Marijuana and Synthetic Cannabinoids

Following recent recommendations from the Committee on Competitive Safeguards and Medical Aspects of Sport (CSMAS) regarding changing both the marijuana testing thresholds and penalty structure, NCAA Chief Medical Officer Brian Hainline offered the following answers to questions regarding these initiatives.

Hainline, who began his duties as the NCAA’s chief medical officer this month, is a neurologist with more than 20 years of sports medicine experience as a treating physician, administrator and policy maker. He is co-author of “Drugs and the Athlete,” a book credited with helping to change the international approach to drug testing and substance abuse education. He has begun to establish a national center of excellence (NCAA Sport Science Institute), for which the NCAA will become the cornerstone of medical education for college student-athletes.

What is the intent of the NCAA Drug Testing Program? The purpose of NCAA drug testing is to deter performance-enhancing drug use, to protect the health and safety of the student-athlete, and to protect the integrity of sport. The NCAA drug testing program is operated by The National Center for Drug Free Sport. Student-athletes are tested at championship events for all banned drug classes, and year-round for performance enhancing drugs, the prototypic class of which is anabolic-androgenic steroids. The NCAA is also very invested in substance abuse awareness programs and education, specifically targeting alcohol and street drugs such as marijuana.

Why does the NCAA test for marijuana? Is marijuana a performance-enhancing drug?
The performance enhancing effects of marijuana have been debated for years. Marijuana was added to the World Anti-Doping Code as a prohibited substance after it was discovered, in monitoring tests only, that some Olympic snowboarders tested positive for marijuana. At that time, there was no penalty for a positive marijuana test, but many in the Olympic family were embarrassed about the test results. This led to placing marijuana on the in-competition list of banned drugs. Many scientists and clinicians have hotly debated whether marijuana is truly performance enhancing. Indeed, John Fahey, the president of the World Anti-Doping Agency, recently acknowledged that many scientists believe that the current marijuana criteria need to be amended, and he further stated that this matter will be considered in a review process.

The NCAA drug testing program shares many similarities with the World Anti-Doping Code, and for this reason the NCAA has been testing for marijuana at its championship events, and a positive test results in a one-year penalty, similar to a positive test for performance enhancing drugs such as anabolic-androgenic steroids. In keeping with one of the intents of drug testing—protecting the integrity of sport—the NCAA membership passed a resolution at the 1986 Convention to include marijuana in the drug testing panel, as membership did not want its championships tainted by marijuana use. During the Dec. 2012 CSMAS meeting, marijuana was discussed in earnest from many points of view, including: (1) the performance-enhancing aspects of marijuana; (2) the substance abuse potential of marijuana; (3) the current urine thresholds for which the presence of marijuana yields a positive test; (4) synthetic marijuana, more correctly known as synthetic cannabinoids. We will review all of these points later. With regard to marijuana’s impact on performance, the CSMAS committee members universally agreed that marijuana is not a performance-enhancing drug. This consensus was based on a review of pertinent scientific literature, and sprung from a Dec. 2010 summit on marijuana. Based on a review of the literature, the summit, and broad discussion, CSMAS recommended changing the penalty for student-athletes who test positive for marijuana.
**What is the CSMAS recommendation for a positive marijuana test?**
CSMAS has recommended that the penalty for a positive marijuana test (and other street drugs) be reduced by 50 percent. Specifically, if a student-athlete tests positive for marijuana and other street drugs, CSMAS recommends that he/she be withheld from the next 50 percent of the season of competition in all sports, and the student-athlete shall remain ineligible until the prescribed penalty is fulfilled and subsequently tests negative for the substance. A second positive test will result in the current penalty of the loss of a season of competition. The rationale is clear and is twofold: (1) Marijuana is not a performance-enhancing drug and therefore should not have the same penalty structure as well documented performance-enhancing drugs. We want individuals to win competitions through a combination of athletic skill and training, and not because of enhanced pharmacology; (2) even though marijuana is not ergogenic, its use by student-athletes can jeopardize the individual’s health, and is not consistent with the spirit of sport. CSMAS voiced a concern that student-athletes should not be ingesting marijuana because this represents a substance-abuse concern. With this in mind, CSMAS highly recommends that member institutions intervene and try to assist student-athletes who test positive for marijuana and other street drugs in an effort to correct unhealthy behavior.

**Isn’t there a potential conflict in drug testing for marijuana since it is legal in some states?**
Marijuana is illegal from the federal government perspective, and it is still not clear how the state-federal dialogue will play out. That being said, the World Anti-Doping Agency lists three reasons for drug testing in sport: (1) to prevent cheating through the use of performance-enhancing substances and methods; (2) to deter athletes from ingesting substances that may harm the athlete’s health; (3) to deter athletes from ingesting substances or engaging in doping methods that are contrary to the spirit of sport. Whereas CSMAS rightly focused on the fact that marijuana and other street drugs are not performance enhancing, CSMAS also recognizes that the universe of sport is special, and the student-athlete is obliged to embrace the spirit of sport. We do not believe that student-athletes should be ingesting marijuana and other street drugs, and we believe that a combination of penalties coupled with behavioral intervention is the most balanced approach to this issue.

**Why did CSMAS recommend changing the threshold of detection for marijuana from 15 ng/mL to 5 ng/mL?**
The current threshold of 15 ng/mL was based on best practices for analytical detection of marijuana dating back to 1986. This threshold also allowed for a distinction between direct ingestion/inhalation versus passive inhalation (i.e., the individual is in the same room as someone else who is smoking marijuana). Analytical techniques have advanced considerably over the years, and it is now possible to credibly differentiate active versus passive inhalation of marijuana at a threshold of 5 ng/mL. Since the intent remains to test for active marijuana use, it makes sense to shift to the updated best practices in analytical drug testing.

**What are the practical implications of changing the threshold of detection for marijuana?**
Quite simply, it will now be easier to detect direct marijuana usage even at lower levels with this new threshold, while still differentiating active from passive inhalation.

**How long does marijuana remain in the body after use?**
Marijuana can be detected through a urine drug test up to one month after use, and sometimes longer for individuals who smoke chronically, or for individuals who are obese. Marijuana is stored in fat tissues, which is why detection is possible for such a long period of time.
Does that mean that a student-athlete who smokes pot one month before a Championship event could test positive for marijuana and be subsequently penalized?
Yes

Why did CSMAS make two seemingly disparate recommendations regarding marijuana?
The detection threshold change was made in keeping with best practices in drug testing. The penalty reduction recommendation was based on an analysis of the performance-enhancing potential of marijuana, and was more philosophical in that CSMAS recognized that marijuana is not performance enhancing but its use by student-athletes is a genuine concern that needs to be addressed. These two separate recommendations are not directly connected. The indirect connection is that the more sensitive threshold for detecting marijuana may result in more positive drug tests.

What is a synthetic cannabinoid?
Cannabis and marijuana are interchangeable terms; cannabis is derived from the cannabis plant, and may also be called a cannabinoid. Synthetic cannabinoids (or synthetic cannabis) is a designer drug made from natural herbs that are sprayed with synthetic chemicals. This combination of herb and synthetic chemical allegedly mimics the effects of marijuana. Synthetic cannabinoids are best known as K2 and Spice, and may be marketed as herbal incense. The Synthetic Drug Abuse Prevention Act of 2012 bans synthetic cannabinoids, and they are now Schedule I drugs of the Controlled Substances Act, similar to other narcotics.

Why does CSMAS recommend testing for synthetic cannabinoids?
Synthetic cannabinoids, like marijuana, are street drugs that represent a potential physical and mental threat to the student-athlete. Given the alarming rise in synthetic cannabinoid use, CSMAS recommended testing for and penalizing for synthetic cannabinoid use in a manner similar to marijuana and other street drugs.