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SYNTHETIC GROWTH HORMONE RELEASERS DETECTED IN SEIZED DRUGS: NEW TRENDS IN THE USE OF DRUGS FOR PERFORMANCE ENHANCEMENT

Gone are the days when gym users in search of drugs to boost performance and muscular appearance resorted to drug regimes of just oral and injectable versions of anabolic steroids. Today, information gleaned from seizures made by law enforcement agencies, personal anecdotes and hearsay shared both in gyms and on the internet, drug analysis reports, articles in newspapers and muscle genre magazines and observation of illicit suppliers' websites reveals that a host of synthetic peptide hormones are now available on the 'life-style' drug market [1]. These include growth hormone releasers such as CJC-1295, GHRP-2 and GHRP-6 [2–7]. These drugs have similar effects on the body, mainly triggering the pulsatile releasing activity of human growth hormone (hGH) from the anterior pituitary gland [8]. This hormone, in turn, is involved in the regulation of body composition, due to its anabolic and lipolytic actions, as well as physical performance and wellbeing [9].

Custom officers at Copenhagen Airport (Denmark) intercepted a package from China—shipped via FedEx®—containing five identical cardboard boxes, each holding 10 clear glass vials (Fig. 1). The vials were handed over to the medicine regulatory authority in Denmark (the Danish Health and Medicines Authority) and given to us to examine for research purposes. None of the vials were labelled, nothing was printed on the



Figure 1 Unlabelled vials containing the growth hormone releasers CJC-1295 (orange caps) and GHRP-2 (blue caps) seized at Copenhagen Airport (Denmark)

cardboard boxes and there were no accompanying package leaflets, giving the name of the drugs, strength and route of administration. All vials in four of the boxes had orange-coloured plastic caps; the vials in the remaining box had blue caps. Otherwise, there was no way to tell the vials apart. A closer inspection revealed that the vials contained a white lyophilized powder, presumably for the preparation of solutions for injection. To identify the active substance(s), we analysed the contents of one vial from each cardboard box using high-performance tandem mass spectrometry.

Our analysis showed that four vials (with orange-coloured caps) contained CJC-1295 and one vial (with a blue cap) contained GHRP-2. We also found mannitol in the CJC-1295 preparation—a substance previously detected in illicit drugs, where it is mixed in to add bulk [10]. These findings add to reports of growth hormone releasers found in illicit preparations in Europe [2–7] and Australia [11], and suggest new drug-using trends.

The potential harms relating to the consumption of growth hormone releasers for performance enhancement are unknown. However, users are exposed to risks from a broad range of defects discovered in illicit market products, including unknowing exposure to undeclared active substances, unknown amounts of active substance and/or contamination [12–14]. The marketing of growth hormone releasers as improved ways to increase performance and appearance, compared with 'old' drugs such as anabolic steroids, can be seen as a sign of the increasing commodification of 'life-style' drugs [15]. Further, the existence of global shipment options (including well-established delivery services) that are cheap and fast allows transnational distribution of illicit drugs, as highlighted by this study.

Systematic intelligence-gathering concerning new trends in substance use for performance enhancement purposes and the harms it may cause is needed urgently, especially as tailored public health responses are limited. Health-care professionals encountering users seeking treatment or health-related advice relating to 'performance-enhancing drugs' should be aware of the variety of new drugs on the market.

Declaration of interests

None.

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Keywords Doping, drug monitoring, growth hormone releasers, high-performance tandem mass spectrometry, performance-enhancing drugs, synthetic peptide hormones, the illicit market.

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NEW ALCOHOL POLICIES APPEAR TO HAVE REDUCED TRAFFIC CASUALTIES IN CHILE

In 2012, Chile initiated action set out in its National Alcohol Strategy published in March of 2010 [1]. In the particular plan to reduce alcohol-related traffic casualties, there were three components were included. First, the legal blood alcohol (BAC) limit was reduced from 0.8 to 0.3 mg, and penalties for exceeding this were increased. Secondly, a strong and extensive press and media campaign was launched. Thirdly, law enforcement measures aimed at driver sobriety were intensified, including providing police with portable Alcotests and medical devices for immediate testing of blood samples [2].

After the first 2 years of implementation, the sobriety rates reported by police increased from almost 65% to almost 95%, and the national annual rate of alcohol-related traffic fatalities reduced by 28% (from the previous 10-year average of 252 to 148 in 2012 and 2013) [3]. This heightened sobriety rate could have been due to an increase in the number of random police checkpoints in 2012. However, the rate of sobriety remained constant throughout the year, regardless of the variable intensity of police activity, which suggests that the policies described above may have brought about change in the behaviour of Chilean drivers.