

2023 Anti-Doping Testing Figures

QUESTIONS AND ANSWERS

DEFINITIONS

1. What is an Adverse Analytical Finding (AAF)?

An AAF is a report from a [WADA-accredited Laboratory](#) or other WADA-approved Laboratory that, consistent with the [International Standard for Laboratories](#) (ISL) and related Technical Documents, identifies in a sample the presence of a Prohibited Substance or its metabolites or markers (including elevated quantities of endogenous substances) or evidence of the use of a Prohibited Method.

2. What is an Atypical Finding (ATF)?

An ATF is a report from a WADA-accredited Laboratory or other WADA-approved Laboratory, which requires further investigation, as provided by the ISL or related Technical Documents, prior to the determination of an AAF.

3. What is an Anti-Doping Organization (ADO)?

An ADO is a [Signatory](#) to the [World Anti-Doping Code](#) (Code) that is responsible for adopting rules for initiating, implementing or enforcing any part of the doping control process. This includes, for example, the International Olympic Committee (IOC), the International Paralympic Committee (IPC), other Major Event Organizations (MEOs) that conduct testing at their events, International Federations (IFs), and National Anti-Doping Organizations (NADOs).

4. What is a Testing Authority (TA)?

A Testing Authority (TA) is the organization that authorizes testing on athletes it has authority over.

Under the 2021 Code, only a Signatory can act as the TA. While ADOs can authorize a delegated third party to conduct testing on their behalf, the ADO authorizing testing retains the title and responsibility of a TA. This change was made to ensure that Code Signatories remain accountable for all aspects of their anti-doping program.

5. What is ADAMS?

[ADAMS](#) (Anti-Doping Administration and Management System) is a web-based database management tool for data entry, storage, sharing, and reporting designed to assist stakeholders and WADA in their anti-doping operations.

6. What is the Athlete Biological Passport (ABP)?

The fundamental principle of the [ABP](#) is to monitor selected variables (biomarkers of doping) over time that indirectly reveal the effect of doping, as opposed to the traditional direct detection of doping by analytical doping controls.

In 2022, the ABP was comprised of the Hematological Module, based ABP blood samples (whole blood), and the Steroidal Module, based on urine samples.

ABOUT THE REPORT

7. What does the 2023 Testing Figures Report represent?

The 2023 Testing Figures Report (2023 Report) is a summary of all doping control samples analyzed and reported by 30 WADA-accredited Laboratories and three WADA-approved Laboratories for the ABP in

2023. This includes all testing conducted worldwide by Signatories to the Code – in- and out-of-competition for urine; blood and ABP blood data; and the analytical results of such analysis – including AAFs and ATFs.

The 2023 Report offers a comprehensive reflection of global anti-doping testing figures, which allows organizations to observe patterns of doping control programs by sports, organizations, substances and Laboratories, and as a result, adapt their anti-doping strategies accordingly.

The 2023 Report represents the third set of global testing data since the 2021 Code came into effect on 1 January 2021.

8. What figures are included in the 2023 Report?

The 2023 Report includes all analyses reported into ADAMS by the WADA-accredited Laboratories and the Laboratories that were approved by WADA to conduct blood testing exclusively for the purposes of the ABP (Approved Laboratories).

The figures of urine and blood samples (not including ABP samples) are compiled according to the 'Sample Collection Date' (and not the sample 'Reception Date' by the Laboratory). This allows TAs to align the ADAMS data more closely with their annual testing programs. These figures are associated with specified sport categories. The figures of ABP samples are still compiled according to the 'Reception Date' by the Laboratory as the sample collection date is not a mandatory reporting parameter for the ABP for the Laboratories.

9. Did the implementation of the 2021 Code and 2021 International Standard for Testing and Investigations (ISTI) by ADOs (including the Technical Document for Sport Specific Analysis (TDSSA)) impact the results?

Yes.

The [TDSSA](#) is a mandatory, level two document that came into effect on 1 January 2015.

The TDSSA is intended to ensure that Prohibited Substances and/or Prohibited Methods within the scope of the TDSSA, which are deemed to be at risk of abuse in certain sports/disciplines, are subject to an appropriate and consistent Minimum Level of Analysis (MLA) by all ADOs. Under the TDSSA, ADOs are required to conduct MLA for the following three groups of Prohibited Substances: Erythropoietin Receptor Agonists (ERAs), Growth Hormone (GH) and GH Releasing Factors (GHRFs). The implementation of the hematological module of the ABP for sports or disciplines with an ESAs MLA of 30% or greater and where the athlete is part of a Registered Testing Pool remains a mandatory component of compliance with the TDSSA.

When compared to 2022, the findings of the 2023 Report highlights that there was:

- a significant increase in the levels of analysis for ERAs in urine and blood
- a slight increase in the levels of analysis for GH Isoforms in blood
- a slight decrease in the levels of analysis GH Biomarkers in blood
- an increase in the levels of analysis for GHRFs in urine.

For more details, please refer to the [Executive Summary](#).

2023 REPORT VERSUS 2022 REPORT

10. How does the data from the 2023 Report compare to the 2022 Report?

The testing numbers continue to increase since the COVID-19 pandemic had significantly impacted sporting competitions in 2020.

In 2023, all measures of the Anti-Doping Testing Figures Reports showed improvement in the number of samples collected:

Based on the ADAMS results reported by the Laboratories, there was an increase in the number of overall urine and (non-ABP) blood doping control samples. The number of urine, blood and DBS samples analyzed increased between 2022 and 2023. The ABP blood (passport) samples analyzed in WADA-accredited and WADA-approved Laboratories increased between 2022 and 2023 ([2023 Laboratory Report Executive Summary - Third Table](#)).

In terms of AAFs, the percentage of AAFs reported in ADAMS increased: 0.77% in 2022 to 0.80% in 2023.

In addition, the percentage of Total Findings (AAFs and ATFs - combined) increased from 0.93% in 2022 to 0.96% in 2023.

There was an increase in the percentage of AAF findings from the gas chromatography combustion isotope ratio mass spectrometry (GC/C/IRMS) test applied to the markers of the steroid profile: 2.15% in 2022 (99 AAFs from 4,602 tests) to 2.45% in 2023 (120 AAFs from 4,896 tests).

In 2023, nearly all drug classes saw an increase in the number of individual Prohibited Substances reported as AAFs compared to 2022. Overall, the number of individual Prohibited Substances reported increased in 2023.

There was a significant increase in the overall number of DBS samples analyzed: 2,748 in 2022 to 4,242 in 2023.

11. Was the 2023 data compiled differently than in 2022?

The 2023 data was collected using ADAMS, as has been the case since 2012.

The increased use of ADAMS by ADOs to record Doping Control Form (DCF) information into ADAMS has allowed more precise information to be compiled for these Reports. Data related to the tests, such as TA, sport, and discipline, were extracted from the DCF where the information was available.

Data from non-Code Signatories, which is not reported into ADAMS (predominantly from professional leagues), is no longer included in the report as in previous years. This reflects the increased focus on Signatory results for WADA, the Code and International Standards. Since 2012, the Laboratories have reported negative data in addition to the AAFs and ATFs reported. This has allowed all data - negatives as well as AAFs and ATFs - to be compiled from ADAMS. The details and structure of the data in ADAMS are the reason that the 2012 to 2023 Reports offer a much more thorough view of anti-doping data than the Reports prior to 2012.

As an example, the use of ADAMS has allowed the Testing Figures Reports to differentiate the testing figures by discipline, TA, and in- and out-of-competition testing to offer stakeholders a more detailed view.

12. Are there any differences in format between the 2023 and 2022 Reports?

The two Reports are structurally similar.

For the eighth year, the 2023 Report includes the number of samples analyzed by the GC/C/IRMS method on 19-norandrosterone and boldenone as per the Technical Document TD IRMS. Since the 2019 Report, the number of samples analyzed by the GC/C/IRMS method on formestane has also been included. ADAMS has continued to allow the reporting of GHRFs, GnRH, insulin, IGF-I, and hGH biomarkers, when conducted in a standardized way.

The 2023 report includes testing information in relation to DBS (Dried Blood Spot) which is a new sample collection platform which has the potential to become a very valuable addition to a testing program. In addition, testing information on the analysis of steroid esters in whole blood is also provided in these reports.

The 2023 Report, as the 2022 Report, includes testing data related to Gender ([See TA Report](#)).

Categorization of Sport Disciplines

In the 2023 Report, the sports are compiled in the following eight major categories:

1. ASOIF (Association of Summer Olympic International Sports Federations)
2. AIOWF (Association of International Olympic Winter Sports Federations)
3. ARISF (Association of IOC Recognized International Sports Federations)
4. AIMS (Alliance of Independent Recognized Members of Sport)
5. IPC (International Paralympic Committee)
6. Sports for Athletes with an Impairment
7. Other Sports – Code Signatories (including ADO-Specific, University and Military sports)

The sports data is further differentiated based on the disciplines that are included within the associated IF's authority and the structure provided by the sport-discipline codes in ADAMS (as determined by the IF).

In addition, the sport figures can differentiate sports within the Olympic program that emanate from university sport disciplines, e.g., those disciplines that are not likely to be under the authority of the relevant IF. This provides more accurate data with respect to the relevant IFs.

RELATIONSHIP TO OTHER WADA REPORTS

13. How does this 2023 Report differ from the Anti-Doping Rule Violations (ADRVs) Reports?

The 2023 Report highlights the results of analyses performed by WADA-accredited Laboratories on urine and blood samples for 2023, as reported in ADAMS. It does not illustrate statistics on whether the AAFs or ATFs reported became ADRVs.

The data in the 2023 Report may not correspond with the number of ADRVs reported by ADOs because all reported results are subject to the full results management process conducted by ADOs. This includes matching results with Therapeutic Use Exemptions (TUEs) – through which the use of a banned substance can be approved by an ADO for legitimate medical reasons – longitudinal studies and ensuring that sample collection and analysis were conducted in accordance with the relevant International Standards.

In simple terms, not all AAFs or ATFs lead to ADRVs.

Meanwhile, the 2021 ADRVs Report, to be issued in 2025, illustrates the incidence of doping in global sport during 2021. The ADRVs Report shows both analytical and non-analytical ADRVs. The Report breaks down ADRVs by sport, TA and nationality.

The reason the ADRVs Report includes 2021 statistics while this Testing Figures Report includes 2023 statistics, is because for ADRVs, the results management process can take a long time from the first signs of a potential violation through to the end of a case. Cases can take time to be resolved before they can be adequately prepared and published.

The 2023 Testing Figures Report, and the 2021 ADRVs Report that will be released in 2025, will provide powerful data, which will help ADOs gain a better understanding of global doping patterns. This will help them adapt their strategies to protect clean athletes further.

14. Is it mandatory for ADOs to record the details of ADRVs in ADAMS?

Yes.

From January 1, 2021, all ADOs are required to record *inter alia* the ADRVs under their jurisdiction into ADAMS in accordance with Article 14.5.3 of the Code.

THE DATA

15. How many TAs are included?

The 2023 Report includes data from 318 different TAs, an increase over the 308 from 2022 which is primarily due to an increase in the number of code signatories reporting data into ADAMS.

NADOs continue to be responsible for a significant portion of worldwide anti-doping efforts, having been the responsible TAs for 71% of the samples collected in 2022 with IFs, mainly responsible for about 25% of samples collected and reported into ADAMS (comprising testing conducted by AIMS, ARISF, AOIWF and ASOIF-member organizations as well as other Code Signatories).

16. Which disciplines and sports organizations are included within the sports listed?

The sports and disciplines listed in the 2023 Report are reported by the TAs as they were designated on the DCF information entered into ADAMS (or, in the absence of a DCF in ADAMS, as designated on the DCF received and reported by the Laboratories into ADAMS) relating to the sample at the time of its collection. In addition, data from the DCFs entered into ADAMS was also utilized to confirm and assign the sport and disciplines. The sport codes (names) in ADAMS ensure that all Laboratories are reporting sports in a more standardized manner. The 2023 Report by sport shows improvements in the reporting of specified disciplines in each sport instead of simply the sport.

IFs are encouraged to report any corrections or updates in relation to sports and disciplines under their authority to the ADAMS team at the following address: adams@wada-ama.org.

In addition, while some NFs or Continental Sport Confederations conduct testing under the delegation of their relevant IFs, others initiate testing independently of their IF. In the latter case, the test does not appear in the IF statistics, but rather in the Confederation testing statistics, provided they were noted as the TA.

17. Do Laboratories have to analyze a minimum number of samples?

Yes.

The ISL requires that a WADA-accredited Laboratory perform analyses on a minimum of 3,000 (including urine, blood and ABP) samples per year. Any Laboratory which is accredited for the entire year and does

not meet this figure is monitored closely by WADA. In some cases, Laboratory analytical testing restrictions or suspensions may have been the reason for the reduced total in sample analysis.

18. Why is there such a large gap between the number of AAFs for in-competition as opposed to out-of-competition?

By its very nature, the in-competition menu contains more drug classes and therefore more Prohibited Substances are subject to detection compared to the out-of-competition menu. This is particularly the case with substances such as stimulants, cannabinoids and glucocorticoids, which are only prohibited in-competition and are typically reported in greater numbers.

Furthermore, in prior years, more samples were collected in-competition than out-of-competition. However, the 2020 to 2023 Reports illustrate a higher number of out-of-competition samples collected.

OTHER QUESTIONS

19. Is the use of ADAMS mandatory to enter Doping Coping Forms (DCFs) and Therapeutic Use Exemptions?

On 12 May 2016, WADA's Foundation Board made it a mandatory requirement for Code Signatory ADOs to enter all DCFs and TUEs into ADAMS. This was further supported by Article 14.5.1 of the 2021 World Anti-Doping Code and the 2021 ISTI (for DCFs) and the 2021 ISTUE (for TUEs) require that ADOs enter DCFs and TUEs into ADAMS no later than 21 days after sample collection or receipt of a TUE decision.

20. Does every single sample/result in the 2023 Report represent an individual athlete?

No.

One athlete may be associated with multiple samples. Several samples may be taken from one athlete during the same sample collection session. AAFs and ATFs in the 2023 Report may also correspond to multiple findings on the same athlete, or measurements performed on the same athlete, such as through the ABP hematological and steroidal modules, over a period of time.

21. How many TAs conducted ABP blood testing?

There were 124 unique TAs that contributed to the ABP testing figures reported into ADAMS in 2023 (compared to 110 TAs that contributed to the 2022 ABP figures). The number of IFs incorporating ABP blood testing has been consistent 32 in 2022 and 2023 while the number of NADOs has increased in 2023 (46 in 2016 to 53 in 2017, 59 in 2018, 68 in 2019, 60 in 2020, 72 in 2021, 78 in 2022 and 92 in 2023). In 2023, there were three Laboratories approved by WADA to analyze blood samples uniquely for the ABP that analyzed and reported results into ADAMS. The total number of blood samples collected and analyzed for the ABP increased from 31,246 in 2022 to 34,617 in 2023 (a 10.8% increase).

22. Why are the ABP samples reported separately from other samples?

Blood samples are collected with the typical 'A' and 'B' samples to report AAFs (for GH, EPO, etc.) while ABP samples can be collected as single samples in order to measure an athlete's specified blood variables, which are then compared to his or her previous data over time. This establishes the athlete's biological profile, and therefore offers an indirect method that can indicate doping or help target testing.