

2004 Adverse Analytical Findings Reported by Accredited Laboratories

Overview of Results

Table A Olympic and Non-Olympic: Adverse Analytical Findings Rate

Differentiation between Olympic and Non-Olympic Sports	A Samples Analyzed	A Samples Adverse Analytical Findings*	% Adverse
Olympic Sports	128,591	2,145	1.67%
Non-Olympic Sports	40,596	764	1.88%
TOTAL	169,187	2,909	1.72%

* "Adverse Analytical Finding" is defined in the World Anti-Doping Code as "a report from a laboratory or approved Testing entity that identifies in a Specimen 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". These figures may not be identical to sanctioned cases, as the figures given in this report may contain findings that underwent the Therapeutic Use Exemption (TUE) approval process. In addition, some Adverse Analytical Findings may correspond to multiple measurements performed on the same athlete, such as in cases of longitudinal studies on testosterone.

Adverse Analytical Findings

Comparison of 2003 and 2004

Table A1 Olympic and Non-Olympic: Adverse Analytical Findings

Differentiation between Olympic and Non-Olympic Sports	2003 A Samples Analyzed	2004 A Samples Analyzed	% increase
Olympic Sports	113,559	128,591	+ 13.2%
Non-Olympic Sports	37,651	40,596	+ 7.8%
TOTAL	151,210	169,187	+ 11.9%

Differentiation between Olympic and Non-Olympic Sports	2003 A Samples Adverse Analytical Findings	2004 A Samples Adverse Analytical Findings	% increase
Olympic Sports	1,707	2,145	+ 25.7%
Non-Olympic Sports	740	764	+ 3.2%
TOTAL	2,447	2,909	+ 18.9%

Differentiation between Olympic and Non-Olympic Sports	2003 % Adverse	2004 % Adverse	% increase or decrease
Olympic Sports	1.50	1.67	+ 11.3%
Non-Olympic Sports	1.97	1.88	- 4.6%
Overall	1.62	1.72	+ 6.2%

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Table B

Olympic and Non-Olympic Sport Adverse Analytical Findings per Laboratory

	Laboratory	N Total	N Adverse Analytical Findings*	% Adverse
1	Sydney , Australia	7,738	68	0.88
2	Seibersdorf , Austria	2,688	43	1.60
3	Ghent , Belgium	5,472	247	4.51
4	Rio de Janeiro , Brazil	3,696	21	0.57
5	Montreal , Canada	6,253	166	2.65
6	Beijing , China	5,319	25	0.47
7	Bogota , Colombia	2,897	37	1.28
8	Havana , Cuba	1,660	18	1.08
9	Prague , Czech Republic	1,697	32	1.89
10	Helsinki , Finland	2,093	24	1.15
11	Paris , France	9,336	462	4.95
12	Cologne , Germany	10,297	176	1.71
13	Kreischa , Germany	5,308	66	1.24
14	Cambridge , UK	162	7	4.32
15	London , UK	6,735	61	0.91
16	Athens , Greece	7,145	71	0.99
17	Rome , Italy	8,368	95	1.14
18	Tokyo , Japan	2,696	8	0.30
19	Seoul , Korea	1,688	10	0.59
20	Penang , Malaysia	1,371	36	2.63
21	Oslo , Norway	5,046	53	1.05
22	Lisbon , Portugal	2,965	120	4.05
23	Bloemfontein , South Africa	2,838	51	1.80
24	Moscow , Russia	4,095	26	0.63
25	Barcelona , Spain	4,934	61	1.24
26	Madrid , Spain	6,912	303	4.38
27	Stockholm , Sweden	4,621	91	1.97
28	Lausanne , Switzerland	3,233	68	2.10
29	Bangkok , Thailand	1,555	41	2.64
30	Tunis , Tunisia	1,814	30	1.65
31	Ankara , Turkey	1,508	28	1.86
32	Los Angeles , USA	37,047	364	0.98
TOTAL		169,187	2,909	1.72%

* These figures may not be identical to sanctioned cases, as the figures given in this report may contain findings that underwent the Therapeutic Use Exemption (TUE) approval process. In addition, some adverse analytical findings may also correspond to multiple measurements performed on the same athlete, such as in cases of longitudinal studies on testosterone.

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Table C

Olympic Sport Sample Analysis

Sport	Discipline	Total per Discipline	Total per Sport	A Sample Adverse Analytical Findings*	% Adverse
Aquatics	Aquatics	1,945	9,518	58	0.61%
	Diving	421			
	Swimming	6,327			
	Synchronised Swimming	144			
	Water Polo	681			
Archery	Archery	-	721	3	0.42%
Athletics	Athletics	-	19,991	229	1.15%
Badminton	Badminton	-	898	7	0.78%
Baseball ¹	Baseball	-	8,736	250	2.86%
Basketball	Basketball	-	3,990	81	2.03%
Biathlon	Biathlon	-	804	4	0.50%
Bobsleigh	Bobsleigh	421	536	6	1.12%
	Tobogganing	14			
	Skeleton	101			
Boxing	Boxing	-	2,205	70	3.17%
Canoe / Kayak	Canoe / Kayak	-	2,570	18	0.70%
Curling	Curling	-	158	3	1.90%
Cycling	Cycling	13,055	13,199	607	4.60%
	Mountain Bike	144			
Equestrian	Equestrian	-	718	11	1.53%
Fencing	Fencing	-	1,586	15	0.95%
Football	Football	-	22,329	203	0.91%
Gymnastics	Gymnastics	1,728	1,803	7	0.39%
	Artistic Gymnastics	12			
	Rhythmic Gymnastics	14			
	Trampoline	49			
Handball	Handball	-	2,459	35	1.42%
Hockey	Hockey	-	1,355	8	0.59%
Ice Hockey	Ice Hockey	-	2,359	54	2.29%
Judo	Judo	-	2,829	31	1.10%
Luge	Luge	-	136	0	0.00%
Modern Pentathlon	Modern Pentathlon	-	553	3	0.54%
Rowing	Rowing	-	2,656	17	0.64%
Sailing	Sailing	-	910	9	0.99%
Shooting	Shooting	-	1,751	28	1.60%
Skating	Skating	1,540	2,338	11	0.47%
	Speed Skating	486			
	Figure Skating	312			
Skiing	Skiing	2,779	3,354	42	1.25%
	Alpine Skiing	205			
	Cross Country Ski	94			
	Ski Jumping	24			
	Snowboard	174			
	Combined Skiing	66			
	Freestyle Skiing	12			
Softball	Softball	-	501	1	0.20%
Table Tennis	Table Tennis	-	764	8	1.05%
Taekwondo	Taekwondo	-	1,228	7	0.57%
Tennis	Tennis	-	2,538	45	1.77%
Triathlon	Triathlon	-	1,547	28	1.81%
Volleyball	Volleyball	2,850	3,024	37	1.22%
	Beach Volleyball	174			
Weightlifting	Weightlifting	-	5,234	158	3.02%
Wrestling	Wrestling	-	2,573	34	1.32%
Baseball / Softball ²		-	165	8	4.85%
Hockey / Skating ³		-	71	1	1.41%
Ice Sport ⁴		-	292	4	1.37%
Unknown ⁵		-	192	4	2.08%
Total			128,591	2,145	1.67%

* This figure may not be identical to sanctioned cases, as the figures given in this report may contain findings that underwent the Therapeutic Use Exemption (TUE) approval process. In addition, some adverse analytical findings correspond to multiple measurements performed on the same athlete, such as in the case of longitudinal studies on testosterone.

¹ Baseball numbers include those of Major League Baseball Professional League

² "Baseball/Softball" was designated on Doping Control Forms therefore unable to assign by single sport

³ "Hockey/Skating" was designated on Doping Control Forms therefore unable to assign by single sport

⁴ "Ice Sport" was designated on Doping Control Forms therefore unable to assign by sport/discipline

⁵ "Unknown" due to missing or illegible designation of sport on Doping Control Forms from Anti-Doping Bodies

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Table D Sample Analysis in Selected IOC Sports

Sport	Discipline	Total per Discipline	Total per Sport	Adverse Analytical Findings*	%
Rollersports	Roller Hockey	168	495	15	3.03%
	Roller Skating	240			
	Roller Sports	87			
Golf	Golf	-	384	7	1.82%
Karate	Karate	-	571	4	0.70%
Rugby	Rugby	-	5,296	100	1.89%
Squash	Squash	-	382	6	1.57%
TOTAL			7,128	132	1.85%

Table E Sample Analysis in Other IOC Recognised Sports

Sport	Total per Discipline	Adverse Analytical Findings*	%
Air Sports	87	2	2.30%
Bandy	389	3	0.77%
Billiards Sports	200	9	4.50%
Powerboating	340	0	0.00%
Boules	98	1	1.02%
Bowling	244	5	2.05%
Bridge	17	0	0.00%
Chess	54	1	1.85%
Dance Sport	189	4	2.12%
Korfball	80	2	2.50%
Life Saving	318	2	0.63%
Motorcycling	356	15	4.21%
Mountaineering/Climbing	208	4	1.92%
Netball	162	0	0.00%
Orienteering	375	6	1.60%
Pelote Basque	134	1	0.75%
Polo	-	-	n/ap
Racquetball	28	0	0.00%
Sumo	82	2	2.44%
Surfing	79	5	6.33%
Tug of War	91	1	1.10%
Underwater Sports	314	5	1.59%
Water Skiing	166	4	2.41%
Wushu	35	0	0.00%
TOTAL	4,046	72	1.78%

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Table F Number of Substances Identified in Each Drug Class

Substance Group		Number*	% of all adverse analytical findings
S4.	Anabolic Agents	1,191	36.0%
S9.	Glucocorticosteroids	548	16.6%
S3.	Cannabinoids	518	15.7%
S1.	Stimulants	382	11.6%
S6.	Beta-2-Agonists	381	11.5%
S8.	Masking Agents	157	4.8%
S5.	Peptide Hormones	78	2.4%
P2.	Beta-blockers	25	0.8%
S2.	Narcotics	15	0.5%
S7.	Agents with Anti-oestrogenic Activity	8	0.2%
M1.	Enhancement of Oxygen Transfer	2	0.1%
TOTAL		3,305	

* Some adverse analytical findings may correspond to multiple measurements on the same athlete, including cases of longitudinal studies on testosterone.

2004 Adverse Analytical Findings Reported by Accredited Laboratories

Table G Substances Identified in Each Drug Class

S4. Anabolic Agents	Occurrences	% within drug class
Testosterone	392	32.9%
Nandrolone	339	28.5%
Stanozolol	226	19.0%
Methandienone	63	5.3%
Methyltestosterone	32	2.7%
Methenolone	22	1.8%
DHEA	20	1.7%
Boldenone	19	1.6%
Mesterolone	18	1.5%
Androsterone	17	1.4%
Clostebol	10	0.8%
delta1-androsten-3,17-dione	9	0.8%
Drostanolone	5	0.4%
delta-1-Testosterone	4	0.3%
Oxymetholone	4	0.3%
Androstenedione	3	0.3%
Boldione	3	0.3%
Oxandrolone	3	0.3%
Methandriol	1	0.1%
Trenbolone	1	0.1%
TOTAL*	1,191	

* Some adverse analytical findings correspond to multiple findings on the same athlete, including cases of longitudinal studies on testosterone.

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Table G Substances Identified in Each Drug Class

S1. Stimulants	Occurrences¹	% within drug class
Amphetamine	112	29.3%
Ephedrine	102	26.7%
Cocaine metabolites	75	19.6%
MDMA	15	3.9%
Phentermine	13	3.4%
Heptaminol	10	2.6%
Cathine	9	2.4%
Methamphetamine	8	2.1%
Methylphenidate	7	1.8%
Nikethamide	6	1.6%
MDA	3	0.8%
Fenethylamine	3	0.8%
Pemoline	3	0.8%
Amphetamine	2	0.5%
Etilephrine	2	0.5%
Ethamivan	2	0.5%
Modafinil	2	0.5%
Benzylpiperazine	1	0.3%
Carphedone	1	0.3%
Cropropamide	1	0.3%
Crothetamide	1	0.3%
Fenproporex	1	0.3%
Methoxyphenamine	1	0.3%
Methylephedrine	1	0.3%
Propylhexedrine	1	0.3%
TOTAL*	382	

¹ Note that 53 cases of pseudoephedrine were reported in American Football only. This compound is not on the WADA Prohibited List and therefore not included in this report.

* Some adverse analytical findings correspond to multiple findings on the same athlete.

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Table G Substances Identified in Each Drug Class

S2. Narcotics	Occurrences	% within drug class
Morphine	10	66.7%
Methadone	2	13.3%
Dextromoramide	1	6.7%
Hydromorphone	1	6.7%
Oxycodone	1	6.7%
TOTAL *	15	

S3. Cannabinoids	Occurrences	% within drug class
Cannabis	518	100.0%
TOTAL *	518	

S5. Peptide Hormones	Occurrences	% within drug class
Erythropoetin	38	48.7%
hCG	24	30.8%
LH	16	20.5%
TOTAL *	78	

S6. Beta-2-Agonists	Occurrences	% within drug class
Salbutamol	251	65.9%
Terbutaline	78	20.5%
Clenbuterol	46	12.1%
Formoterol	4	1.0%
Salmeterol	1	0.3%
Reproterol	1	0.3%
TOTAL **	381	

* Some adverse analytical findings correspond to multiple findings on the same athlete.

** Results on salbutamol and terbutaline may correspond to administration by aerosol which is permitted by the Prohibited List with certain restrictions. In addition, some adverse analytical findings may correspond to multiple measurements on the same athlete.

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Table G Substances Identified in Each Drug Class

S7. Agents with Anti-oestrogenic activity	Occurrences	% within drug class
Tamoxifen	8	100.0%
TOTAL *	8	

S8. Masking Agents	Occurrences	% within drug class
Furosemide	62	39.5%
Hydrochlorothiazide	44	28.0%
Canrenone	9	5.7%
Bendroflumethazide	7	4.5%
Triamterene	7	4.5%
Epitestosterone	6	3.8%
Acetazolamide	4	2.5%
Amiloride	4	2.5%
Chlortalidone	4	2.5%
Indapamide	2	1.3%
Probenecid	2	1.3%
Bumetanide	1	0.6%
Chlorothiazide	1	0.6%
Clopamide	1	0.6%
Hydroxy ethyl starch (HES)	1	0.6%
Spironolactone	1	0.6%
Torsemide	1	0.6%
TOTAL *	157	

S9. Glucocorticosteroids¹	Occurrences	% within drug class
Triamcinolone Acetonide	246	44.9%
Betamethasone	121	22.1%
Prednisolone	61	11.1%
Budesonide	50	9.1%
Prednisone	28	5.1%
Methylprednisolone	25	4.6%
Dexamethasone	17	3.1%
TOTAL *	548	

¹ Sixteen laboratories reporting.

* Some adverse analytical findings correspond to multiple findings on the same athlete.

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Table G Substances Identified in Each Drug Class

P2. Beta Blockers	Occurrences	% within drug class
Atenolol	8	32.0%
Propranolol	6	24.0%
Bisoprolol	5	20.0%
Metoprolol	5	20.0%
Sotalol	1	4.0%
TOTAL *	25	

M1. Enhancement of Oxygen Transfer	Occurrences	% within drug class
Homologous blood transfusion	2	100.0%

* Some adverse analytical findings may correspond to multiple findings on the same athlete.

2004 Adverse Analytical Findings Reported by Accredited Laboratories

Table H Total Laboratory Adverse Analytical Findings* vs Drug Class

Laboratory	S1. Stimulants	S2. Narcotics	S3. Cannabinoids	S4. Anabolic Agents	S5. Peptide Hormones	S6. beta-2- Agonists	S7. Agents with Anti- oestrogenic activity	S8. Masking Agents	S9. Glucocortico- steroids	P2. Beta- Blockers	Others	Total per Lab	% of total adverse analytical findings
Sydney, Australia	16	-	11	36	1	2	-	8	3	2	-	79	2.4%
Seibersdorf, Austria	2	-	7	18	2	10	-	3	2	-	-	44	1.3%
Ghent, Belgium	43	2	95	77	10	5	-	8	42	3	-	285	8.6%
Rio de Janeiro, Brazil	8	-	5	9	-	-	-	2	-	-	-	24	0.7%
Montreal, Canada	20	1	32	78	12	33	-	10	16	-	-	202	6.1%
Beijing, China	6	-	-	13	1	5	2	2	-	-	-	29	0.9%
Bogota, Colombia	3	2	3	24	-	-	-	4	1	-	-	37	1.1%
Havana, Cuba	-	-	-	14	-	3	-	2	-	-	-	19	0.6%
Prague, Czech Republic	7	-	9	21	-	5	2	2	-	-	-	46	1.4%
Helsinki, Finland	2	-	1	9	1	12	-	2	-	-	-	27	0.8%
Paris, France	30	4	112	80	4	97	-	13	178	5	-	523	15.8%
Cologne, Germany	22	1	22	105	3	10	2	20	44	5	-	234	7.1%
Kreischa, Germany	6	2	4	32	-	13	-	3	7	1	-	68	2.1%
Cambridge, UK	4	-	-	3	-	-	-	-	-	-	-	7	0.2%
London, UK	22	-	13	19	1	3	-	6	-	-	-	64	1.9%
Athens, Greece	7	-	12	39	1	5	-	5	6	-	-	75	2.3%
Rome, Italy	17	2	23	24	-	7	-	9	17	1	-	100	3.0%
Tokyo, Japan	3	-	-	3	3	1	-	-	-	-	-	10	0.3%
Seoul, Korea	1	-	-	4	-	2	1	2	-	-	-	10	0.3%
Penang, Malaysia	-	-	-	26	-	4	-	4	-	2	-	36	1.1%
Oslo, Norway	5	-	7	43	-	2	-	5	9	1	-	72	2.2%
Lisbon, Portugal	10	-	22	17	-	12	-	5	69	2	-	137	4.1%
Bloemfontein, S Africa	6	-	11	26	1	5	-	4	-	-	-	53	1.6%
Moscow, Russia	5	1	1	20	-	1	-	1	-	1	-	30	0.9%
Barcelona, Spain	2	-	17	36	-	16	-	7	1	-	-	79	2.4%
Madrid, Spain	7	-	26	48	9	75	1	4	140	-	-	310	9.4%
Stockholm, Sweden	6	-	1	79	-	16	-	2	-	-	-	104	3.1%
Lausanne, Switzerland	5	-	13	27	3	15	-	1	3	-	2	69	2.1%
Bangkok, Thailand	-	-	5	18	15	4	-	4	10	2	-	58	1.8%
Tunis, Tunisia	-	-	3	33	2	1	-	1	-	-	-	40	1.2%
Ankara, Turkey	8	-	4	22	1	7	-	5	-	-	-	47	1.4%
Los Angeles, USA	109	-	59	188	8	10	-	13	-	-	-	387	11.7%
TOTAL PER DRUG CLASS	382	15	518	1,191	78	381	8	157	548	25	2	3,305	
% of Drug Class	11.6%	0.5%	15.7%	36.0%	2.4%	11.5%	0.2%	4.8%	16.6%	0.8%	0.1%		

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