

A think tank for anti-doping research because elite sport deserves elite science

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Why a think tank?

- Anti-doping laboratories **underperform** compared with laboratories in related fields

- Current **external checks**:
 - mainly focus on **procedures** (e.g. chain of custody), i.e. **how** are things done, which is a low-level intellectual activity
 - largely ignore the **underlying science**, i.e. **what** is actually done, which is a high-level intellectual activity

- Task: develop, collect and disseminate ideas on how to improve the science

About this presentation

- Claims about poor science:
 - illustrated by **examples** and
 - supported by **scientific publications**, of which the **title** is often self-explanatory, e.g.:
 - K. Faber (2009)
On the **unacceptable reporting** of results in doping control

- Notable exceptions exist, e.g. Don Catlin, who has been referred to by the Landis defense as an icon of anti-doping



Example 1: the Landis case (Paris)

□ Open literature:

- “USADA maintained that the protocols were followed correctly and that the **discovery of exogenous testosterone** metabolites in urine collected from Landis after his stunning Stage 17 win was **indisputable**.”



□ Internal report (31 July 2006):

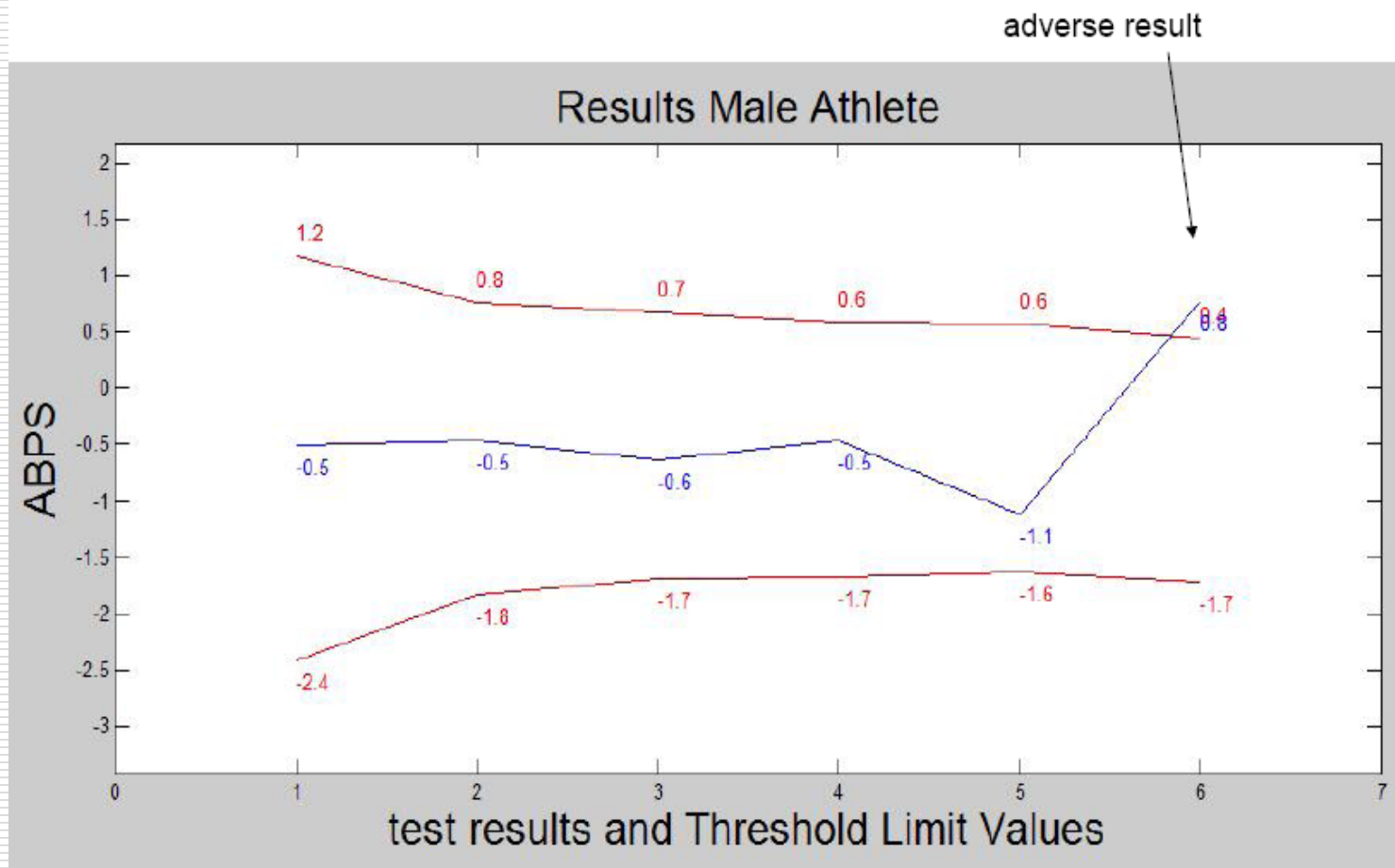
- “Moreover, given that **reservations** have been expressed on the **validity** of the IRMS method, **scientific background** for its use would also be appreciated.”

Discussion

- ❑ I'm not saying Landis wasn't doped on the 20th July
- ❑ I'm just stating that the evidence is overrated
- ❑ Not only athletes should be honest



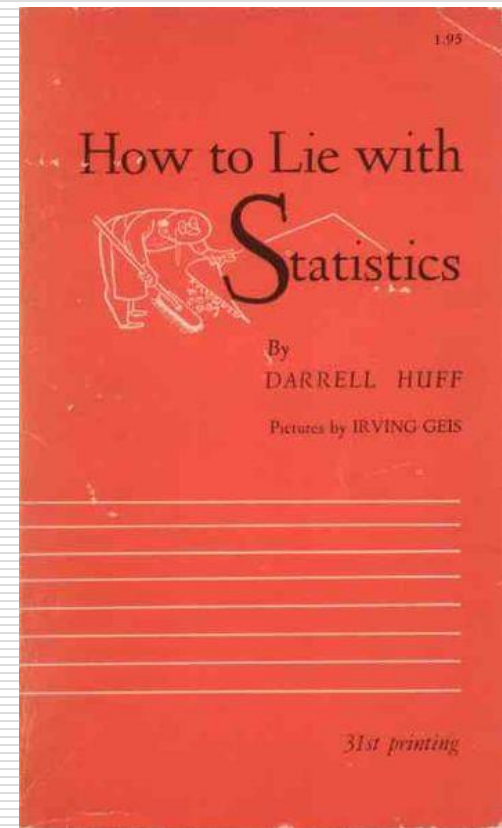
Example 2: biological passport (Lausanne)



Discussion (1/3)

- The UCI claims that “the scientific assessment of a rider’s profile applies **similar principles** to those used in **forensic** medical science to determine the likelihood of guilt.”

- This claim is false, see:
 - K. Faber and M. Sjerps (2009) Anti-doping researchers should **conform** to certain statistical standards from forensic science



Discussion (2/3)

- ❑ Not only is the statistics flawed, but the passport also offers new opportunities to evade testing
- ❑ Bernard Kohl (May 2009): "I had the blood passport for a year and a half, and my blood values were A-1. That's why I got my super contract with Silence-Lotto."
- ❑ Is this mere luck?



Discussion (3/3)

- The methodology is basically copied, quite **naively**, from application areas **where fraud is not an issue**, e.g. medical diagnostic testing; areas where the numbers more or less speak for themselves
- Expensive 'plug and pray'
- Why downplay these opportunities, which in fact are predicted by theory, in scientific publications?

Example 3: EPO (Gent)

- The Belgian triathlete Rutger Beke produced a **false positive** test in 2004: an endogenous protein was **mistaken** for exogenous EPO
- A coincidence or emblematic of a structural deficit?



Example 4: anabolic steroid (Cologne)

□ The athlete claims:

- **Mishandling** of the urine sample (*cf.* Diane Modahl)
- As a result, medication that is known to be thermally unstable, gives **degradation** products
- These degradation products are **mistaken** for an anabolic steroid



Mrs Modahl is determined to prove she is innocent (Lisbon laboratory, 1994)

- ### □ The lab claims **without any proof** that allowed substances are not **mistaken** for the substance of interest

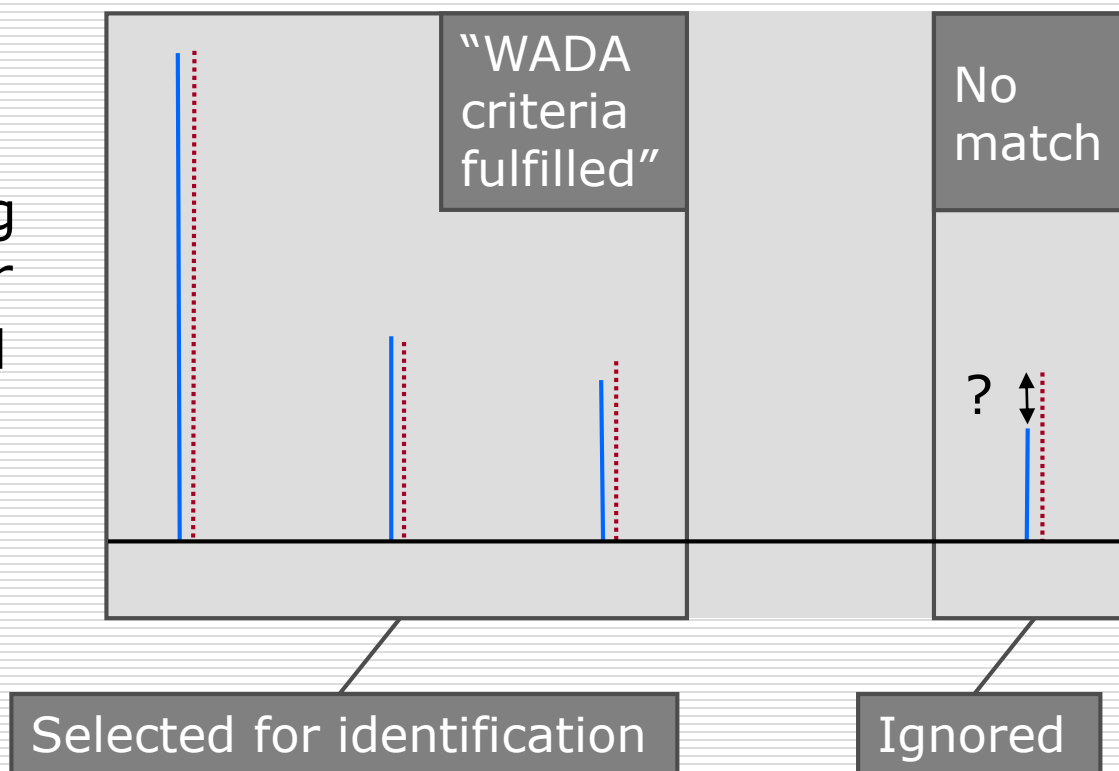
Discussion

- The International Standard for Laboratories:
 - “The ability of the assay to detect **only** the substance of interest shall be determined and documented.”

- This ideal is often not pursued in practice, see:
 - N.M. Faber (2009)
Validation of specificity in doping control: **problems and prospects**

Example 5: anabolic steroid (Gent)

Identification is based on matching the fingerprints for A-sample (—) and reference (⋯), **within a tolerance**



Discussion (1/2)

- WADA technical document:
 - “(...) it is not permissible to (...) select those (...) that are within tolerance and ignore others that would not result in meeting identification criteria without a valid explanation.”

- Why not provide a valid explanation in the report?

Discussion (2/2)

- And why not being honest in scientific work?

- P. Van Eenoo en F.T. Delbeke (2009)
Response on “Regulations in the field of residue and doping analysis should ensure a well-defined risk of a *false positive* declaration” by N.M. Faber
 - “(...) comparison is made based upon a much larger scale.”

Take home message

- Elite sport deserves elite science

- Contact me personally for additional observations, implications, recommendations, speculations, &c.