

List of Performance Enhancing Drugs and Their Effects

Drug	Method of Use	Performance Effect	Sport / Use	Danger
Steroids and Testosterone	injection	Increased muscle mass	Baseball, football, weight-lifting	Acne, baldness, liver damage, stunted growth in young people, breast tissue development, shrinking of testicles, hair growth (women), increased aggression
Erythropoietin (EPO)	Injection	Increase red blood cell count	Cycling, distance running, swimming	Stroke, heart attack
Human Growth Hormone (hGH)	Pills, powders, injection	Increase muscle mass	Basketball, football, weight-lifting, baseball, also taken to slow aging	Nerve or joint pain, muscle weakness, carpal tunnel syndrome, cancer, fluid retention, heart disease, diabetes
Ephedrine	Pills	Improve endurance and increase aggressiveness	Baseball	High blood pressure, dizziness, irregular heart beat (arrhythmia)
Diuretics		Dilutes urine (masking agent)	All sports	Severe dehydration, unsafe drop in blood pressure
Albuterol	Inhaled, injection, pills	Build muscle	Cycling, running, baseball, soccer	Increased heart rate, anxiety, increases blood pressure, irregular heart beat (arrhythmia)
Propranolol (beta blockers)		Slows heart rate, relaxes blood vessels, diminishes nervous sweat and trembling, steadies hand	Pistol shooting, archery	Dangerous for people with low blood pressure, nausea
Tamoxifen		Used to counteract an increase of estrogen that results from steroid use	baseball	Numbness, chest pain, problems with vision, speech, balance
Creatine	Powder	Increased short-term, high-burst muscle activity	Football, sprinting, weight-lifting (not effect in endurance athletes)	Stomach discomfort, diarrhea, nausea, dangerous for individuals with any underlying liver or kidney problems
Aderall	pill	Improved focus ¹	Perceived ² test-taking edge (SAT, ACT, MCAT)	Nausea, stomach pain, trouble sleeping,

Methods Used to Test for Drugs

Method	Process
Urine	Direct detection; most widely used, inexpensive
Hair	Direct detection; 50 hairs are taken (expensive, relatively accurate)
Blood	1. Most accurate: direct detection in blood of the presence of PEDs 2. Biological Passport: indirect detection in blood of the presence of PEDs; blood is drawn over a period of time and an electronic record of different markers in blood, irregularities indicate the presence of drug use

¹ <http://healthland.time.com/2012/05/09/performance-enhancing-drugs-o-k-in-school-but-not-in-sports-students-say/>

² <http://www.debugmind.com/students-use-performance-enhancing-drugs-for-sat/>

Agencies that Test for Drugs and What Drugs They Test For

Sport	Governing Body	Testing	Frequency	Penalty
Olympic Sports Cycling	WADA (World Anti-Doping Agency),	Urine & Blood	Random testing 24hrs/day, 365 days a year Top 5 finishers tested	1 st offense: 2 year ban 2 nd offense: Lifetime ban
US Olympic Sports (Track & Field, Weightlifting, Swimming) ³	USADA (United States Anti-Doping Agency)	Urine & Blood ⁴	Follows WADA: Random testing 24hrs/day, 365 days a year ⁵	1 st offense: 2 year ban 2 nd offense: Lifetime ban
NFL ⁶	NFL	Urine (no test for hGH)	Once per year random testing (during season)	1 st offense: 4 game suspension; 2 nd offense: 8 game suspension; 3 rd offense: 1 year suspension
NBA	NBA	Urine?	Random testing (during preseason and season)	1 st offense: 5 game suspension; 2 nd offense: 20 game suspension; 3 rd offense: 25 game suspension; 4 th offense: 2 year suspension
NCAA (Div. I and II) ⁷	NCAA or School (Penn State)	Urine (including street drugs)	NCAA: Random tests (approximately 11,000 a year) , notified in two days in advance ^{8, 9}	NCAA penalties: 1 st offense: 1 year loss of eligibility 2 nd offense: permanently ineligibility ¹⁰
NHL	NHL	Urine	Random testing on off days during regular season	1 st offense: 20 game suspension 2 nd offense: 60 game suspension 3 rd offense: Lifetime ban

³ <http://www.usada.org/testing-statistics>

⁴ <http://www.usada.org/blood/>

⁵ <http://www.usada.org/program/>

⁶ <http://www.csnbayarea.com/blog/biz-ball/sports-drug-testing-policies-nfl-nba-nhl-olympics>

⁷ http://www.huffingtonpost.com/2012/12/20/college-football-steroids-ncaa-testing_n_2337326.html

⁸ <http://www.athletics.wsu.edu/arc/Handbook/Files/Drug.pdf>

⁹ Penn State Policy: http://grfx.cstv.com/photos/schools/psu/genrel/auto_pdf/DrugFreeAthleticsProgram0809_2.pdf

¹⁰ <http://www.ncaa.org/wps/wcm/connect/public/NCAA/Health+and+Safety/Drug+Testing/Drug+Testing+Landing+Page>