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Athlete Biological Passport

IN DETAIL

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What is Athlete Biological Passport (ABP) Program

- The principle behind the Athlete Biological Passport (ABP) is the monitoring of selected biomarkers (biological parameters) over time that may indirectly reveal effects of doping on the body.
- The longitudinal profile for each athlete is generated based on statistical tools that utilize data from an athlete's previous samples to predict the likely individual limits or reference range for future samples.
- If any data from a sample falls outside of the athlete's reference range, this abnormal value may be an indication of doping or a pathological condition.
- Currently three modules were implemented in ABP program: **haematological, steroidal and endocrine** modules.



What are the objectives of ABP program

The principal objectives of the ABP program are the following:

- It can be used to conduct targeted, conventional anti-doping tests on athletes with abnormal profiles.
- It can also be used as corroborating evidence of doping during an anti-doping rule violation case.



What are the Modules of ABP Program

1. Haematological Module:

- The Haematological Module collects information on Markers of blood doping. This module aims to identify the Use of Prohibited Substances and/or Prohibited Methods for the enhancement of oxygen transport or delivery, including the Use of AAEs and any form of blood transfusion or manipulation.
- The following blood variables are considered within the ABP Haematological Module i.e. Abnormal blood profile score, Hematocrit, Hemoglobin, Immature reticulocyte fraction, Mean corpuscular hemoglobin, Mean corpuscular hemoglobin concentration, Mean corpuscular volume, OFF-score, Platelet count, Red blood cell (erythrocyte) count, Red cell distribution width (standard deviation), Reticulocytes count, Reticulocytes percentage, White blood cells.



What are the Modules of ABP Program

2. Steroidal Module:

- The Steroidal Module collects information on Markers of steroid doping measured in urine and/or serum Samples. The module aims to identify endogenous anabolic androgenic steroids (EAAS) when administered exogenously.
- The Steroidal Module is also an effective means to identify urine Samples which may have been tampered with or exchanged with the urine of another individual.
- The following urinary Markers are considered within the ABP Steroidal Module i.e. Androsterone, Etiocholanolone (Etio), 5α -Androstane- $3\alpha,17\beta$ -diol, 5β -Androstane- $3\alpha,17\beta$ -diol, Testosterone, Epitestosterone,
- In addition to the following ratios i.e. T/E, A/T, A/Etio, 5α Adiol/ 5β Adiol & 5α Adiol/E



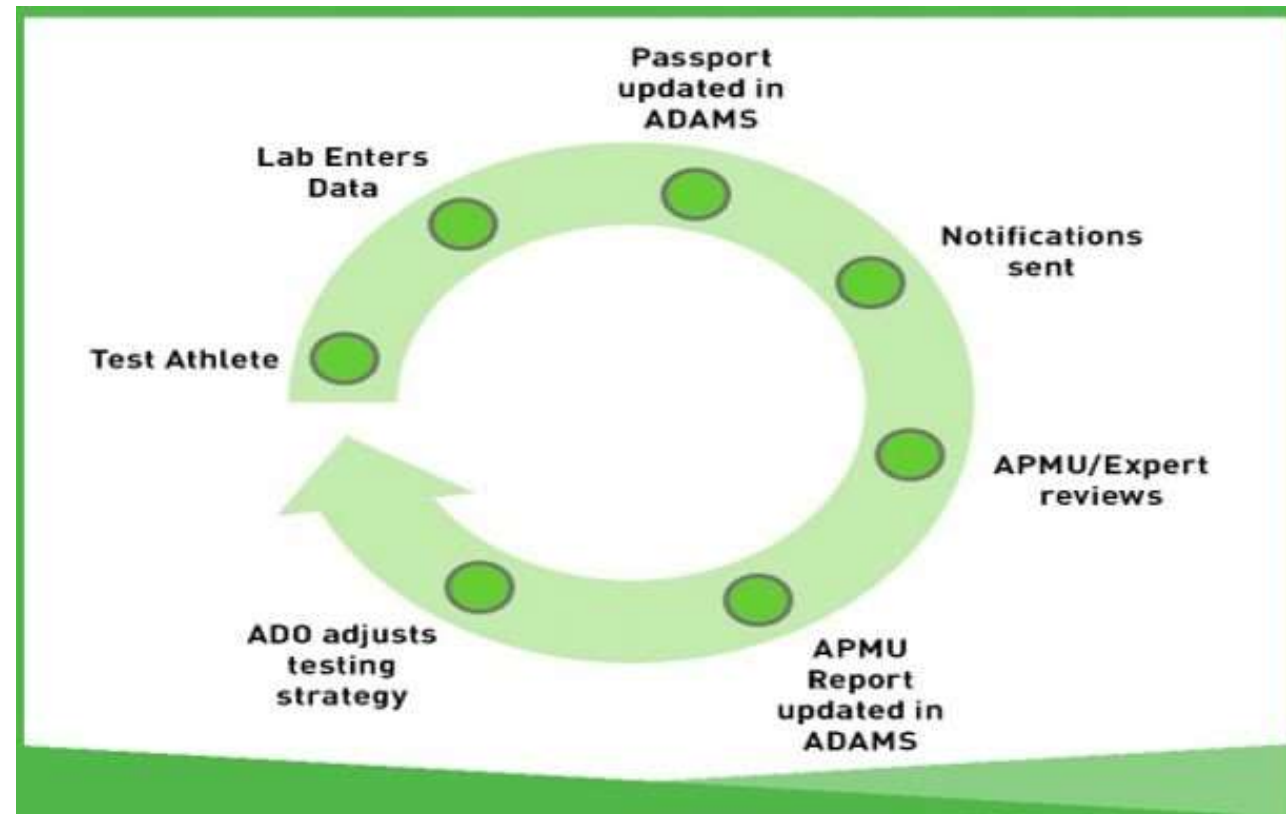
What are the Modules of ABP Program

3. Endocrine Module:

- The Endocrine Module collects information on Markers of hGH doping. The module aims to identify hGH use and as well as use of hGH analogs, fragments and releasing factors categorized under Section S2.2 of the Prohibited List.
- This module may also indicate use of insulin-like growth factor-I (IGF-I), categorized under Section S2.3 of the Prohibited List.



What is the process of Athlete Biological Passport



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Can the ABP replace traditional anti-doping testing?

- ▶ Dope testing in sports relies on various strategies that include the direct testing of athletes for the presence of prohibited substances/performance enhancing substances as well as the evidence gathered through the non-analytical or indirect approach.
- ▶ The Athlete Biological Passport provides a complementary and more sophisticated strategy to traditional analytical testing in an effort to scientifically gather evidence of possible doping in sport.
- ▶ The ABP is one tool in a kit of intelligent anti-doping practices meant to deter and detect the use of prohibited substances in sport.

Will the volume of blood collected for testing affect my performance?

- ▶ On average, the total volume of blood collected for testing is relatively small, less than two tablespoons (~15mL). This compares to the total volume of blood in a human of between roughly 200-400 tablespoons (3000-6000mL), depending on the individual's size and sex.
- ▶ Trained and experienced phlebotomists are trained to make the sample collection process as quick and painless as possible.
- ▶ The withdrawal of such a small amount of blood will not have any effect on athletic performance.