

“Longitudinal Analysis on the Detection Parameters of Endogenous AAS for Target Testing Research”

Dr. Z. Chen, Dr. X. Zhou (China Anti-Doping Agency, China)

Project Overview

In CHINA, 25% of the OOC tests is given to target testing each year. Thus, intelligent target test plan (TTP) becomes a crucial research that lays on the daily TDP work. During recent years, we exert our efforts on improving the TTP. Moreover, another way that attracts our attention is to follow up with the lab data, which could be very useful in discovering those potential drug-users. However, the kind and way of put those data into practice shall be pondered deeply over.

In 2010 Laboratory Statistics Report from WADA, the adverse analytical findings of AAS is 60.8% in the whole number of the AAF. Be different from exogenous AAS, endogenous anabolic androgenic steroids are difficult to detect.

It is recommended that a urine sample in which the parameter is met during the screening procedure, be routinely submitted to the IRMS analysis. Even though, some parameters abovementioned are still under the detection line after taken the endogenous AAS by athletes. It is obvious that finding out the athlete's markers variant longitudinally means much to the antidoping job.

In the project, we will develop the AAF study, the cross-sectional study, and model construction study as well as the longitudinal study. For the results of this project, we hope we can set up the endogenous AAS model of the athletes and find out the accurate time to carry out testing according to the individual AAS model.

Results and Conclusions:

In order to fix the development of Athlete Steroidal Passport (ASP) module, the project has been adjusted. Doping risk of sports was assessed firstly. Besides the data of steroid profile from high-risk sports from 2009 to 2014 were collected, the data of non-athletes were also collected for baseline analysis. Based on these results, statistics of intra-individual CV of T/E ratio with sport factor and period factor was conducted to find the high-risk period of different sport.

Three levels of doping risk of different sports were classified for in competition and out of competition separately. The results can be helpful the focus on different sports for IC and OOC tests.

The steroid profiles of non-athlete population have been analyzed. The cut-off value of different genotype was defined using cluster analysis. Also, the range of intra-individual CV of T/E ratio was calculated, which was much higher than it was reported before.

The steroid profiles of athlete population were analyzed based on the data of non-athletes. Through the analysis of the suspicious samples from suspicious athletes selected with intra-individual CV of T/E ratio with sport and competition period, the high-risk months of each sport have been found. This regularity of each sport can be the guidance of establishing the test distribution plan, not only for target athletes, but also for all the athletes of the same sport.