under the basket, and then the three-point line to reward good shooting and force defenders to venture out to the perimeter. These changes opened the game up for rapid cuts, screens, and sharp passes once again.

The Point of Sport: Natural Talents and Their Perfection?

In most sports—including all Olympic events—using performance-enhancing drugs is against the

rules. But why? On what grounds does Nordic skiing ban EPO? What gives baseball the right to prohibit anabolic steroids?

If the point of an endurance sport like cross-country skiing is to see how rapidly you can cover long distances without collapsing, then anything that allows you to go harder and longer would improve your performance, including EPO. Why doesn't Nordic skiing welcome EPO the same way it welcomes synthetic fiber garments and faster skis? To some critics, Nordic skiing is being inconsistent. If the point of the sport is to go faster, then EPO should be treated just like better ski waxes, the critic may argue.

But most aficionados of sport persist in seeing a difference between using drugs to enhance performance and employing other means to the same end. Intensive training, smart tactics, dedication, studying your competitors—all these can improve one's performance and all of them are regarded as admirable ways of perfecting your natural talents.

Those natural talents are, of course, allotted in vastly uneven measure among us all. Some commentators see this as a form of injustice and performance-enhancing drugs as a remedy for nature's cruel inequalities. Why should the race go to the swift? What if I'm a clumsy, slow-footed slogger? Shouldn't I have an equal opportunity to get to the finish line first? If anabolic steroids or stimulants can balance out the uneven shares of talent given by birth, shouldn't I be allowed to use them? Then victory will belong to the one who trains the hardest perhaps, talent be damned—or neutralized, at least.

When performance-enhancing drugs have the power to overcome differences in natural talents and the willingness to sacrifice and persevere in the quest to perfect those talents, we cannot avoid confronting the question, What do we value in sport? Emerging technologies—from hypoxic chambers and carbon fiber prostheses to genetic manipulation—will force us consider what, after all, is the point of sport?

Sport, the “Arms Race,” and the Triumph of the Performance Principle

When Hastings Center researchers spoke with athletes in the early 1980s about performance-enhancing drugs in sport, they described an intensely competitive world in which tiny differ-

ences—fractions of a second in the hundred meter sprint, inches in the discus or shot put—separated the victor from the vanquished. Where a drug could give even a small edge, some athletes would be tempted to use it. And, just as significant, every other athlete in that event would feel enormous pressure to join in. The dynamics of drugs in sport bear more than a superficial resemblance to an arms race: each party drives the other further, lest either be left behind.

Critics of doping control sometimes argue that sport would be better off if athletes were just allowed to take whatever drugs they wanted. Fans would get more dramatic performances. The playing field would be leveled (because every athlete could use the same drugs). We could do away with the cat and mouse game between drug users and testers, saving money and aggravation.

These purported advantages would come at some cost. Sports that revere records and historical comparisons (think of baseball and home runs) would become unmoored by drug-aided athletes obliterating old standards. Athletes, caught in the sport arms race, would be pressed to take more and more drugs, in ever wilder combinations and at increasingly higher doses. While the scientific evidence that the drugs athletes use are harmful is often less conclusive than opponents of drugs in sport portray, that's little reason for comfort.

Athletes often take drugs at multiples of the dosages that have been studied for their benefits and risks, and they take drugs in bizarre combinations. It's unlikely that any research ethics committee would permit a scientifically controlled study that administered such large amounts and odd mixtures of drugs. So, yes, we should be concerned about risks to athletes, and we should perform whatever epidemiological and observational studies are possible under the circumstances. The drug race in sport has the potential to create a slow-motion public health catastrophe. Finally, we may lose whatever is most graceful, beautiful, and admirable about sport, which brings us back to the quintessential American game, baseball.

Emerging Challenges

When I was a kid my father, born in 1917, gave me the baseball glove he'd used as a young man. It was indeed a glove: leather, rather stiff, with short fingers and no webbing. I might have well have worn an oven mitt. Eventually I acquired a fielder's

glove more suited for baseball in the 1950s and 60s. The new glove certainly enhanced my performance as an infielder—though not by much, at least not until my late teens when my scrawny body acquired a little muscle and coordination.

Modern baseball gloves—supple, long-fingered, webbed—allow fielders to snatch line drives and scoop up hard grounders with relative ease. They improve performance, no doubt. But infielders still have to get to the ball, catch it, and throw accurately to the base. They need quickness, agility, strength, and extraordinarily swift reaction times, qualities that great infielders have always possessed. This is one technology that has enriched rather than detracted from sport.

Sport as we know it faces emerging challenges on many fronts. To mention just a few:

- Will the underworld of clandestine drug developers, promoters, and enablers overwhelm the drug control apparatus? The synthetic anabolic steroid tetrahydrogestrinone (THG)—now infamous as “the clear” peddled by the Balco lab—was created by an independent chemist. Its selling point was that the processes by which samples were prepared for testing by the anti-doping labs made the drug undetectable. The lab got its hands on a sample of THG, deciphered its chemistry, and adapted their procedures to detect it. Balco was exposed and the chemist went to prison. Is this evidence that doping control can work effectively? Or does it show that ultimately the effort will be futile because other chemists, other labs, and more willing athletes will inevitably pop up?
- Hypoxic chambers permit athletes to mimic what very few would otherwise be able to find: a geography that would enable them to train at low altitude (and therefore train at maximum intensity) but “live” at high altitude, as simulated by the hypoxic chamber (and thereby gain the increased endurance that some athletes develop from spending most of their time in an oxygen-depleted environment). Oscar Pistorius, a South African sprinter, saw both of his lower legs amputated. Yet he can achieve remarkable times in the 400 meters thanks to his talent, his perseverance—and a pair of carbon fiber blades known as Cheetahs. Scientists disagree over whether Cheetahs are more efficient than our flimsy biological equipment. Pistorius wants to run in the Olympics, not the Special Olympics. Technologies like hypoxic

chambers and carbon fiber limbs are harbingers of what sport will confront in the future. They will compel us to ask again and again, what is the meaning of this sport? What counts as “fair” competition? What, in the end, should mark the difference between excellent performance and lesser performances—or something else entirely, like the Rollerblading marathoner?

- A huge volume of hot air is being created around the prospect that athletes will be genetically enhanced. The same techniques being perfected for gene therapy may be used to give athletes a genetically programmed boost. Progress in gene therapy is in a relatively early stage of development, but the doping control agencies have realized that they need to engage the interest and creativity of top scientists, who are now working on a variety of promising strategies to detect gene doping.

Challenges for Policymakers and Journalists

For policymakers, two major categories of challenges emerge. The first set of challenges have to do with research. For decades the competition between drug-using athletes and their enablers on the one hand and antidoping workers on the other was uneven. The labs, for example, had to scramble to support their research into new substances and new analytic methods. Dopers could make plenty of money supplying athletes seeking a competitive advantage. Finally, with the advent of new agencies such as the World Anti-Doping Agency (WADA) and the United States Anti-Doping Agency (USADA), a small but reliable stream of funds for research became available. With better funding, much more could be done.

It could be very helpful to learn more about the culture of sports doping—why athletes dope, who influences their decisions, and the like. It would be equally interesting to do research to develop alternative strategies to encourage clean sport and discourage doping. Some promising ideas are being pursued, like the commitment of Team Slipstream (now Team Garmin-Chipotle) and Team High Road (now Team Columbia), professional cycling teams, to test each of their riders regularly. In addition to catching possible drug users, the routine tests establish physiological baselines; sharp departures from them could signal pharmacological tampering

RESOURCES

Web sites

- www.wada-ama.org – The World Anti-Doping Agency. Includes the complete World Anti-Doping Code, resources, and news.
- www.usantidoping.org – The U.S. Anti-Doping Agency. Includes tools for athletes, resources, and a press kit.

Recent news

- Joshua Robinson and Alan Schwarz, “Olympic Dream Stays Alive, on Synthetic Legs,” *New York Times*, May 17, 2008.
- Duff Wilson and Michael S. Schmidt, “Report Ties Star Players to Baseball’s ‘Steroids Era,’” *New York Times*, December 14, 2007.
- Michael Hiltzik, “She Did It, But All Will Pay,” *Los Angeles Times*, October 6, 2007.
- Randal C. Picker, “Competitive Disadvantage: As Contests Move from Playing Field to Laboratory, Athletes, Sports Would Be Hurt,” *Chicago Tribune*, August 22, 2007.
- Joel Garreau, “Is it Time for a Flex Plan?: Techno-Athletes Change the Definition of Natural,” *Washington Post*, August 1, 2007.

Further reading

- Thomas H. Murray, “Enhancement,” in *The Oxford Handbook of Bioethics*, ed. Bonnie Steinbock, Oxford University Press, 2007.
- Sarah Glazer, *Enhancement*, The Hastings Center, 2006. Primer available at www.thehastingscenter.org/uploadedFiles/Publications/enhancement%20primer.pdf.
- Thomas H. Murray, “Gene Doping and Olympic Sport,” *Play True*, Spring 2005.
- Don H. Catlin and Thomas H. Murray, “Performance-Enhancing Drugs, Fair Competition, and Olympic Sport.” *Journal of the American Medical Association*, July 1996.
- Norman Fost, “Banning Drugs in Sports: A Skeptical View,” *Hastings Center Report* July-August 1986.

and may also prove useful in monitoring the cyclists’ health. Other strategies should be encouraged and studied.

I pointed out earlier the difficulty of studying the risks when athletes use drugs in high dosages and novel combinations. We may not be able to construct an ethical clinical trial, but scientists can gather helpful data with other methodologies. Such research should be encouraged and funded.

The second major challenge is nontherapeutic drug use among adolescents. Various reports dis-

agree about the percentages of teens using drugs such as anabolic steroids, but study after study shows alarming high levels of use. The research also reveals that young people may be more eager for the cosmetic effect—looking “buff” on steroids or HGH—than for any impact on performance. How to make such drugs less available and less attractive to adolescents is a significant policy challenge.

Finally, a word of appreciation for journalists, especially sports columnists: My admittedly unscientific impression is that the items in the daily newspaper most likely to be devoted to philosophy are the columns in the sports section. There, grand debates unfold over matters of justice and over the

meaning of sport. Should Barry Bonds' home run totals be marked with an asterisk because they may have been drug-assisted? Should he be elected to the Baseball Hall of Fame in Cooperstown? What's fair? What after all is valued most in baseball? What makes it fascinating, regularly frustrating, and occasionally transcendently beautiful? A steady tattoo of monstrous home runs? Or, like the greatest wines, a diverse mix of elements, somehow blending into a harmonious whole?

There are wide and vigorous disagreements on just about every matter I've touched. Let the dialogue flourish, and let the games begin. 