

# SUPPLEMENT

HERE'S A SIDE TO SUPPLEMENTS THAT COULD RUIN YOUR REPUTATION

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ALEX GALANT ENTERED THE 2000 USA POWERLIFTING MASTERS NATIONALS IN BEDFORD HEIGHTS, OHIO, WITH THE CONFIDENCE OF A FOUR-TIME INTERNATIONAL POWERLIFTING FEDERATION (IPF) WORLD CHAMPION, NOT TO MENTION HIS TWO SILVER MEDALS, A BRONZE MEDAL, AND TOO MANY NATIONAL CHAMPIONSHIPS AND AMERICAN RECORDS TO MENTION. AS

EXPECTED, HE OWNED THE 123-POUND CLASS IN THE 50-54 AGE CATEGORY. MAKING EVERY ATTEMPT AND SETTING AMERICAN RECORDS ACROSS THE BOARD WOULD'VE SEALED THE DEAL, HAD HE NOT TESTED POSITIVE FOR NANDROLONE.

NOBODY WAS MORE SHOCKED THAN GALANT. IN THE LAST 12 YEARS OR SO, HE WENT THROUGH DOPING CONTROL ALMOST 20 TIMES, NOT TO MENTION THE IPF DOPING PROTOCOLS HE WAS EXPOSED TO; EACH ONE WITH THE SAME RESULT—NEGATIVE. "I DIDN'T TAKE ANYTHING OTHER THAN VITAMINS, MINERALS, SOME AMINOS, AND PYRUVATE. WHERE THE HECK DID NANDROLONE COME FROM?" HE ASKS.



# DOPING

## SOMETHING OLD, SOMETHING NEW

Sport governing bodies take doping positives seriously. And whenever an athlete claims to be “clean” after testing positive, the initial reaction is hardly ever in favor of the athlete. Galant’s isn’t an isolated case. In total, Olympic drug-testing laboratories reported 343 positive tests for nandrolone in 1999. Christoph Dugarry, a French international footballer, former Australian Open tennis champion Petr Korda, and Olympic gold medalists Linford Christie and Dieter Baumann are other high-profile athletes who have tested positive for nandrolone.

What’s new, however, is the increasingly large number of athletes claiming that, other than supplements, they took nothing and that therefore, logically, the supplements must be contaminated. This “contamination theory” is part of Carolyn Soboll’s defense against a possible two-year doping ban. A German javelin thrower, Soboll has been cleared of charges by her sport’s governing body, but now awaits a decision of the International Amateur Athletic Federation (IAAF) as to whether her case needs to be referred to an arbitration hearing.

Similarly, Galant claims that his supplements



were contaminated. In an all-out effort to prove his innocence, Galant had his amino acids and pyruvate tested by the same lab that found him to be positive for nandrolone. The analysis of pyruvate came back negative. The branched-chain

amino acids confirmed his suspicion, however, as traces of 4-androsten-3, 17-dione and 19-nor-4-androsten-3, 17-dione were found. These compounds are related to anabolic androgenic steroids and are therefore banned substances. “I’m concerned about possible health risks from these substances and embarrassed and humiliated about being branded a cheater,” Galant says.

## HOW IT CAN HAPPEN

So how can you end up ingesting banned substances in all innocence? There are

several possibilities:

- 1** The supplement could contain a banned substance as a stated ingredient, but you may not look too closely at the label, or you may not be aware that the substance is banned.
- 2** The supplement could contain a banned substance within stated ingredients, but you’re unaware of the relationship between the products. For example, you may not recognize that guarana has a high caffeine level or that Ma Huang herbal products contain ephedrine.

## BANNED SUPPLEMENTS

**3** The supplement contains banned substances, yet these substances don't appear on the label. These ingredients could have been added deliberately and not declared, simply to enhance the effect of the substance, or they may have been added inadvertently as by-products. For example, some herbal preparations inadvertently contain ephedra or other herbal alkaloid stimulants contained as a plant source. Some multi-ingredient anabolic supplements have an undisclosed content of pro-hormones that convert into banned substances.

The risk of these problems is really multifactorial. As an athlete, you're responsible for what goes into your body. However, sometimes the most conscientious effort can go up in smoke if you don't understand the many possible sources for contaminated products. In Galant's words, "I've learned my lesson—I don't use supplements anymore."

### WHAT YOU CAN DO

Considering the possibility that your supplement could be tainted, where do you go from here?


**Education is key**. The message: there's a risk that dietary supplements can cause a positive doping outcome, and the responsibility lies with you, the athlete. The risk is small but real, and the price devastating.

**Develop programs** within your sport, gym, school, etc., that help athletes to distinguish levels of risk with various supplements. For example, in Australia an accredited assessment/testing program is being considered that would allow Australian manufacturers to have their products assigned by brand name into categories of "low risk," "unknown risk," "restricted," and "banned." Why not develop your own risk categories for your sport?

**Apply pressure** to supplement companies to produce only high-quality, well-labeled products. Changing government regulations to set up surveillance of the supplement industry is a desirable but almost impossibly huge task. Self-regulation might improve if collectively you demand higher standards. Drop a line to your favorite supplement company and let them know why you've stopped buying their product.

**Don't expect exoneration** because you claim that the supplement was tainted. Even if traces of a banned substance are found in a supplement when it's tested, how do you prove that the tested supplements were from the same batch as the ones causing the positive? How do you prove that you weren't taking other banned substances? How do you circumvent the law of your sport's organization that in most instances doesn't account for *how* the banned substance got into your body? The International Court of Arbitration for Sport has held that athletes are liable for drug offences in that they have a duty to be aware of banned substances and to know what they're ingesting.

**If in doubt, stay clear.** Let's be real. It's one thing to knowingly take a risk and take a banned drug with proven performance-boosting

properties. It's an entirely different story to risk a positive for a supplement with dubious ergogenic benefits. Besides looking at the testosterone:epitestosterone ratio (used in urine analysis), consider the risk:benefit ratio. No more can you expect "natural" to mean "noncontaminated." 

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For more information about banned substances, contact the World Anti-Doping Agency at [www.wada-ama.org](http://www.wada-ama.org) and/or the U.S. Anti-Doping Agency Drug Reference Line at 800-233-0393.

## BANNED

Here's a list of some ingredients in supplements and sports drinks that have been either directly banned by the International Olympic Committee or shown to cause a positive doping outcome:

### **Ephedrine**

### **Pseudoephedrine**

### **Strychnine**

### **Caffeine** (a urinary concentration of >12 µg/ml)

[Editor's Note: Research shows a tremendous amount of individual variability regarding how many mgs of caffeine may cause a positive. A recommendation might be to stay around 3-5 mg/2.2 pounds in body weight while realizing that your typical cup of coffee also varies in caffeine content from 80-150mg/cup.

### **Dehydroepiandrosterone** (DHEA)

### **Androstenedione, androstenediol**

**19-norandrostenedione**, **19-norandrostenediol**, and any related compounds

## GOVERNMENT CONTROL

The Internet, mail-order marketing, and personal travel mean athletes can buy supplements anywhere in the world, so it's important to recognize different levels of regulation in various areas. In Australia, sport supplements fall under the jurisdiction of two government bodies: the Australian and New Zealand Food Authority (ANZFA), which controls sport food products, and the Therapeutic Goods Administration (TGA), which controls pills, powders, and other nonfood supplements marketed as therapeutic. Sport drinks, sport bars, sports gel, liquid meal supplements, and similar products fall within a Foods Standards code. These standards provide for a range of acceptable formulations and permitted additives, as well as a list of permitted or compulsory education messages for product packaging. Individual states and territories adopt these standards within their food laws and ensure that these laws are upheld. Sport safety issues aren't part of the relevant standards for sport food products.

By contrast, in the United States, all forms of food and nonfood supplements fall under the jurisdiction of the Food and Drug Administration (FDA). The Dietary Supplement Health and Education Act (DSHEA), passed in 1994, reduced the regulation of dietary supplements and broadened the category to include new ingredients, such as herbal and botanical products. Unlike in Australia, in the United States pro-hormones are permitted ingredients in over-the-counter products. The DSHEA shifted responsibility from the manufacturer to the FDA to enforce guidelines for safety and claims, but the FDA can investigate a supplement only after a safety problem has been reported. Requirements for good manufacturing practices and accurate labeling are included in the DSHEA, but there has been little enforcement. As in Australia, there's no requirement for manufacturers to provide information or safeguards related to sport safety issues for athletes, even for sport performance products.

**SUPPLEMENT ANALYSIS**

Following are the analyses on the two supplements Alex Galant was taking when he failed his drug test for nandrolone. The first is a test of branched-chain amino acids (BCAA) and under "Pill & Powder Analysis" shows a positive and what was in the aminos. The second analysis, which shows a negative, was for pyruvate.

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Donor Name/ID	BCAA 1000	Date	Time
Accession #: Y2318056		Collected: 07/25/2000	
Donor ID/SSN:	NOT SPECIFIED	Received: 07/26/2000	3:51PM
Other ID:	NS	Reported: 07/27/2000	1:02 PM
Contact Name:		Status: Final Report	
Specimen Type:	VARIED	Request Type: Not Specified	
Employer: NS			

PILL & POWDER ANALYSIS (STEROIDS)

PILL & POWDER ANALYSIS **Positive**

**TRACES OF 4-ANDROSTEN-3,17-DIONE AND 19-NOR-4-ANDROSTEN-3,17-DIONE ARE FOUND**

**REPRINT**

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Donor Name/ID	IPYRUVATE 500	Date	Time
Accession #: Y2318065		Collected: 07/25/2000	
Donor ID/SSN:	NOT SPECIFIED	Received: 07/26/2000	3:52PM
Other ID:	NS	Reported: 07/27/2000	1:02 PM
Contact Name:		Status: Final Report	
Specimen Type:	VARIED	Request Type: Not Specified	
Employer: NS			

PILL & POWDER ANALYSIS (STEROIDS)

PILL & POWDER ANALYSIS **Negative**

STEROIDS ARE NOT FOUND DSHEA info:

[http://news.bbc.co.uk/sport/hi/english/in\\_depth/2000/drugs\\_in\\_sport/newsid\\_114400/1144299.stm](http://news.bbc.co.uk/sport/hi/english/in_depth/2000/drugs_in_sport/newsid_114400/1144299.stm)4-androsten-3,17-dione and 19-nor-4-androsten-3,17-dione

## PRO-HORMONE OFFENDERS

Pro-hormones are the generic name for a group of products that have hit the supplement world and include **androstenedione** , **androstenediol** , **dehydroepiandrosterone (DHEA)** , **19-norandrostenedione** , **19-norandrostenediol** , and related compounds. Each of these compounds is chemically and pharmacologically considered to be an **androgenic anabolic steroid (AAS)**, yet some of these compounds are considered **endogenous** (manufactured by the body) while others aren't.

These pro-hormone supplements are marketed with claims of increasing body levels of testosterone or enhancing androgenic and anabolic effects in the body, though research doesn't seem to support these claims, at least if you're a healthy male taking the doses recommended by the manufacturers.<sup>2</sup>

Now, where you get in trouble is when detection methods used by sport governing bodies find metabolites of these substances in your urine at levels greater than would be found through endogenous production, or at any level at all if the substance isn't produced by your body. Also, the intake of some of these products can lead to an increase in the testosterone:epitestosterone ratio in the urine. The

International Olympic Committee deems that a ratio greater than 6:1 could not occur naturally, and some studies have found that andro and DHEA can cause, in some but not all subjects, a ratio of greater than 6:1. Of most concern is the finding that the 19-norandro compounds produce urinary metabolites that are identical to the metabolites produced after use of the synthetic anabolic steroid nandrolone.<sup>8</sup>

## CONTAMINATION EVIDENCE

A major issue to contend with is that since there are no rigorous government evaluations, quality control of supplement manufacturing is entrusted to the supplement manufacturer. Large companies that produce conventional supplements such as vitamins and minerals, particularly to manufacturing standards used in the preparation of pharmaceutical products, are likely to achieve good quality control. This control, which includes precision with ingredient levels and labeling, can easily avoid contaminants. Problem is, some evidence suggests that this sort of control doesn't occur across the board.

An analysis of 16 commercial DHEA products revealed that only half the products contained the amount of DHEA stated on the product label; content varied from 0 to 150% of the stated content.<sup>8</sup>

A study of nutritional supplements containing *Ephedra sinica* (Ma Huang) reported considerable variability in alkaloid content between various brands of supplements, failure to report the Ephedra content on product labels, and batch-to-batch variability of nearly 140% within the same product.<sup>6</sup>

Many melatonin supplements have failed to meet the quality claims or delivery profiles stated on their labels.<sup>7</sup>

A herbal supplement used by a Dutch cyclist who tested positive for ephedrine contained Ephedra as a stated ingredient, but also contained significant amounts of another alkaloid stimulant that was not declared as an ingredient.<sup>9</sup>



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A ginseng supplement was found not to contain any ginsenosides (the active ingredient in ginseng), but, instead, contained ephedrine. This supplement was used by a Swedish athlete who tested positive for ephedrine.<sup>4</sup>

An expert committee reported to the United Kingdom Sports Council in January 2000 that some dietary supplements contain pro-hormone compounds without obvious signs on the label, that such substances are present, and that they're banned.<sup>10</sup> Logically, the council concluded that users of inadequately or incorrectly labeled products are at risk of unknowingly ingesting a banned substance.<sup>10</sup>

Catlin et al. found that over-the-counter androstenedione was contaminated with 19-norandrostenedione, which produces a positive urine test for nandrolone; furthermore, some brands of androstenedione were grossly mislabeled.<sup>3</sup>

Geyer and co-workers reported the detection of testosterone and various forms of androstenedione and 19-norandrostenedione/diol in three separate commercial preparations from the United States (a chrysin product, a Tribulus Terrestris product, and a Guarana product).<sup>5</sup> All products failed to declare these compounds as ingredients. Furthermore, urinary excretion studies undertaken on volunteers showed that the consumption of even one capsule of these supplements could produce a positive test for the metabolites of nandrolone.

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