BMJ Open Sport & Exercise Medicine

No standardisation or harmonisation in anti-doping testing frequency

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To cite: Cuddihy B. No standardisation or harmonisation in anti-doping testing frequency. *BMJ Open Sport & Exercise Medicine* 2020;**0**: e000739. doi:10.1136/bmjsem-2020-000793

► Supplemental material is published online only. To view please visit the journal online (http://dx.doi.org/10.1136/bmjsem-2020-000793).

Received 31 March 2020
Revised 10 August 2020
Accepted 6 September 2020

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ABSTRACT

The use of performance-enhancing drugs (PEDs) has undermined the credibility of sports for many years, with cycling and athletics, especially badly hit. The World Anti-Doping Agency has been tasked with leading the fight against the use of PEDs in sport and has been largely successful in achieving standardisation and harmonisation in terms of rules and regulations but has not addressed the question of testing frequency to any meaningful extent. This study, which focuses on athletics, shows vast differences in testing rates around the world with some of the most successful countries in athletics doing very little testing compared to many other countries.

Key points

- There is no standardisation or harmonisation of anti-doping testing frequency.
- Some of the most successful countries in athletics record a low level of testing in comparison to other countries.
- WADA and World Athletics could take this opportunity of a hiatus in activities to review their programmes.
- In many parts of the world, a robust anti-doping testing programme has never been tried.

OVERVIEW OF TESTING RATES

The next version of the World Anti-Doping Agency (WADA) Code, due to be implemented next year (2021), will, like its predecessors, include a commitment to standardisation and harmonisation.

The Code is the core document that brings consistency to anti-doping worldwide. The Code harmonises anti-doping policies, rules and regulations, and sets the standards which aim to foster consistency among anti-doping organisations in various areas.

One aspect of standardisation and harmonisation that has not received much attention from WADA is the frequency of anti-doping testing in different countries.

Online supplemental table 1 shows the number of all anti-doping tests, urine and various types of blood tests, both in-competition (IC) and out-of-competition (OOC), carried out by National Anti-Doping Organisations (NADOs) in different countries in 2018 as per WADA testing figures released in late December 2019. These testing figures are then divided against the population of each country to give an overall testing rate per million in the population.

The difference in testing rates is very striking. Certain countries with huge financial resources and a very successful sporting history appear to do very little testing. Northern European countries appear to have a very high testing rate.

However, this method of analysis is fairly crude and takes no account of the sporting population within a country as opposed to the total population. Certain countries with very large populations appear to have very small sporting populations. For example, Indonesia, with a population of 267 million has never won a single medal in the 17 editions of the World Athletics Championships. So it would not be reasonable to expect them to have the same testing rate per million in the total population as northern European countries that have a high sporting population.

IC VERSUS OOC TESTS

The figures in online supplemental table 1 also take no account of the difference in the ratio of IC to OOC testing in different countries.

IC testing is, as the name suggests, testing that takes place at a competition. IC testing is often used by anti-doping organisations to test a variety of levels of athletes to highlight the issue of drugs in sport. OOC testing on the other hand is used almost exclusively for elite athletes (EAs).

IC testing can be said to be relatively predictable and also requires less resources and therefore less costly to operate than a robust OOC testing programme. OOC testing is more costly to operate and more intrusive on the athletes and much less predictable.

Recent work[1] has shown that fear of increased frequency of testing, particularly

OOC testing, has a preventive effect on athletes when considering taking performance-enhancing drugs (PEDs). For the remainder of this paper, the author will concentrate on OOC testing.

IDENTIFYING ATHLETICS SPORTING POPULATION

Identifying and quantifying the sporting population in different countries is not an easy task. For the purposes of this study, the author has concentrated on track and field athletics. The reasons for choosing athletics include the fact that it has a good geographical spread, is open to both genders, is a high-profile Olympic sport and has ongoing issues with the use of PEDs and thus should be subject to robust anti-doping measures.

Using 'Athletics 2019', the Association of Track and Field Statisticians Annual,[2] the author has identified the top 50 performers in 2018 in each athletic discipline that is included in the Olympic programme. There are 22 events for men and 21 events for women. (There is no 50 km walk for women.)

Some athletes may appear in the top 50 in more than one event, for example, 100 m and 200 m, but for the purposes of this study, they are only included once. There are 54 duplications in men and 82 in women leaving 1046 men and 968 women. In this study, these athletes will be referred to as EAs.

In table 1, the second column shows the distribution of EAs in different countries from the most numerous to a level of five EAs.[2] There is no surprise in the distribution of EAs as it mirrors the success rate in terms of finalists and podium finishers at major championships.

Previous unpublished studies carried out by the author done in 2012 and 2014 show very little difference from these figures with the exception of Russia which had 190 EAs in 2012, 145 EAs in 2014 and 79 EAs in 2018. The reasons for this finding are well known and outside the scope of this paper. Russia is a special case.

It is worth noting that the EA population in many countries corresponds roughly with the actual population of the country.

Table 1 Out-of-competition tests in athletics in 2018 per elite athlete in each country ranked in order of number of elite athletes per country

Country	Elite-top 50	NADO OOC	NADO rate	IAAF OOC	Total OOC	Total rate
USA	338	1220	3.6	890	2110	6.2
Kenya	160	471	2.9	1306	1777	11.1
Germany	91	1748	19.2	394	2142	23.5
Ethiopia	90	280	3.1	635	915	10.2
Russia	79	1436	18.2	126	1562	19.8
UK	72	462	6.4	225	687	9.5
Jamaica	69	240	3.5	62	302	4.4
China	67	1723	25.7	199	1922	28.7
France	57	490	8.6	118	608	10.7
Japan	53	394	7.4	78	472	8.9
Poland	44	213	4.8	98	311	7.1
South Africa	41	186	4.2	64	250	6.1
Australia	38	249	6.5	15	264	6.9
Spain	38	608	16	201	809	21.3
Ukraine	37	281	7.6	68	349	9.4
Italy	36	413	11.5	85	498	13.8
Canada	35	242	6.9	20	262	7.5
Belarus	33	144	4.4	61	205	6.2
Brazil	27	11	0.4	28	39	1.4
Sweden	24	270	11.3	14	284	11.8
Cuba	23	26	1.1	45	71	3.1
Netherlands	21	114	5.4	68	182	8.7
India	20	259	13	52	311	15.5
Czech	19	66	3.5	104	170	8.9
Belgium	17	150	8.8	17	167	9.8
Morocco	17	52	3	128	180	10.6
Turkey	17	493	29	56	549	32.3
Greece	16	2	0.1	29	31	1.9
Colombia	16	11	0.7	31	42	2.6
Norway	15	192	12.8	26	218	14.5
Portugal	15	57	3.8	62	119	7.9

Continued

Table 1 Continued

Country	Elite-top 50	NADO OOC	NADO rate	IAAF OOC	Total OOC	Total rate
Bahrain	14	0	0	4	4	0.3
Estonia	14	35	2.5	5	40	2.9
Finland	13	213	16.4	76	289	22.2
Uganda	13	0	0	58	58	4.5
Hungary	12	90	7.5	27	117	9.6
Nigeria	12	27	2.3	0	27	2.3
Trinidad	12	0	0	3	3	0.25
New Zealand	11	61	5.5	10	71	6.5
Qatar	10	16	1.6	7	23	2.3
Romania	10	56	5.6	1	57	5.7
Lithuania	9	11	1.2	9	20	2.2
Croatia	9	47	5.2	12	59	6.5
Slovenia	8	36	4.5	4	40	5
Slovakia	7	47	6.7	13	60	8.6
Switzerland	7	283	40	60	343	49
Latvia	6	113	18.8	1	114	19
Bulgaria	6	29	4.8	3	32	5.3
Venezuala	6	3	0.5	0	3	0.5
Ecuador	6	2	0.3	12	14	2.3
Serbia	5	14	2.8	8	22	4.4
Ireland	5	227	45.4	7	234	46.8

IAAF, International Association of Athletics Federation; NADO, National Anti-Doping Organisations; OOC, out-of-competition.

OOC TESTS BY NADOS PER EA

In table 1, the third column shows the total OOC tests done by each country's NADO. The total includes urine tests, blood tests for human growth hormone and blood for athlete biological passport. The figures quoted are based on WADA testing figures 2018 published in December 2019.

The rate of OOC testing by each NADO per EA (the fourth column) shows a very wide variation with some of the most successful countries doing relatively little testing.

ROLE OF WORLD ATHLETICS IN ANTI-DOPING

World Athletics (previously the International Association of Athletics Federation (IAAF)) stated in 2016 that 'the IAAF has been filling the gaps for too long through its International Testing Programme and that it should be able to rely on robust and relevant national anti-doping programmes proportional to the international success of the athletes and the forms of doping in the countries in question.'

Table 1 also shows the OOC tests done by the Athletics Integrity Unit of World Athletics in 2018 (the fifth column). This information was provided directly to the author, on request, by World Athletics. Perhaps World Athletics might review the distribution of their testing programme in the light of this study as countries like Germany and Finland appear to have quite robust NADO testing programmes.

TESTING LEAGUE TABLE

Table 2 shows the different rates of total OOC tests per EA for all countries with five or more EAs from the most tested to the least tested. While some of the most successful countries do comparatively little testing, it would be simplistic and misleading to suggest that a low level of OOC testing is the sole or the main reason why the country is successful in the first place. Factors such as natural talent, sporting facilities, coaching expertise, appropriate weather, training companions and good competition contribute to success in athletics.

REGIONAL ANTI-DOPING ORGANISATIONS

Regional Anti-Doping Organisations (RADOs) also contribute to OOC testing, and the work of three RADOs will be commented upon here.

Africa Zone V (geographically 12 countries in northeastern Africa, including Ethiopia and Kenya) reported only 4 OOC urine tests in 2018, thus making no significant difference to the overall testing rate for these high-profile countries. There were no OOC tests done by Africa Zone V on athletes from Kenya or Ethiopia.

Africa Zone I (consisting of Algeria, Libya, Mauritania, Morocco and Tunisia) contributed 238 OOC urine tests and 1 OOC blood test in 2018. The author has been unsuccessful in getting a breakdown of that figure per country. Taking the five countries together, the total OOC test, including NADOs, IAAF and RADO, amounts to 446, giving an OOC test rate of 20.3 per EA.

This compares very favourably with the EU27, which has a total (NADO plus IAAF) test rate of 13.45 OOC tests per EA. The equivalent figure for the UK is 9.5 and for the USA is 6.24.

The RADO for Gulf States and Yemen contributed 7 OOC tests in 2018, giving a total OOC test figure of 138, of which the IAAF contributed 104. The test rate per EA for this region is 4.9.

Table 2 Out-of-competition (OOC) tests in athletics in 2018 per elite athlete ranked in descending order

Country	Total OOC testing rate
Switzerland	49
Ireland	46.8
Turkey	32.3
China	28.7
Germany	23.5
Finland	22.2
Spain	21.3
Russia	19.8
Latvia	19
India	15.5
Norway	14.5
Italy	13.8
Sweden	11.8
Kenya	11.1
France	10.7
Morocco	10.6
Ethiopia	10.2
Belgium	9.8
Hungary	9.6
UK	9.5
Ukraine	9.4
Japan	8.9
Czech Republic	8.9
Netherlands	8.7
Slovakia	8.6
Portugal	7.9
Canada	7.5
Poland	7.1
Australia	6.9
New Zealand	6.5
Croatia	6.5
Belarus	6.2
USA	6.2
South Africa	6.1
Romania	5.7
Bulgaria	5.3
Slovenia	5
Uganda	4.5
Jamaica	4.4
Serbia	4.4
Cuba	3.1
Estonia	2.9
Colombia	2.6
Qatar	2.3
Ecuador	2.3
Nigeria	2.3
Lithuania	2.2
Greece	1.9
Brazil	1.4
Venezuala	0.5
Bahrain	0.3
Trinidad	0.25

CONCLUSION

There is a huge variation in the level of OOC testing worldwide with some of the most successful countries recording comparatively very low levels of testing.

All NADOs operate within budgetary constraints and cannot substantially increase their testing rate without a significant increase in their budgets. If WADA does take action to direct a prescribed level of testing, particularly OOC testing, then pressure will need to be applied to funders of NADOs, particularly at government level, in order for NADOs to comply with higher testing rates.

There is no reliable information on the level of use of PEDs in sport in different countries, and so no definitive conclusion can be drawn on the relation between testing frequency and the use of PEDs. What can be stated however is that generally the lower the level of testing, the lower is the number of positive tests for PEDs, to the point that if no tests are done, there will be no positive tests.

The information contained in these testing figures in vital in informing debate about the effectiveness of current anti-doping programmes. In the author's opinion, it would be premature to dismiss routine OOC testing as ineffective as, to date, a robust anti-doping programme has not yet been tried in many countries, including many countries that can afford to do it.

Contributors BC is the sole author of this work.

Funding The author has not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon request.

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