Gene Doping and Sports: The Genetic Enhancement Frontier?

UC San Diego School of Medicine Expert Urges Awareness and Action

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With the 2010 Winter Olympic Games just days away, officials in the anti-doping community are urging researchers and those in the athletic community to re-double their efforts to fight illegal doping.

The ethics commentary, called "Gene Doping and Sports," appears in the February issue of the journal *Science.* Lead author Theodore Friedmann, MD, professor of pediatrics and director of the Gene Therapy Program at UC San Diego School of Medicine, and his co-authors point to the emergence in the media of a community that approves and even encourages the use of "virtually any enhancing agents that science makes available to them". The authors called on scientists to not be mere bystanders but to "reaffirm their responsibilities to conduct and report their work" ethically. Co-authors include Olivier Rabin, World Anti-Doping Agency (WADA), Montreal, Canada and Mark S. Frankel, American Association for the Advancement of Science. Friedmann is chair of WADA's Gene Doping Expert Group.

"Genetic manipulation will be the frontier for human genetic enhancement," Friedmann says. "Successful development of gene therapy has provided the concepts, tools, opportunity and, for some, justification for genetic modification of functions that affect normal human traits, such as athletic performance."

The best of the best in sports gather at the Olympics, one of the world's most competitive events. Friedmann says the time is right to look at how advances in genetics are affecting sports in ways not expected just a decade ago.

"Thanks to the Internet, an industry has emerged to cater to the desire of athletes and their coaches to find a competitive edge," added Friedmann. He and colleagues also caution that some athletes and coaches may be tempted and willing to use performance enhancing products that have yet to be tested in humans.

"Some products go as far as to claim that 'genetic limitations are a thing of the past.' But so far, all we know for certain is that we have faster or stronger mice."

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