

# Loopholes in the Testing System

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Perikles Simon

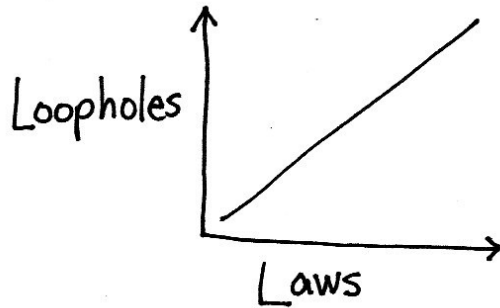
Dpt. Sports Medicine

Disease Prevention and Rehabilitation

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# Outline



## Loopholes: Evidence, Expert Opinion and Politics

NADO	Year	Tests IC	Tests OOC	Tests Total	Total rule violations IC	Total rule violations OOC	Total rule violations <sup>†</sup>
Czech Republic	2005	930	342	1272	31 (3.33%)	13 (3.8%)	44 (3.46%)
	2006	1037	372	1409	27 (2.6%)	1 (0.27%)	28 (1.99%)
	2007	1085	316	1401	30 (2.76%)	1 (0.32%)	31 (2.21%)
	2008	1046	344	1390	32 (3.06%)	1 (0.29%)	33 (2.37%)
	2009	1065	345	1410	27 (2.54%)	2 (0.58%)	29 (2.06%)
	2010	966	318	1284	16 (1.66%)	3 (0.94%)	19 (1.48%)
Germany <sup>†</sup>	2009	4878	9040	13918	34 (0.7%)	11 (0.12%)	45 (0.32%)
	2010	5132	8108	13240	48 (0.94%)	9 (0.11%)	57 (0.43%)
Ireland <sup>†</sup>	2009	346	483	829	3 (0.87%)	0	3 (0.36%)
	2010	321	434	755	3 (0.93%)	0	3 (0.4%)
Poland	2009	1383*	1261*	2644*	34 (2.46%)	3 (0.24%)	37 (1.4%)
	2010	1392*	1304*	2696*	25 (1.80%)	2 (0.15%)	27 (1.0%)
Russia	2009	6632	7868	14500	n.r.	n.r.	89 (0.61%)
	2010	7400	7400	14800**	75 (1.01%)	16 (0.22%)	91 (0.61%)
Serbia	2009	49**	20	69	2 (4.08%)	0	2 (2.9%)
	2010	329	72	401	n.r.	n.r.	19 (4.49%)
South Africa	2009/10	1148	1137	2285	15 (1.31%)	3 (0.26%)	18 (0.79%)

## Data from the „Testing System“

- Unresolvable contradictions
- Challenges for core assumptions

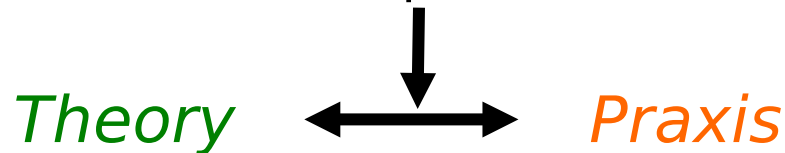


## Next Time Ethics: Restricting Athletes Rights

- Informed consent
- Evidence for benefit
- Reliability including proper reporting

# Loopholes: The Analytical Part

“While there may well be some drugs or combinations of drugs and methods of which the anti-doping community is unaware, the science now available is both **robust and reliable**. The real problems are the human and political factors.”<sup>1</sup>



- *Excellent detectability by doping tests*  
Anabolic Steroids, Stimulants, heterologous blood transfusion, old (>20 years) clinical pharmaceuticals except body's own hormones
- *Non-detectable application of*  
**EPO**, Testosterone, hGH, cortison, insulin, unknown designer      steroids...
- *Not detectable by doping tests*  
**IGF1**, insulin, blood transfusion, designer steroids, metabolic      modulators  
like Aicar, gene doping<sup>2</sup> ...

<sup>1</sup>WADA Working Group headed by **Richard W. Pound**, MONTREAL, 16 April 2013

<sup>2</sup>Beiter, T. et al. „Direct and long-term detection of gene doping in conventional blood samples“ *Gene therapy*, March 2011,18(3):225-31

# Analytical Loopholes: The Human and Political Factors



*Theory*

*Praxis*

The fairy tale offered by the media  
„The **cheaters** are always ahead of **science**“

The story behind the fairy tale

*Science*



*Approx. 6 mio. US\$ for  
developing new detection  
procedures per year*

*Elite sports*



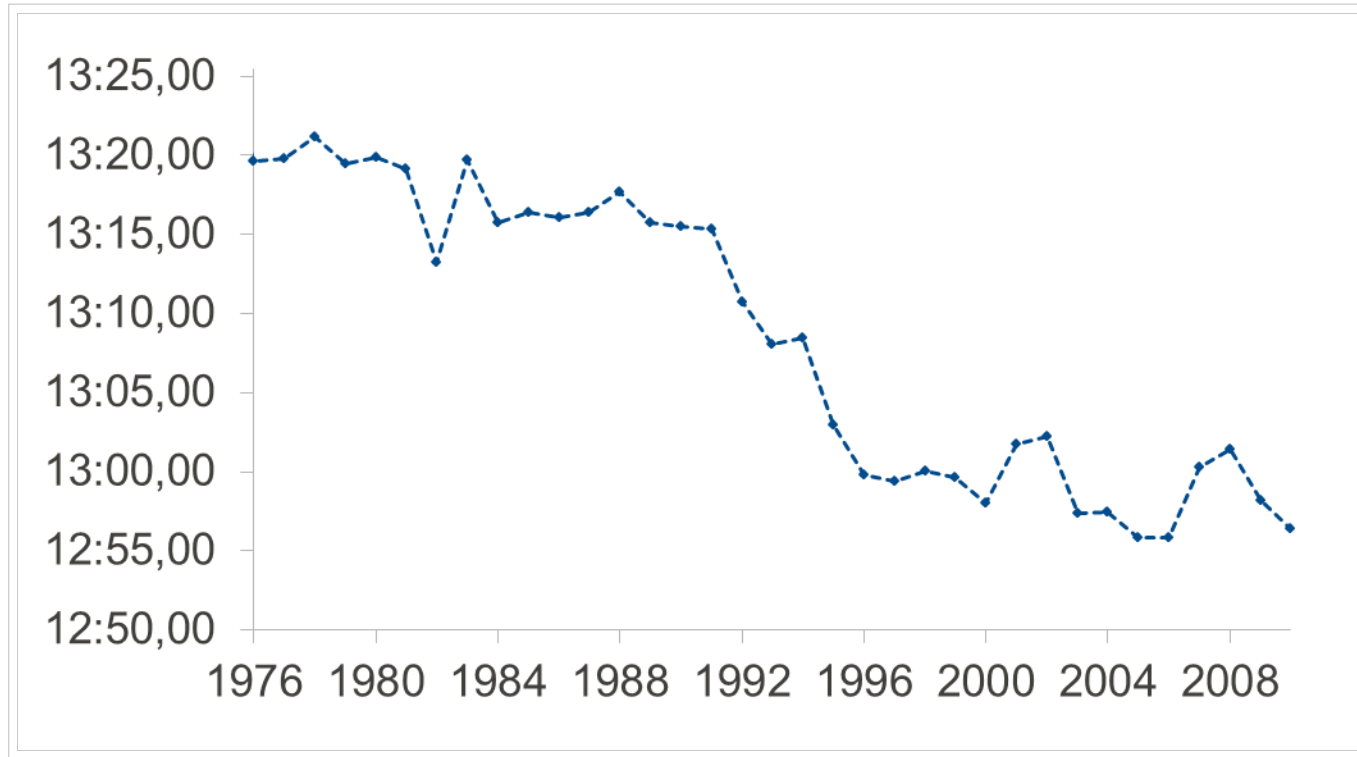
*Total revenue 130 billion  
US\$ and 350 million US\$  
for “doping tests”*

Aggravation of **doping**



# Loopholes: The epidemiological and empirical evidence

5000m: Average time of the world's top 20



# Loopholes: The epidemiological and empirical evidence

## Research article

Drug Testing  
and Analysis

Received: 10 April 2012

Revised: 3 July 2012

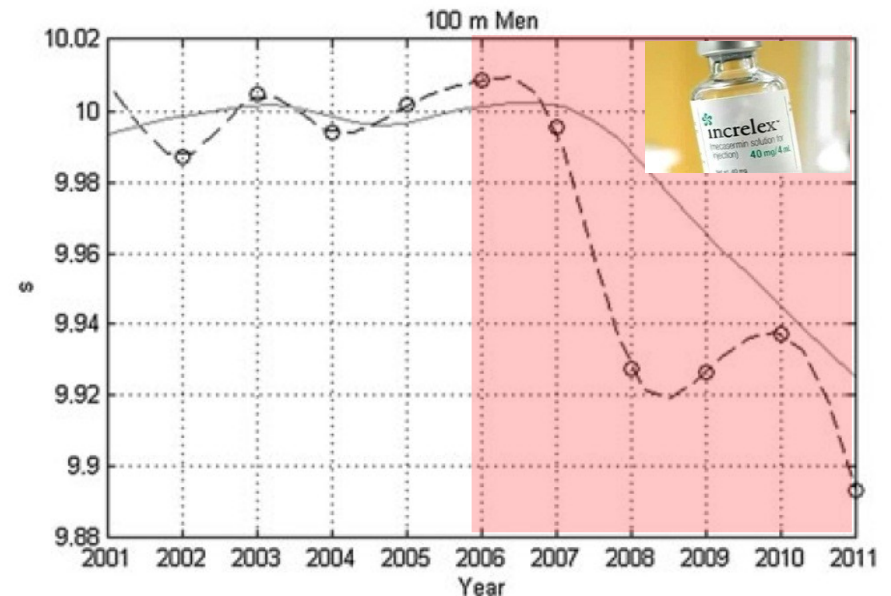
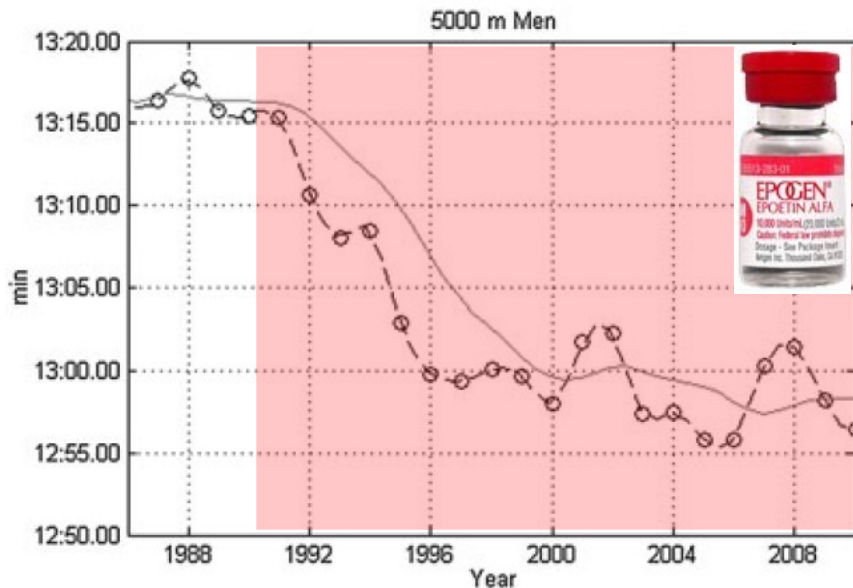
Accepted: 25 July 2012

Published online in Wiley Online Library

(www.drugtestinganalysis.com) DOI 10.1002/dta.1406

## A quantitative approach for assessing significant improvements in elite sprint performance: Has IGF-1 entered the arena?

Simon Ernst and Perikles Simon\*



# Loopholes: The epidemiological and empirical evidence

	n	Prevalence M1, n (%)	Prevalence M2, n (%)		n	Prevalence M1, n (%)	Prevalence M2, n (%)
Males	4028	12 (10–15)	12 (10–15)	Females	3261	18 (15–21)	18 (15–21)
Country A	205	48 (35–63)	78 (54–99)	Country A	445	46 (35–58)	50 (35–68)
Country B	352	3 (1–11)	1 (0–2)	Country B	130	8 (4–34)	2 (0–11)
Country C	257	23 (15–30)	28 (17–36)	Country C	147	12 (4–20)	14 (1–28)
Country D	208	6 (3–19)	5 (0–17)	Country D	103	1 (0–11)	0 (0–3)
Country E	160	18 (11–30)	18 (7–28)	Country E	106	11 (7–20)	8 (1–14)
Country F	148	6 (1–25)	2 (0–22)	Country F	110	6 (3–19)	0 (0–13)
Country H	160	39 (20–54)	51 (21–87)	Country H	65	36 (13–62)	36 (5–66)
All	7289	14 (12–16)	14 (12–16)				
All nonendurance	1329	3 (0–8)	1 (0–3)				
All endurance	4999	18 (15–22)	19 (16–22)				

The IAAF Blood Passport System (BPS)

-> **At least 14% of athletes in the BPS practice blood doping**



# The Epidemiological Evidence for Loopholes: Politics

New York Times, August 22, 2013

## **Antidoping Agency Delays Publication of Research**

By TIM ROHAN

Doping experts have long known that drug tests catch only a tiny fraction of the athletes who use banned substances because athletes are constantly finding new drugs and techniques to evade detection. So in 2011, the **World Anti-Doping Agency** convened a team of researchers to try to determine more accurately how many athletes use performance-enhancing drugs. More than 2,000 track and field athletes participated in the study, and according to the findings, which were reviewed by The New York Times, an estimated **29 percent of the athletes at the 2011 world championships and 45 percent of the athletes at the 2011 Pan-Arab Games** said in anonymous surveys that they had doped in the past year.



# Loopholes: Public Knowledge Derived from Cases in a Court of Law

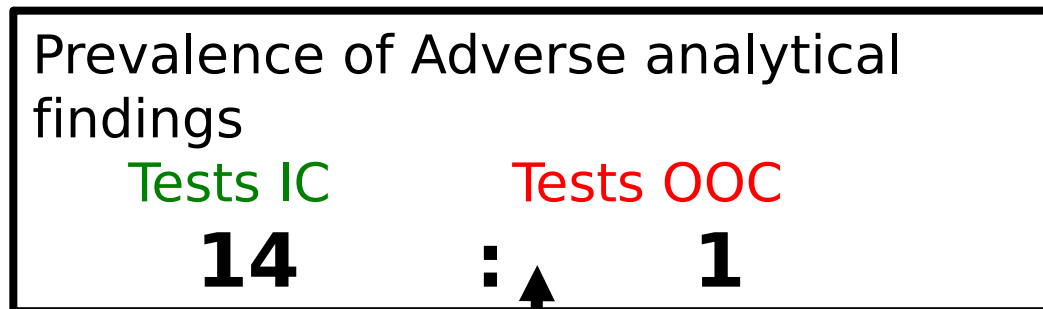
- Higher than expected prevalence in defined training groups and teams
  - Higher than expected prevalence in defined sports medicine departments and associated with certain managers
  - Spread of doping to different sports disciplines within certain regions (BALCO)
  - Use of multiple drugs (IGF1, MGF, insulin, hGH, EPO, THG, testosterone)
  - Use of highly specialized doping procedures (THG, blood transfusions)
  - Athletes initially resistant to doping have to give in during their career

# Loopholes: Irrational Laboratory Testing Figures I

Article 14.4 of the WADAC requires all NADOs to publish and submit annual reports on testing statistics

**Walter Palmer**, Simon Taylor and Andrew Wingate  
Adverse Analyzing, May 12, 2011 **UNI Global Union**

„Only nine NADOs distinguish between in and out of competition testing in their reports. These nine NADOs conducted a total of 30,9041 tests of which 13,738 were in competition and 17,166 were conducted out of competition. There were 222 violations in competition and 28 violations out of competition.“



**Athlete Whereabouts Requirement?**

# Loopholes: Irrational Laboratory Testing Figures II







NADO	Year	Tests IC	Tests OOC	Tests Total	Total rule violations IC	Total rule violations OOC	Total rule violations#
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Prevalence of total rule violations  
**Tests IC (0,76%)    Tests OOC (0,18%)**  
**4,3                    :                    1**

# Loopholes: Irrational Laboratory Testing Figures III

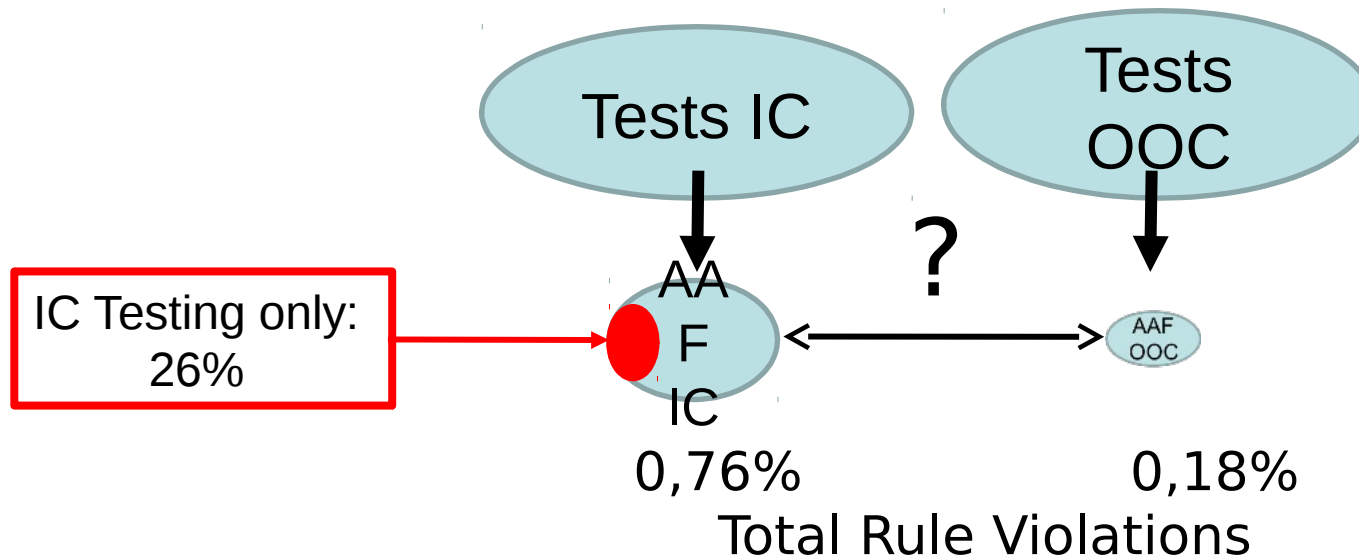
## 2011 Adverse Analytical Findings and Atypical Findings Reported by Accredited Laboratories

**Table E** Number of Prohibited Substances Identified in Each Drug Class  
(All Sports)

Substance Group	Number*	% of all reported findings*
S1. Anabolic Agents	3,325	59.4%
 S6. Stimulants	718	12.8%
 S8. Cannabinoids	445	7.9%
S5. Diuretics and Other Masking Agents	368	6.6%
 S9. Glucocorticosteroids	274	4.9%
S3. Beta-2 Agonists	225	4.0%
S2. Peptide Hormones, Growth Factors and Related Substances	125	2.2%
S4. Hormone Antagonists and Modulators	70	1.3%
 P2. Beta-Blockers	21	0.4%
 S7. Narcotics	20	0.4%
 P1. Alcohol	5	0.1%
M2. Chemical and Physical Manipulation	3	0.1%
M1. Enhancement of Oxygen Transfer	1	0.02%
<b>TOTAL</b>	<b>5,600</b>	

 In competition only +  In particular sport only = 26.5%

# The Basis for Athlete Whereabouts Requirement



## Next time - ethics!

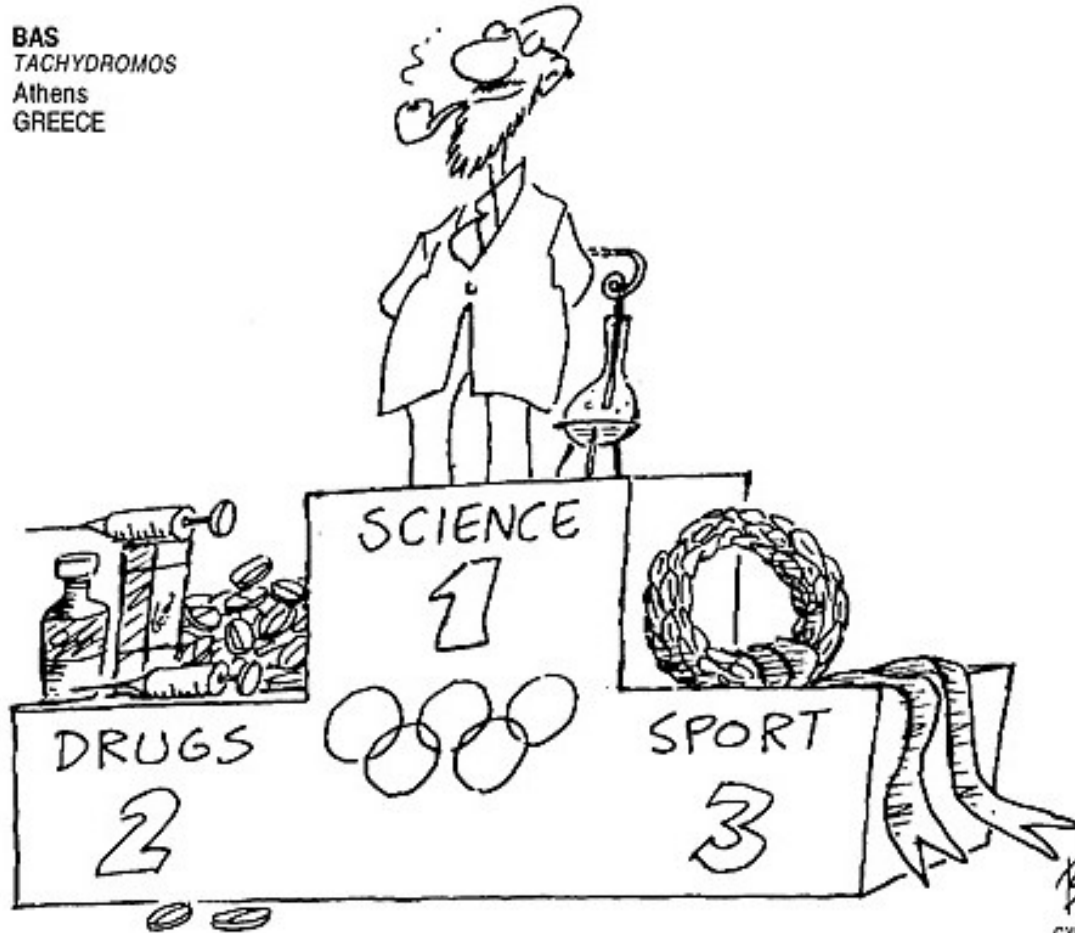
- Reliability including proper reporting  
Code violation -> WADAC Article 14.4  
Low figures -> Chance of false positives needs to be determined<sup>1,2</sup>
- Informed consent and evidence for benefit  
Testing based on improper or unlikely assumptions

1"80. Proficiency testing with double blind samples should be improved and such proficiency testing should include substances difficult to detect." WADA Working Group, 16 April 2013

2Berry, D.A., The science of doping. Nature 454 (7205) 692-693 (2008)

Thank you!

BAS  
TACHYDROMOS  
Athens  
GREECE



CWS / CARTOONARTS INTERNATIONAL [www.cartoonists.com](http://www.cartoonists.com)

BAS  
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