

USADA's chief science officer publishes editorial on anti-dope testing in sport: History and science

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Lance Armstrong's doping scandal may be considered by U.S. Anti-Doping Agency (USADA) as "more extensive than any previously revealed in professional sports history," but a new editorial in The *FASEB Journal* by USADA's Larry D. Bowers shows that it is clearly not the first. From early athletes who used rat poison and heroin to fight fatigue to modern Olympians who perform under the ever-present shadow of high tech hormones, stimulants and steroids, this editorial lays out both the history and the science behind athletic "doping" scandals. Bowers traces modern antidoping regulation to tragic accidents such as the death of British cyclist Tommy Simpson in the 1967 Tour de France, a race then notorious as a pharmaceutical free-for-all.

"With a steady stream of new therapeutic agents—from stimulants to steroids to protein hormones—with potential for abuse in sport entering the marketplace, antidoping scientists and collaborators are continually developing new approaches for detection of prohibited substances and methods," wrote Bowers in the editorial. "The challenge of developing and validating methods for the long list of prohibited substances and methods is daunting, requiring analytical skills, a thorough understanding of <u>drug metabolism</u> and pharmacokinetics, and an appreciation of <u>human physiology</u> and endocrinology."

In the editorial, Bowers describes how doping athletes have progressively employed more sophisticated techniques and tools to avoid detection by



increasingly comprehensive tests. This leads to his coverage of emerging areas of medicine which may lead to entirely new classes of performance enhancers, such as <u>gene modification</u>. He also covers the various actions taken by legislators and athletic committees to ensure fair competition. The editorial is available to the public at no charge and can be read in its entirety at <u>http://www.fasebj.org/content/26/10/3933.full</u>.

"We often think of medical breakthroughs as bringing cures to those who are sick," said Gerald Weissmann, MD, editor-in-chief of The <u>FASEB Journal</u>, "but for some who are in peak physical condition, these breakthroughs offer a way to extend the human body beyond its limits. In many cases, however, these temporary gains in physical performance carry hidden health risks - such as heart disease or cancer - that strike after the performance years have passed."

More information: The editorial is available to the public at no charge and can be read in its entirety at <u>www.fasebj.org/content/26/10/3933.full</u>

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