

Probing Question: Can steroids enhance athletic performance?

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Photo: James Collins

On May 28, baseball's Barry Bonds launched his 715th home run a whopping 455 feet to pass Babe Ruth as the No. 2 home run slugger of all time. But allegations of steroid use have caused many fans to turn their backs on the prolific hitter's accomplishment. While we may never know whether Bonds used steroids, the controversy still invites the question, "Can steroids really enhance athletic performance?"

According to Charles Yesalis, Penn State professor of exercise and sports science, the short answer is yes. "Considering available scientific evidence and overwhelmingly consistent anecdotal reports of athletes, we can conclude anabolic steroids are associated with increase in strength," writes Yesalis in the book *Anabolic Steroids in Sport and Exercise*.

Anabolic steroids, explains Yesalis, are synthetic versions of the natural hormone testosterone, which drives the development of secondary male sex characteristics. When boys hit puberty, testosterone levels shoot up, causing hair to grow, sex organs to mature, muscles to enlarge and the voice to deepen. The process continues until testosterone levels begin to drop off at age 40.

"Essentially, anabolic steroids induce a second adolescence," says Yesalis. "Many of the same things happen as would in puberty. As testosterone levels elevate, the user experiences increased strength and muscle mass. In a sport like baseball, that strength makes it easier to hit a home run, with stronger forearms to power through the ball and powerful hips to rotate your body quickly." While steroids have a definite impact, Yesalis is quick to remind that they are no replacement for talent. Says Yesalis, "You can't make chicken soup out of chicken feathers."

To boost their strength is not the sole reason athletes turn to steroids, Yesalis adds. "They have been taken for at least 45 years by endurance athletes to recover from workouts rapidly. With steroids, a marathon runner can run longer, a swimmer can do more laps and a cyclist can spend more time pedaling." In sports where endurance is everything, the ability to last longer during workouts and competitions confers a definite advantage.

The problem is that competitive edge comes with serious side effects. In males, Yesalis says, steroid use can cause scarring acne, shrinkage of the testicles, and early baldness in those with a predisposition toward the affliction. In women, the changes are more drastic. The influx of synthetic testosterone typically triggers a "masculinization" that includes the growth of facial hair, balding and deepening of the voice. Yesalis himself has done studies linking steroid use to psychological dependence, use of other illicit drugs and violent behavior.

Steroid use can even be life-threatening. "Oral steroids can cause tumors to form on the liver," Yesalis says. "In addition, there is a reduction in HDL cholesterol levels, 'the good cholesterol.'" An HDL reading below 40 means an increased risk of heart disease, he notes, and steroids have the capacity to lower that level to single digits. When asked about possible long-term effects, Yesalis

says, "This might surprise you -- and it's a shame to say -- but we have no idea. There have been long-term studies done on alcohol and a variety of drugs like marijuana and heroin, but never on steroids. Neither do we know the specific effect steroids have on the growing bodies of children."

Despite their potential for harm, according to a 2004 survey 3.4 percent of U.S. 12th-graders have tried steroids to enhance athletic performance. Many more budding athletes use over-the-counter dietary supplements such as the amino acid creatine for extra energy and to speed muscle growth. The health effects of such products are not well known, Yesalis says. "Since the federal government doesn't assure the safety of supplements, side effects may need to arise before a product is pulled off the shelves." He also fears such products may be a stepping stone to steroid use. "I have never met a steroid user who didn't use supplements first."

Is the steroid problem being overblown by the media? On the contrary, Yesalis says. "This stuff is easy to get and it's potentially dangerous for everyone, whether a professional athlete or a high-school kid. Most drug testing in professional sports is easy to get around by using undetectable substances," he adds. "People have no idea how bad this problem really is."

Source: By Ryan Szivos, Research/Penn State

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