

Athletes' feedback and impact of DBS sampling site (fingertip vs. upper arm) on the concentrations of endogenous testosterone

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Project overview

In recent years, there has been significant research and development into dried blood spot (DBS) testing and analyses, which exhibit advantages in collection, transportation and storage compared to the traditional anti-doping testing matrices urine and venous blood. One of the benefits with DBS is the minimally invasive collection of capillary blood, e.g. from a finger prick. However, athletes who use their fingers in performing their sport (e.g. weightlifting, handball, swimming or archery) may prefer alternative sampling sites than their fingers when providing a capillary blood sample. Having a variety of different collection site possibilities would be advantageous from a practical perspective, not only from a sport-specific perspective, but also when collecting samples from athletes with impairment e.g. amputated limbs.

However, the possibility to collect samples from different sites would depend on the correlation of capillary blood concentrations of target analytes between the different sampling sites.

In this study, Doping Control Officers (DCOs) will collect capillary blood from the finger (finger-prick) and from the upper arm (specific collection device) from 108 athletes (males and females) of various sport disciplines. The DCOs will record the time needed to collect the samples, register the number of unsuccessful attempts and evaluate the usability of the collection devices and whether they prefer the collection of DBS from the fingertip or the upper arm. The athletes will fill out a questionnaire regarding the perception and painfulness of the two DBS collections and whether the collections processes have had any impact on their sport activities afterwards. The lab staff will fill out a questionnaire once they have received the samples to understand the suitability of the samples for analysis. The DBS samples will be analysed for the concentration of endogenous testosterone.

Therefore, the main objectives of the present study are to:

- 1) Determine and compare the perception and painfulness of DBS collections from a fingertip vs. the upper arm from different populations of athletes
- 2) Determine whether there are differences in the endogenous concentration of testosterone in samples collected from the finger vs. the upper arm