European Supplement Survey Results

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HFL Sport Science

- World class sports anti-doping lab
- State-of-the-art facilities in UK and USA
- 50 year’s expertise in doping control for sport
  - Horse racing / Greyhound racing authorities
  - Athletics (WADA accredited lab 2004 to 2007)
- Largest commercial supplement and feed testing/ research lab (for anti-doping)
  - ISO17025 accredited Feed testing since 1990’s;
  - ISO17025 accredited Supplement testing since 2002
  - Informed-Sport supplement testing programme since 2008
- Part of global scientific group, LGC, since Dec 2010
Supplement Testing

- Inadvertent doping can occur through ingestion of contaminated sports supplements
- Many reputable companies now undertake extensive testing of their products to ensure they are not contaminated
- HFL has been working with such companies since 2002
- Started with 1 - now test for over 220 companies, 20 countries
- Tested over 40000 supplement samples since that time
- Test for a range of substances that are banned in sport
Sources of Contamination

INADVERTENT, FROM:

• Raw materials
  – Contamination at source
  – Imported raw materials – *levels of QA?*

• Manufacturing Process
  – Cleaning processes and cross contamination
  – Detection levels
What are the levels of “contaminant”? 

- Generally, level of contamination in supplements is low
- Part per billion level (ppb)  
  e.g. 10 nanogram per gram of product
- Much less than impurity testing in food / pharma industry (typically ppm)
- Banned substance testing needs to be considerably more sensitive
How low does contamination need to be to cause a failed drug test?

ADMINISTRATION STUDIES (MSSE, April 2009 and April 2010)*:

• 20 volunteers (11 female, 9 male)
• Administered creatine (5 g) “spiked” with 5, 2.5 and 1 microgram of 19 nor-androstenedione (3 separate trials)
• Urine samples collected over 24 hour period
• Analysed for nandrolone metabolites (WADA threshold 2 ng/ml)

* Funded by HFL, UK Anti Doping, Lucozade Sport and Loughborough University
How low does contamination need to be to cause a failed drug test?*

- 5 microgram study: 75% of volunteers failed
- 2.5 microgram study: 25% of volunteers failed
- 1 microgram study: 0 volunteers failed

Note: Contamination at 10 ng/g x serving of 250 g or 250 ml = 2.5 microgram dose

* Funded in part by HFL, UK Anti Doping and by Loughborough University
Previous surveys

• 2007: HFL study involved analysis of 58 supplements (purchased via stores/internet in USA)
  - 25% contaminated with prohibited steroids
  - 11% contaminated with prohibited stimulants

• 2008: HFL study involved analysis of 152 supplements (purchased via stores/internet in UK)
  - 10.5% contaminated with steroids and/or stimulants

• Both these surveys focused on products that did not undergo regular banned substance testing
European survey 2013

- 24 top* brands selected from 12 European countries
- 114 products purchased (internet/stores) and tested
  - Energy products, protein products, other
  - Powders, tablets, capsules, liquids, bars
- Some products claimed they had been tested for banned substances or were ‘doping free’
- No products on Informed-Sport programme were included

* Source Euromonitor 2013
European survey 2013

Origin of products included in survey
European survey 2013

Results

• 114 products tested
• 11 products contained one or more banned substances
• 20 banned substance findings were observed overall (steroids & stimulants)
• Banned substances detected in capsules, tablets and powders (with highest incidence in capsules)
European Survey 2013 Findings

Anabolic Agents
• Androstenedione
• Androstadienedione
• DHEA
• Androstenediol
• Testosterone
• Norandrostenedione
• Nandrolone

Stimulants
• Methylhexanamine
• Sibutramine
Risk Management

• No certification programme can offer ‘100% guarantee’ that products will not contain any banned substance

• Only test small portion, detection limits are not infinite

• WADA list is open ended – cannot test for ‘every’ banned substance

• BUT regularly tested products, made by reputable companies, are considerably safer compared to non-tested product (so long as testing programme is ‘fit for purpose’)

Risk Management via ‘Fit For Purpose’ Testing Programme

• EU Survey
  - 10% of samples were contaminated

• Informed–Sport programme at HFL
  - 2678 samples tested through Informed-Sport in 2012
  - Only 2 contamination incidences (0.07%).

Samples tested prior to release for sale. Affected batches not released.
Risk Management - Statistics

i.e. risk reduced from 1 in 10 to

less than 1 in 1000

BUT all incidences captured prior to release for sale, so actual risk is negligible