

DOPING AT THE OLYMPIC GAMES: past, present and future



The history of doping in the Olympics spans centuries, with notable milestones marking the evolution of anti-doping efforts. From ancient Greece to modern controversies, the battle against performance-enhancing drugs is continuously ongoing.

776 BC–393 AD

The Ancient Greek Olympic Games began. Doping was not regulated, and athletes experimented with various substances [1].

ANCIENT TIMES



1894

Baron Pierre de Coubertin founded the International Olympic Committee (IOC) [2].

MODERN ERA BEGINS

1896

The first modern Olympic Games were held in Athens. Doping remained unchecked.

1928

The International Association of Athletics Federation became the first federation to prohibit performance-enhancing drugs [3].

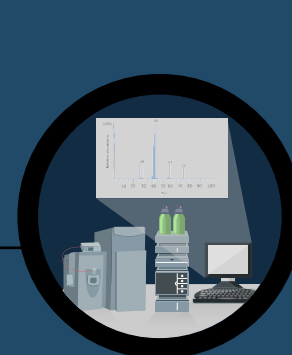
FIRST ANTI-DOPING MEASURES

1955

GC-MS was invented.

1967

Tommy Simpson dies at the Tour de France due to a combination of heat exhaustion and significant doping with amphetamines.



1960

Knud Jensen died at the 1960 Rome Olympics: the first athlete death during Olympic competition. His cause of death was listed as a brain injury from a fall, but his toxicology report contained various amphetamines.

1967

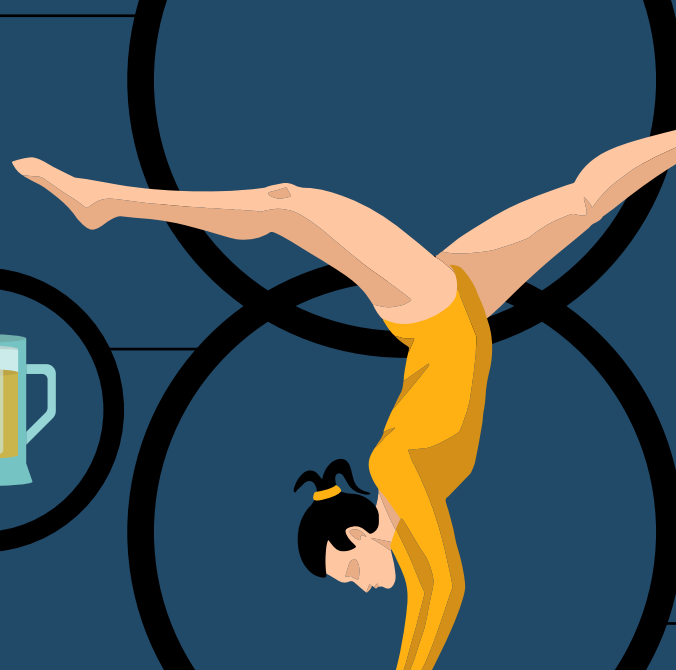
The IOC establishes a Medical Committee, publishing the first list of prohibited drugs [4].

1968

The first scientific drug testing of athlete samples using GC-MS, HPLC and fluorescence polarization immunoassays occurred at the Mexico City Games [5].

1968

The first ever drugs disqualification at an Olympic Games. Pentathlete Hans-Gunnar Liljenwall tested positive for alcohol consumption before the shooting competition and lost a bronze medal.



1976

The 1976 Winter Games signified the first time anabolic steroids were tested for [3].

1984

For the first time, at the Los Angeles Games every urine sample underwent screening analysis via GC-MS. GC-MS proved crucial in combating steroid doping, as the testosterone to epitestosterone (T/E) ratio was otherwise immeasurable [6].

THE RISE OF TESTING TECHNOLOGIES

1988

Despite setting a new 100-meter World Record, Ben Johnson was disqualified at the Seoul Games after testing positive for an anabolic steroid (stanozolol) [8].

1984

The 1984 Winter Games saw more advanced screening capabilities. Ben Johnson's positive test for stanozolol was only possible with low-resolution quadrupole MS detection [6].



1988

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1998

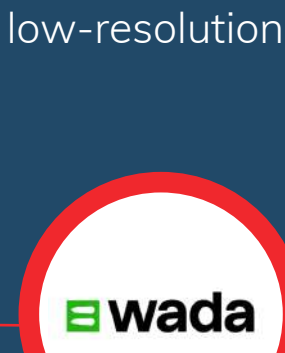
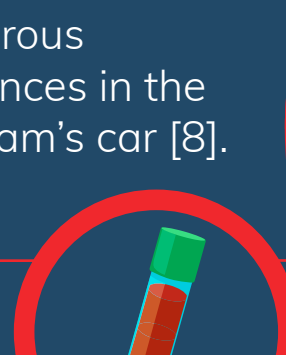
The 1998 'Festina affair' scandal at the Tour de France involved the police discovering numerous prohibited substances in the Festina cycling team's car [8].

ERA OF SCANDALS AND REFORMS

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2000

Blood sample testing debuts at the Sydney Games, uncovering doping practices previously undetectable through urine tests.



1999

The IOC established the World Anti-Doping Agency (WADA) [7].

2002

At the Salt Lake City Games, cross-country skier Johann Mühlegg tested positive for darbepoetin and lost his three gold medals.



2000

At the Sydney Games, Lance Armstrong lost his bronze medal for taking steroids and blood-booster erythropoietin. Marion Jones won three gold medals and two bronze medals but was later stripped of all medals after she lied about using steroids [8].

2003/2004

WADA approved the World Anti-Doping Code.



2004

2004

The first official assay for detecting human growth hormone was enforced at the Athens Games [9].



In March 2004, WADA released its inaugural annual Prohibited List of substances and methods. This list is updated every January 1st.

2018

The International Testing Agency was created, supervised by the IOC and WADA.

RECENT DEVELOPMENTS

Swedish hockey player Nicklas Backstrom tested positive for pseudoephedrine.

2020

After smashing vials of his blood during doping testing in 2018, three-time swimming Olympic gold medalist Sun Yang was suspended by WADA for 8 years.



2019

WADA imposed a 4-year ban on Russia for state-sponsored doping, impacting the country's participation in the Olympic events [8].

2022

Russian figure skater Kamila Valieva tested positive for trimetazidine shortly before competing at the Beijing Winter Olympics.



2021

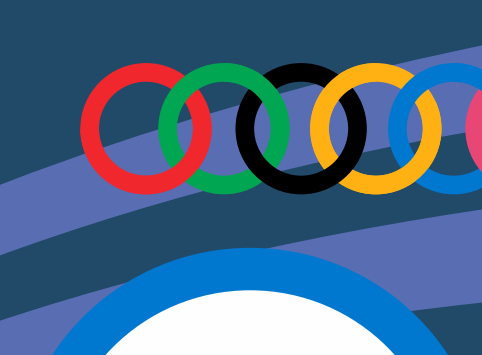
WADA introduced dried blood spot testing as a new anti-doping test, in addition to existing urine and venous blood sample testing [9].

2024 AND BEYOND

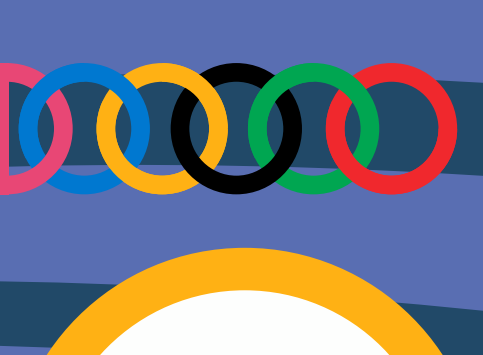
Currently, the analysis of samples mainly depends on GC-MS and LC-MS. WADA aims to further develop dried blood spot testing for a larger number of substances in the future, as well as use equal amounts of urine, venous blood and dried blood spot testing.

"As outlined within WADA's 2020–2024 Strategic Plan, WADA wants to do more impactful research based on key priorities and outcomes in order to lead some future global changes in the anti-doping community (...). One way we will do that is through the integration of new, innovative technologies to benefit collection procedures, the security of samples and the processing of data associated to sample analysis, as well as making information on prohibited substances and methods more readily accessible and visible to the athletes and their entourage" – Olivier Rabin, WADA Senior Executive Director of Science and Medicine (Montreal, Canada) [10].

Fun Facts



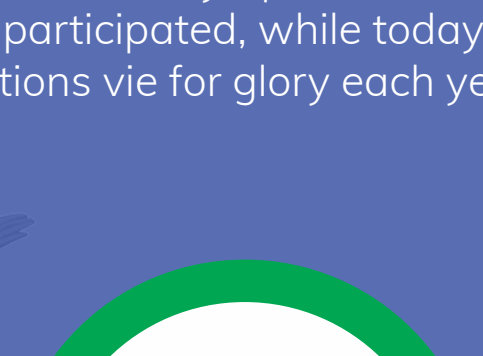
The five interlocking Olympic rings symbolize the unity and global collaboration of the five inhabited continents, without specific allocation to any one continent.



In the first ever Olympic Games, only 14 countries participated, while today, over 200 nations vie for glory each year!



The inaugural Winter Olympic Games dates back to 1924.



Penalties for positive drug tests span from a 2-year suspension to a lifetime ban from Olympic competition [11].