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Primer día en la 'cancha' de Franco. **MARCA**

Doping by athletes could become tougher to hide with new detection method. **Science Daily**

MARCA

06/04/2021

Primer día en la 'cancha' de Franco

El nuevo presidente del CSD, José Manuel Franco, visita a los deportistas en el CAR de Madrid y se reúne con Alejandro Blanco y el ministro de Cultura y Deporte

- **REDACCIÓN MARCA**

El nuevo presidente del CSD y secretario de Estado para el Deporte, **José Manuel Franco**, ha 'estrenado' hoy el cargo con un doble gesto.

Primero ha visitado a los **deportistas y entrenadores en las instalaciones del Centro de Alto Rendimiento (CAR) de Madrid.** Ha sido la primera toma de contacto con estos deportistas **desde que llegara hace unos días al cargo, en sustitución de Irene Lozano**.

Más tarde, se ha reunido con el presidente del Comité Olímpico Español, **Alejandro Blanco**, en presencia del ministro de Cultura y Deporte, **José Manuel Rodríguez Uribes**.

El objetivo del encuentro, según ha revelado el propio Blanco en las redes sociales, era **"estudiar diversas iniciativas encaminadas al desarrollo e impulso del deporte español"**.

Franco es el **quinto secretario de Estado para el Deporte desde 2016** y llega al cargo tan sólo cuatro meses antes de los Juegos Olímpicos de Tokio, que debieron suspenderse el pasado año por la pandemia.

En su toma de posesión, el secretario de Estado hizo hincapié en que **"el deporte será una herramienta decisiva y valiosa hacia un cambio del modelo económico** y una sociedad del conocimiento más cohesionada".

Thank you for watching

Entre los objetivos principales de esta nueva etapa, Franco señaló la **digitalización, la transición ecológica, el impulso a la internacionalización, la dinamización del deporte femenino**, así como conseguir **la certidumbre jurídica con una nueva Ley del Deporte y Antidopaje**

https://www.marca.com/otros-deportes/2021/04/06/606c5ddde2704eed318b45ee.html

Science Daily

05/04/2021

Doping by athletes could become tougher to hide with new detection method

As the world awaits the upcoming Olympic games, a new method for detecting doping compounds in urine samples could level the playing field for those trying to keep athletics clean. Today, scientists report an approach using ion mobility-mass spectrometry to help regulatory agencies detect existing dopants and future "designer" compounds.

The researchers will present their results today at the spring meeting of the American Chemical Society (ACS).

Each year, the World Anti-Doping Agency (WADA) publishes a list of substances, including steroids, that athletes are prohibited from using. However, it can be difficult to distinguish an athlete's natural or "endogenous" steroids from synthetic "exogenous" ones administered to boost performance.

And regulatory bodies face another challenge: "As quickly as we develop methods to look for performance-enhancing drugs, clandestine labs develop new substances that give athletes a competitive advantage," says Christopher Chouinard, Ph.D., the project's principal investigator. Those designer drugs evade detection if testing labs don't know to look for their specific chemical structures.

Chouinard's team at Florida Institute of Technology is trying to outsmart cheaters with an assay that can differentiate endogenous and exogenous steroids and can also anticipate the structure of new compounds that might show up in athletes' urine samples.

Currently, testing labs analyze samples using tandem mass spectrometry (MS) and gas or liquid chromatography. These approaches break up molecules in the sample and separate the fragments, yielding spectra that can reveal the identity of the original, intact compounds. But it can be tough to differentiate molecules with minor structural differences -- including isomers -- that distinguish endogenous steroids from exogenous ones, such as the synthetic anabolic steroids athletes take to build muscle.

To accentuate those differences, Chouinard pairs MS with ion mobility (IM) spectrometry, a separation technique he learned as a graduate student with Richard Yost, Ph.D., at the University of Florida. Yost's team and others found that the differences between isomers could be made even more apparent if the molecules in a sample were modified prior to IM-mass spec analysis by reacting them with other compounds. After Chouinard set up his own lab in 2018, he applied this technique by reacting steroid samples with ozone or acetone in the presence of ultraviolet light -- reactions already well-established among researchers who study lipid isomers, but new in the anti-doping arena.

Last year, Chouinard's team reported they had successfully used these reactions with IM-MS to improve isomer separation, identification and quantification for a few steroids in sample solutions. Now, the researchers report they have tested this technique in urine against nearly half the prohibited steroids on WADA's list and have shown it can successfully characterize and identify these compounds. They also showed the method can characterize and identify banned

glucocorticoids, such as cortisone, that improve athletic performance by suppressing inflammation from injuries. Detection limits are below one nanogram per ml.

In addition to tracking down known dopants, the team wants to be able to find newly created illicit steroids not yet known to WADA. With Florida Institute of Technology collaborators including Roberto Peverati, Ph.D., they are developing computational modeling and machine learning techniques to try to predict the structure, spectra and other characteristics of these molecules. "If we can develop methods to identify any theoretical steroids in the future, we could dramatically reduce doping because we would be able to detect these new species immediately, without the lag time that's been associated with anti-doping testing over the last 40 years," Chouinard says.

Though the assays themselves are quick, simple and inexpensive, IM instruments are costly, with a price ranging up to roughly a million dollars, Chouinard notes. However, he adds, with the support of anti-doping funding organizations like the Partnership for Clean Competition (PCC), more labs might be willing to foot that bill, so long as the method offers a significant advantage in detection and deterrence.

Story Source:

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https://www.sciencedaily.com/releases/2021/04/210405075904.htm