



**AN EXPLORATION OF BANNED SUBSTANCES AND METHODS CONSUMED
VIA PARTICIPATED COUNTRIES IN ATHLETICS AT OLYMPIC GAMES.**

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Abstract

The present research aim towards “An Exploration of Banned Substances and Methods Consumed via Participated Countries in Athletics at Olympic Games”. To attain aim of the research descriptive statistics is used. Banned Substances and methods were identified under the guide line of world anti-doping agency. Athletes from different counties were identified on the basis of their consumption of banned substances and methods in different events of Athletics at Olympics. Present study signifies the Scenario of banned substances and methods consumed via participated countries in Olympic Games. It also represents the comparison of banned substances and methods consumed via participated counties in athletics at different Olympic games as well as in different events of athletics. The study explores that there were 58 cases of banned substances and Methods consumed via participated countries, it was surprising to note that Russia consumed maximum banned substances and methods in athletics at Olympic games.



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Introduction

Olympia

The Olympic Games as we know them today have a long history which goes back to ancient times. Everything started in the Peloponnese, in Greece, some 3 000 years ago. Sports competitions were organised at Olympia and were named after their location, hence their name of Olympic Games. Nobody knows exactly when they began, but the first written mention of the competitions is dated to 776 BC. These Games were held at the same place every four years. This four-year period acquired the name Olympiad, and was used as a date system: time was counted in Olympiads, rather than years. (1)

Participation

There were three main criteria for participation in the Games: one had to be male, of Greek origin and a free man. Women, slaves and foreigners were excluded. To begin with, the athletes were not professionals. Though they were mostly from rich families, some of the

athletes also came from more modest sections of the population. Over time, the situation changed, and most of the athletes became professionals. After Greece was conquered by Rome in 146 BC, Romans were allowed to join the Greek athletes. Later, participation was also extended to athletes of foreign origin, after the granting of Roman citizenship to all the inhabitants of the provinces during the 248th Olympiad (213 AD). (2)

Cheating and Fines

Some athletes did not always respect their oath and tried to win by unauthorised means. This kind of cheating was punished and the dishonest athletes had to pay fines. With this money, statues of Zeus were erected, known as the Zanes. Each of these statues were placed along the passageway that led to the stadium, with the name of the cheat inscribed on its base. To get to the competition site, the athletes had to walk past all the statues. This reminded them of the example not to follow. (3)

Modern Olympics

History It was Pierre de Coubertin of France who dreamt up this ambitious project, although others before him had tried in vain to revive these Games. Drawing inspiration from the ancient Olympic Games, he decided to create the modern Olympic Games. With this purpose, he founded the International Olympic Committee (IOC) in 1894 in Paris. The new committee set itself the objective of organising the first Olympic Games of modern times. The date of the first Games, 1896, marked the beginning of an extraordinary adventure that has now lasted for over a century. (4)

Sweden as 1st abuser of banned substance

Hans-Gunnar Liljenwall is a male modern pent athlete from Swedish, (5)disqualified of the Swedish team at the 1968 Summer Olympics was due to use alcohol by pent athlete. Liljenwall was the first athlete to be disqualified at the Olympics for drug use, following the introduction of anti-doping regulations by the International Olympic Committee in 1967. Liljenwall reportedly had "two beers" to calm his nerves before the pistol shooting event. The Swedish team eventually had to return their bronze medals. (6)

Poland as 1^{et} abuser of banned substance in athletics

At 1976 Montreal Olympics there were ten official cases of drug abuse in which first ever drug abuse was coming in front from Athletics, Danuta **Rosani** was a female Polish champion in the discus in 1974, 1976 and 1978, winning 14 medals between 1972 and 1985, including three silvers in the shot put. In 1983, she was also national indoor champion in the shot put. (7) At the 1976 Montréal Olympics she was disqualified for **anabolic steroid** use,

which was the first official doping case in the history of track & field at the Olympics, Anabolic steroids were founded abused. (8)

Iceland as 1st male abuser in athletics

At Los angles (1984) Olympics there were twelve official cases of drug abuse in which four are from athletics in which there were two males, **Vésteinn Hafsteinsson** is male discus thrower from Iceland, who represented his native country at four consecutive Summer Olympics, starting in 1984. At the Los Angeles summer Olympic Games, he tested positive for **nandralone** and was disqualified. (9) **Giampaolo Urlando** was a male Italian hammer thrower, (10) He ended up in fourth place at the 1984 Summer Olympics, but was disqualified for **testosterone** use. (11) **Martti Vainio** was a male Finnish former long-distance runner (12), Vainio also qualified for the 5000 metres final, but was not permitted to start after his doping sample following the 10,000 metres final tested positive for **Metenolone**. (13)

Prohibited list by World Anti-doping Agency (WADA)

Following is a brief history and selection of how the Prohibited List has evolved over the years. The classes of substance are listed by their current WADA Prohibited List titles, however these too have changed often.

The Prohibited List (the List) originally consisted only of:

- Psychomotor stimulant drugs
- Miscellaneous central nervous system stimulants
- Narcotic Analgesics
- Anabolic Steroids

At first, few individual drugs were specifically named on the List, which remained divided by substance class. The List has subsequently been under constant revision and changed considerably, with more individual substances mentioned within each group and some even deleted. In addition to Classes of Substances, the categories Prohibited Methods, Substances Prohibited Out-of-Competition, Specified Substances, and Substances Prohibited in Particular Sports have been added.

1. Anabolic Steroids

a. Anabolic steroids initially included on the prohibited list were: methandi- enone, stanozolol, esters of nortestosterone, and related compounds.

b. Testosterone and its esters were added in 1979 and in 1986 the list was expanded to include any substance that increased the testosterone:epi- testosterone (T:E) ratio, which was

initially set at 6:1 by the IOC, but decreased to 4:1 in 2005. Further investigation may be needed to determine whether the ratio is due to a physiological or pathological condition.

c. In 1993 Anabolic Agents were divided into two categories:

- i. Androgenic Anabolic Steroids; and
- ii. Other Anabolic Agents (e.g. beta-2 agonists)

d. Dihydrotestosterone was added to the list in 1995 and deemed to be positive where the concentration in urine exceeds the range of normal values. A sample is not regarded positive for dihydrotestosterone or testosterone where an athlete proves that the ratio or concentration is attributable to pathological or physiological condition. This principle was also applied in 2002 to any Prohibited Substance that is capable of being produced by the body naturally. In 2000 it was stated that evidence obtained from metabolic profiles and/or isotopic ratio measurement may be used to draw definite conclusions.

e. Epitestosterone was listed in 1995 under Prohibited Techniques.

2. Hormones and Related Substances

a. 1990 the hCG, ACTH and hGH were included in the list

b. In 1992 Erythropoietin (EPO) was added

c. In 2000 the following were added as well: Pituitary and Synthetic Gonadotrophins (LH), Insulin-like Growth Factor (IGF-1) and Insulin (but permitted to treat insulin-dependent diabetes), all other erythropoiesis- stimulating proteins.

d. In 2005 Mechano-Growth Factors (MGFs) were added to the prohibited list.

3. Beta-2 Agonists

a. Beta-2 Agonists first appeared on the list in 1993 as Other Anabolic Agents with clenbuterol as an example.

b. Salbutamol and Terbutaline by inhalation were permitted in 1995 as exceptions, when prescribed for therapeutic purposes by properly qualified medical personnel.

c. Salmeterol was added to the “permissible list” in 1996 and Formoterol in 2000.

d. In 2004 it was emphasised that all beta-2 agonists are prohibited except that formoterol, salbutamol, salmeterol, and terbutaline are permitted by inhalation only to prevent and/or treat asthma and exercise-induced asthma/ bronchoconstriction. However, a concentration of salbutamol greater than 1000 ng/mL is considered an adverse finding, despite the granting of a Therapeutic Use Exemption (TUE). In 2004 Beta-2 Agonists were classified as a Specified Substance.

4. Agents with Anti-Oestrogenic Activity

a. Agents with Anti-Oestrogenic Activity appear on the list in 2002 as Clomifene, cyclofenil, tamoxifen, and aromatase inhibitors (prohibited in males only).

b. In 2004 Selective Oestrogen Receptor Modulators were added.

5. Diuretics and Other Masking Agents

a. Masking Agents were placed on the list as their own category in 2004, including but not limited to: diuretics, epitestosterone, probenecid, and plasma expanders.

b. In 2005 the name of the group was changed to Diuretics and other Masking Agents, and Alpha-Reductase Inhibitors were added to the list.

c. Diuretics were classified as Specified Substance in 2004, but deleted from that list in 2005.

6. Stimulants

a. Stimulant substances were initially classified in two groups as indicated previously;

i. in 1985 they were all grouped together and simply known as Stimulants;

ii. in 1990 they were divided into Amphetamines and Stimulants;

iii. and in 2004 they were again merged into one group as Stimulants.

b. Caffeine was placed on the list in 1983 but removed in 2004.

c. Ephedrine was on the original list and in 2002 a positive finding was stipulated as concentration of more than 10 mcg/ml in urine. In 2004 it became classified as a Specified Substance.

d. Cocaine was included in the list in 1990.

7. Narcotic Analgesics

a. Only a few narcotic analgesics were listed initially.

b. In 1979 Codeine was “permitted for therapeutic uses”.

c. In 2006 analgesics are prohibited only in competition.

8. Cannabinoids were placed on the list in 2004 and classified as a specified Substance. They are prohibited in competition only.

9. Glucocorticosteroids

a. Corticosteroids were put on the list in 1992 and prohibited by oral, intramuscular or intravenous application.

b. Rectal administration was added in 2000.

c. In 2006 Glucocorticosteroids are only prohibited in competition, and are classified as a Specified Substance.

10. Enhancement of Oxygen Transfer

a. Prohibited techniques were first introduced as such in 1990 and defined as “blood doping and techniques.”

b. Erythropoietin (EPO) was added in 1992; and blood plasma expanding products (e.g. HES) and artificial oxygen carriers were included in 2000.

c. In 2002 any sort of blood transfusion was prohibited as well as all erythropoiesis-stimulating proteins.

d. The term Blood Doping was changed to Enhancement of Oxygen Transfer in 2004 and defined as the use of autologous, homologous or heterologous or red blood products of any origin, other than for medical treatment.

e. Use of products that enhance the uptake, transport, or delivery of oxygen is prohibited.

11. Chemical and Physical Manipulation

a. Originally entitled “Techniques,” these were defined as the use of substances that alter the integrity of the urine samples such as catheterisation, urine substitution and/or tampering, or inhibition of renal excretion, e.g. by probenecid and related compounds.

b. Epi-testosterone was added in 1995, diuretics in 1996, and bromantan in 1998.

c. In 2004 the term Prohibited Techniques was changed to Pharmacological, Chemical and Physical Manipulation.

d. In 2005 intravenous infusions were prohibited except as legitimate acute medical treatment.

12. Gene Doping Gene Doping appears on the list for the first time in 2004.

13. Substances Prohibited in Particular Sports Substances Prohibited in Particular Sports were added to the List in 2005 and consist of Alcohol and Beta-blockers. Each International Sporting Federation is able to choose whether or not they prohibit these substances. Neither of these two substances are currently prohibited by the IAAF.

14. Specified Substances Specified Substances were introduced in 2004 as substances that are susceptible to unintentional anti-doping rule violations because of availability in medicinal products. Athletes who test positive to these substances may receive a reduced sanction if they can prove they were not taken to enhance performance. Examples of substances included on this list are: Ephedrine, L-methylamphetamine, Cannabinoids, Inhaled Beta-2 Agonists (except clenbuterol), Diuretics (deleted 2005), Probenecid, and Glucocorticosteroids.(14)

Procedures and Methods

In path to accomplish the goals of study, known and acceptable methods of obtaining data were used, qualitative and quantitative data was collected through the website of international association of athletic federation, e-books and some primary resources such as newspaper, books etc. The acquired data constitutes the consumption of the banned methods and substances via participated countries in athletics at Olympic games.

For the mark of the study data was collected from the year 1976 to 2012. The collected information stresses on the banned substances and methods consumed via participated countries in various events of athletics at Olympic games. Mainly the banned substances and methods consumed via participated countries in athletes at summer Olympic games was collected to compile so that it can clearly depicts the comparison of banned substances and methods consumed via different participated countries in athletics at Olympics in descriptive manner. The same procedure was adopted for each Olympic game. After getting the comparison of banned methods and substances consumed via different participated countries in athletics at Olympic games they were tabulated in Olympic game year wise, country wise, banned method wise and banned substance wise for analysis.

Analysis Of The Study

The obtained data has been presented in the forms of tables from table no.1 to table no.4, followed by their interpretation and their representation in the form of histogram from fig no.1 to fig no.4.

Table No.1:Consumption of banned substances and methods in athletics at Olympic games since Montreal (1976) to London (2012) Olympics.

OLYMPIC GAME	CONSUMPTION OF BANNED	
	SUBSTANCES	METHODS
Montreal 1976	1	0
Moscow1980	0	0*
Los Angles 1984	5	0
Seoul 1988	1	0
Barcelona 1992	4	0
Atlanta 1996	3	0
Sydney 2000	5	0
Athens 2004	9	4
Beijing 2008	5	0
London 2012	10	11

*It has been claimed that athletes had begun using **testosterone** and other drugs for which **tests had not been yet developed.**

⁽¹⁵⁾Table No. 1 represents the consumption of banned substances and methods via participated countries in athletics Olympic games, In Montreal(1976) Olympics consumption of only 1 banned substance was recorded, in Moscow (1980) Olympics there was no consumption at all recorded, in Los Angeles (1984) Olympics consumption of 5 banned substances were recorded, in Seoul (1988) Olympics consumption of only 1 banned substance was recorded, in Barcelona (1992) Olympics consumption of 4 banned substances were recorded, in Atlanta (1996) Olympics consumption of 3 banned substances were recorded, in Sydney (2000)

Olympics consumption of 5 banned substances were recorded, in Athens (2004) Olympics consumption of 9 banned substances and 4 banned methods were recorded, in Beijing (2008) Olympics consumption of 5 banned substances were recorded and in London (2012) Olympics consumption of 10 banned substances and 11 banned methods were recorded respectively. The graphically representation of the above data is presented in Figure No. 1 below.

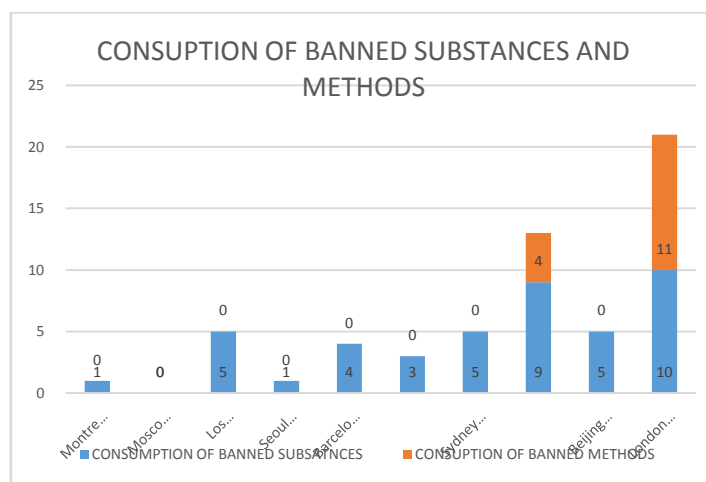


Fig. No:1 Graphical presentation on the Consumption of banned substances and methods in athletics at Olympic games since Montreal (1976) to London (2012) Olympics.

Table No.2:Consumption of banned substances and methods via participated countries in athletics at Olympic games along with percentage.

COUNTRY	CONSUMPTION OF BANNED SUBSTANCES AND METHODS
RUSSIA	10(17.241%)
USA	9(15.517%)
GREECE	5(8.620%)
BELARUS	5(8.620%)
UKRAINE	3(5.172%)
BULGARIA	2(3.448%)
TURKEY	2(3.448%)
FINLAND	2(3.448%)
HUNGARY	2(3.448%)
ITALY	2(3.448%)
SAUDI ARABIA	2(3.448%)
CROATIA	1(1.724%)
SYRIA	1(1.724%)
MOLDOVA	1(1.724%)
SAINT KITTS AND NEVIS	1(1.724%)
ICELAND	1(1.724%)

CANADIAN	1(01.724%)
POLAND	1(01.724%)
BAHRAIN	1(01.724%)
QATAR	1(01.724%)
UZBEKISTAN	1(01.724%)
FRANCE	1(01.724%)
MOROCCO	1(01.724%)
COLOMBIA	1(01.724%)
LITHUANIA	1(01.724%)

Table No.2 represents the consumption of banned substances and methods via participated countries in athletics at Olympic games along with percentage from Montreal (1976) to London (2012) Olympics along with the percentage of banned substances and methods particularly in respect to the consumption banned substances and methods as a whole via country separately, In Russia 10 cases of consumption were identified which is (17.241%), USA 9 cases of consumption were identified which is (15.517%), in Greece 5 cases of consumption were identified which is (08.620%), in Belarus 5 cases of consumption were identified which is (08.620%), in Ukraine 3 cases of consumption were identified which is (03.448%), in Bulgaria 2 cases of consumption were identified which is (03.448%), in Turkey 2 cases of consumption were identified which is (03.448%), in Finland 2 cases of consumption were identified which is (03.448%), in Hungary 2 cases of consumption were identified which is (03.448%), in Italy 2 cases of consumption were identified which is (03.448%), in Saudi Arabia 2 cases of consumption were identified which is (03.448%), in Croatia 1 case was identified which is (01.724%), Syria 1 case of consumption was identified which is (01.724%), in Moldova 1 case of consumption was identified which is (01.724%), in Saint Kitts and Nevis 1 case of consumption was identified which is (01.724%), in Iceland 1 case of consumption was identified which is (01.724%), in Canadian 1 case of consumption was identified which is (01.724%), in Poland 1 case of consumption was identified which is (01.724%), in Bahrain 1 case of consumption was identified which is (01.724%), in Qatar 1 case of consumption was identified which is (01.724%), in Saudi Arabia 1 case of consumption was identified which is (01.724%), in Uzbekistan 1 case of consumption was identified which is (01.724%), in France 1 case of consumption was identified which is (01.724%), in Morocco 1 case of consumption was identified which is (01.724%), in Colombia 1 case of consumption was identified which is (01.724%) and in Lithuania 1 case of consumption was identified which is (01.724%) respectively. The graphically representation of the above data is presented in Figure No. 2 below.

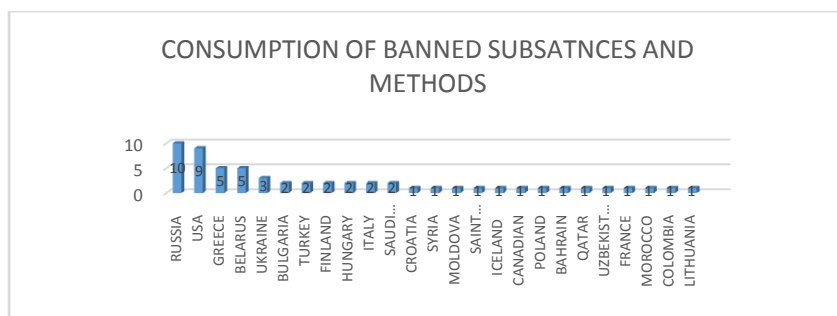


Fig. No:2 Graphical presentations on the Consumption of banned substances and methods via participated countries in athletics at Olympic games along with percentage.

Finding Of The Study

- Finding exposes that there were total 58 cases of consumption via participated countries in athletics since Montreal Olympics (1976) to London Olympics (2012).
- There were 43 banned substance cases and 15 banned method cases of consumption were identified.
- It discloses that since Montreal Olympics (1976) to London Olympics (2012) consumption of banned substances and methods via participated countries in athletics was maximum in the London Olympics which is 21 in numbers.
- On the contrary during Montreal (1976) and Seoul (1988) Olympics there were least consumption of banned substances and methods via participated countries in athletics which was 1 in number.
- Decreasing trend in the consumption of banned substance via participated countries in athletics has been observed from Montreal (1976) to Moscow (1980) Olympics which was 1 during Montreal (1976) and 0 during Moscow (1980) Olympics.
- Thereafter during Los Angeles (1984) Olympics consumption of banned substances and methods via participated countries in athletics increases which is 5 in numbers.
- Afterward increasing trend in the consumption of banned substances has been observed from Seoul (1988) to Barcelona (1992) Olympics which 1 and 4. Whereas thereafter it decreases as 3 during Atlanta (1996) Olympics.
- Whereas there increasing trend in the consumption of banned substances and methods has been observed from Sydney (2000) to Athens (2004) Olympics which is 5 during Sydney (2000) Olympics and 13 during Athens (2004) Olympics. There after it again decreases as 5 during Beijing (2008) Olympics and whereas there after consumption of banned substances and methods via participated countries in athletics again increases during London (2012) Olympics which 21 in numbers.

Country wise observation

- If we go through the countries which consumed banned substances and methods in athletics at Olympics, Russia consumed maximum banned substances and methods which was 10 in number.
- Contrary to that Croatia, Syria, Moldova, Saint Kitts and Nevis, Iceland, Canadian, Poland, Bahrain, Qatar, Uzbekistan, France, Morocco, Colombia and Lithuania consumed minimum banned substances and methods which was 1 in number.
- Whereas 2-2 banned substances were consumed via Bulgaria, Turkey, Finland, Hungary, Italy, Saudi Arabia.
- Whereas Ukraine consumed 3 banned substances and methods, Greece and Belarus consumed 5-5 each and USA consumed 9 banned substances and methods in athletics at Olympic games.

It is quite surprising to note that Russia consumed (17.241%) of all the consumption of banned substances via participated countries in athletics at Olympic games since Montreal (1976) to London (2012) Olympics games.

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