

Investigation into supplementation contamination levels in the UK market

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Introduction

Between 2000 and 2002 a study was undertaken by the International Olympic Committee (IOC) accredited lab in Germany to investigate claims that supplement products available on the market could contain steroids and prohormones that are not declared on the label and prohibited by the World Anti-Doping Agency (WADA).*

Analysis of the 634 supplement products purchased (from 13 different countries) revealed that 14.8% of the products contained steroids and prohormones that were not declared on the label and could result in a failed drug test. Of the products bought in the UK, 18.9% were contaminated.

Six years on, the aim of the present study was to re-evaluate these findings, but with supplement products specific to the UK market.

Methods

A range of supplement products commonly used by male and female athletes was randomly selected and purchased from internet-based supplement outlets, as well as specialist stores/gyms and general stores. The products selected were not believed to undergo regular banned substance testing as part of the manufacturer's quality control processes. The product categories included:

- ⇒ Energy products: Carbohydrate based products, stimulants and sports drinks
- ⇒ Protein products: Milk-based products and weight gainers

⇒ “Other” products: Creatine, multivitamins, weight control, joint support

All samples were analysed for the presence of a range of steroids and stimulants that appear on the WADA prohibited list (using GCMS; Gas chromatography-mass spectrometry and LCMS; Liquid chromatography-mass spectrometry).

Results

- ⇒ In 152 samples analysed, 16 (10.5%) were reported as positive for contamination with steroids and/or stimulants
- ⇒ The “other” product category resulted in the highest incidence of contamination with 7 products (13.7%) revealing stimulant contamination, and 8 products (13.3%) steroid contamination
- ⇒ The most frequent contaminants appeared to be the stimulant ephedrine and the testosterone precursor, androstenedione
- ⇒ The formulation type and retail outlet with the highest incidence of contamination was capsules and the internet respectively

Conclusions

From these results it would appear that the retail category that poses the highest risk to an athlete is the internet outlet. The category sub-type “other” was where most incidences of contamination were seen, particularly in capsules and tablet formulations.

This study highlights that the issue of supplements and contamination, and the presence of steroids and stimulants in supplement products, still remains. Consequently, appropriate quality control procedures and regular banned substance screening are important measures in ensuring the quality of supplements.

*** References**

Geyer H, Parr MK, Mareck U, Reinhart U, Schrader Y, Schanzer W. Analysis of non-hormonal nutritional supplements for anabolic-androgenic steroids – results of an international study. *Int J Sports Med.* 2004; 25, 124-129