

2021 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 Anti-Doping Organizations (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 2021, 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 2021 Testing Figures Report represent?

The 2021 Testing Figures Report (2021 Report) is a summary of all doping control samples analyzed and reported by 28 WADA-accredited Laboratories and two WADA-approved Laboratories for the ABP in

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

8. What figures are included in the 2021 Report?

The 2021 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) as a result of efforts made by the Laboratories to incorporate the collection date into their ADAMS reporting. It is considered that this will allow 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 & 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 an MLA for the following three groups of Prohibited Substances: Erythropoietin Stimulating Agents (ESAs), Growth Hormone (GH) and GH Releasing Factors (GHRFs). In addition, the implementation of the hematological module of the ABP for sports or disciplines with an ESAs MLA of 30% or greater is a mandatory component of compliance with the TDSSA.

The findings of the 2021 Report highlight that there was a significant increase in analysis by ADOs when compared to 2020 (which was impacted by the COVID-19 pandemic) including:

- An increase in the overall number of anti-doping samples (Urine, Blood, Blood ABP) analyzed, and;
- An increase in the analysis of ESA (urine plus blood), GH and GHRF.

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

2021 REPORT VERSUS 2020 REPORT

10. How does the data from the 2021 Report compare to the 2020 Report?

The COVID-19 pandemic had significantly impacted sporting competitions in 2020 and thus the opportunity for ADOs to collect samples was more focused on out-of-competition testing.

In 2021, 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 a 61.2% increase in the number of overall urine and (non-ABP) blood doping control samples. The number of urine samples analyzed increased from 138,818 to 219,122 while the number of blood samples increased from 10,940 to 21,340 between 2020 and 2021. The ABP blood (passport) samples analyzed in WADA-accredited and WADA-approved Laboratories increased 36% between 2020 and 2021 ([2021 Laboratory Report Executive Summary—Third Table](#)).

All WADA-accredited Laboratories had an increase in the total number of overall samples recorded in 2021 compared to 2020.

In terms of AAFs, the percentage of AAFs reported in ADAMS decreased slightly: 0.67% in 2020 (1,009 AAFs from 149,758 samples) to 0.65% in 2021 (1,560 AAFs from 241,430 samples).

In addition, the percentage of Total Findings (AAFs and ATFs - combined) decreased from 0.82% in 2020 to 0.77% in 2021.

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: 1.31% in 2020 (47 AAFs from 3,588 tests) to 2.10% in 2021 (93 AAFs from 4,422 tests).

Furthermore, there was a significant increase in AAFs reported from the application of the GH isoforms and biomarkers tests to blood samples: 0 AAFs in 2017, 2 AAFs in 2018, 6 AAFs in 2019, 1 AAF in 2020 compared to 7 AAFs reported in 2021.

With the exception of the P1. Beta-blockers drug class, in 2021, all drug classes saw an increase in the number of Prohibited Substances reported as AAFs compared to 2020.

There was an increase in the overall number of non-ABP blood samples analyzed: 10,940 in 2020 and 21,340 in 2021.

11. Was the 2021 data collected differently than in 2020?

No.

The 2021 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 2021 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. This offers stakeholders a more detailed view.

12. Are there any differences in format between the 2021 and 2020 Reports?

The two Reports are structurally similar.

For the sixth year, the 2021 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 is also included. ADAMS has continued to allow the reporting of GHRFs, GnRH, Insulin, IGF-I, and hGH biomarkers, when conducted in a standardized way.

The 2021 report now 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.

WADA has been encouraging ADOs to conduct more comprehensive testing in line with the TDSSA and, in the 2021 Report, the number of these analyses is included.

The 2021 Report, as the 2020 Report, includes testing data related to Gender ([See TA Report](#)).

Categorization of Sport Disciplines

In the 2021 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 University and Military sports)
8. Other Sports

The sports data is further differentiated based on the disciplines that are included within the associated IFs' 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 2021 Report differ from the Anti-Doping Rule Violations (ADRVs) Reports?

The 2021 Report highlights the results of analyses performed by WADA-accredited Laboratories on urine and blood samples for 2021, as reported into ADAMS. It does not illustrate statistics on whether the AAFs or ATFs reported became ADRVs.

The data in the 2021 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 2020 ADRVs Report, to be issued in early 2023, illustrates the incidence of doping in global sport during 2020. 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 2020 statistics while this Testing Figures Report includes 2021 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 2021 Testing Figures Report, and the 2020 ADRVs Report that will be released in 2023, 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 2021 Report includes data from 269 different TAs, a slight decrease over the 277 from 2020 which is primarily due to adjustment of ADAMS to include TAs that are code signatories only.

NADOs continue to be responsible for a significant portion of worldwide anti-doping efforts, having been the responsible TAs for 73% of the samples collected in 2021. IFs, meanwhile, were responsible for approximately 27% 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 2021 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 2021 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](#).

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 suspensions may have been the reason for the reduced total in sample analysis.

The impact of the pandemic will be considered when assessing the Laboratories' compliance to this ISL requirement.

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 and 2021 Reports illustrate a higher number of out-of-competition samples collected in 2020 and 2021. In ADAMS, a total of 99,777 urine and non-ABP blood samples were collected in-competition (equating to 41%), while 141,653 samples were collected out-of-competition (equating to 59%). The relative number of out-of-competition tests in 2020 was 62%. In 2021, the impact of the pandemic likely continued to be impactful in reducing the number of sporting competitions in 2021 and thus out-of-competition collections were the predominant Sample type in 2021 as it was in 2020.

OTHER QUESTIONS

19. Is the use of ADAMS mandatory to enter Doping Coping Forms (DCF) 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 2021 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 2021 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 102 unique TAs that contributed to the ABP testing figures reported into ADAMS in 2021 (compared to 90 TAs that contributed to the 2020 ABP figures). The number of IFs incorporating ABP blood testing is similar from 24 in 2020 to 26 in 2021, while the number of NADOs has increased in 2021 (46 in 2016 to 53 in 2017, 59 in 2018, 68 in 2019, 60 in 2020 to 72 in 2021). In 2021, there were two 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 decreased from 22,666 in 2020 to 30,821 in 2021 (a 36% 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 an athlete biological profile, and therefore offers an indirect method that can indicate doping or help target testing of athletes.