

Study on the dynamics of the use of food supplements in amateur sports

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Abstract

Supplements are promoted as energy enhancers and amplifiers of athletic performance and are found mainly in food supplements. The present study reveals some important aspects regarding the dynamics of the use of analeptics in table sports. The study included 580 participants who volunteered for this research. Both men and women participated (63.8% men and 36.2% women), associated with six different sports. Participants were included in the study based on the signing of their consent and their agreement to participate in the study anonymously. All participants were surveyed, where they could complete personal (but anonymous) information about the potential use of analeptics. As 70% of amateur athletes accepted that they used analeptics, and a large number of them admitted that they did not know or were unsure of the biological effects of these substances, suppliers are obliged to provide information to each buyer, informing them about these substances, as proper knowledge about these dietary supplements and their side effects could help them to avoid side effects. The major route of administration of analeptics was oral, followed by parenteral administration. As a result of their administration, amateur athletes noticed various changes due to the side effects of the abuse of analeptic substances: psychological, androgenic, cardiovascular, dermatological and muscular effects.

Key words: Food supplements, amateur sports, abuse, dynamics, side effects.

Introduction

Supplement' is an overarching name for vitamins, minerals, herbal remedies, traditional Asian remedies, amino acids, analeptics and other substances to be taken orally. They may also be referred to as dietary, food or nutritional supplements or ergogenic aids (supplements purported to improve athletic performance) and are typically sold in the form of tablets, capsules, soft gels, liquids, powders, and bars[10]. Some thirty thousand supplements are commercially-available in the USA [9] with approximately half of the adult female population being regular users [10,11,12], with possible adverse effects of unregulated supplement use on health and disease outcomes being of particular interest [1].

The concept of "food supplement" is relatively new, being introduced in the usual vocabulary in the field of food and nutrition in the last two decades of the twentieth century. [2,3] The legal basis for food supplements has been laid in the United States, after a long period of disputes between the Food and Drug Administration (FDA) on the one hand, and producers and consumers, on the other. [4]

In the European Union, this category of products has begun to gain ground after the recognition, on a growing scale, of the role of nutrition in maintaining good health. Numerous studies have shown that pollution is becoming more intense of the environment (air, water, food) and the daily stresses of modern life, often lead to sub-optimal states of health that need to be counteracted. [5,6]

In this context, the increase of the general resistance of the organism and the maintenance of its own physiological functions have become absolute priorities for the competent forums of each country. Dietary supplements are used by at least 40% of athletes, and depending on the sport, up to 100%. Often multiple supplements are taken in higher than normal doses. Both competitive and recreational athletes take supplements, though sometimes for different reasons. Some take them to support a poor quality diet; others take supplements because they simply feel that an ordinary diet, even a good one, is unable to provide the necessary nutrients in adequate quantity. Female endurance athletes frequently supplement their diet with extra iron, with natural losses exacerbated by hard training, menses and often a low intake of iron-rich red meat.[7]

Analeptics with accurately listed compounds and substances can also be harmful. High levels of supplements intake can lead to toxic side effects. For example, the relationship between caffeine intake and resulting side-effects such as high blood pressure warrant further study [18,19]. Whilst the controversial natural stimulant, ephedrine, has a threshold (concentration in the urine exceeds 10 µg/ml) for consideration for doping [20], the serious harm, which may be caused by ephedrine is well documented [21,22] and the direct evidence eventually led to a ban on ephedrine in 2004 by Food and Drug Administration (FDA), USA

Therefore, the purpose of our study is to analyze the dynamics of the use of analeptic substances, with the help of a representative sample of volunteers, belonging to different sports practiced by amateur athletes.

Material and methods

The study included 580 subjects that volunteered for this research. They were both male and female and associated with different types of sports. The participants were included in the study based on their signed informed consent and their agreement to participate in the study anonymously. All participants were subjected to a survey, where they could fill personal (but anonymous) information regarding the potential use of analeptic substances.

Results and Discussion

A total of 580 recreational athletes, 370 (63,8%) males and 210 (36,2%) females participated in the study.

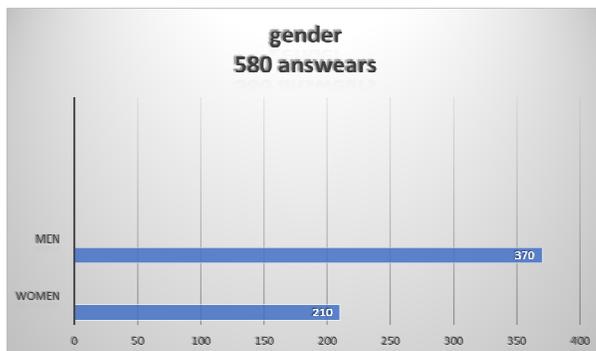


Fig.1. The distribution, according to their sex, of volunteers that participated in the study. The distribution, according to their sex, of volunteers that participated in the study. The athletes taken into study were divided, according to their age, as follows (figure 2):

- Between 15-20 years old: 60 subjects
- Between 21-26 years old: 90 subjects
- Between 27-32 years old: 200 subjects
- Between 33-38 years old: 140 subjects
- Over 33 years old: 90 subjects

Considering their age, the majority of sportsmen that admitted having used analeptic substances were between 27- 32 years old, accounting for 34,5 % of the total inquired subjects. In contrast, the smallest percent of athletes that used these substances were aged 15-20 years old (10,3%) (figure 2).

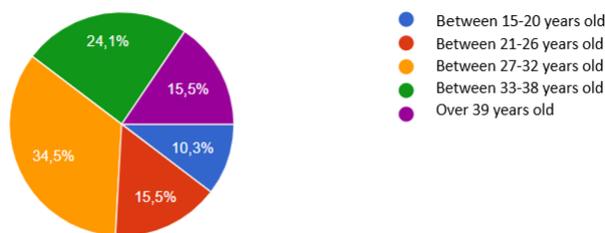


Fig2. The distribution, according to their age, of volunteers that participated in the study. The study comprised athletes of 7 different sports as follows (figure 3):

fitness - 340, aerobic- 20, jogging - 40, cycling - 60, karate - 60, rock climbing -15 , hang-gliding -5

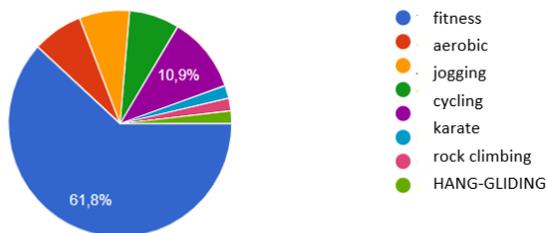


Fig.3 The distribution, according to the practiced sport, of the volunteers that participated in the study

From the athletes questioned, a number of 406 (70%) accepted that they did take supplements. Within this group there were 280 males (48, 24%) and 126 females (21,76%). In the category of consumers, a majority group of 30% is distinguished, namely those who have resorted to supplements in 2-3 courses per year. The rest of the athletes marked that they never used supplements (figure 4).

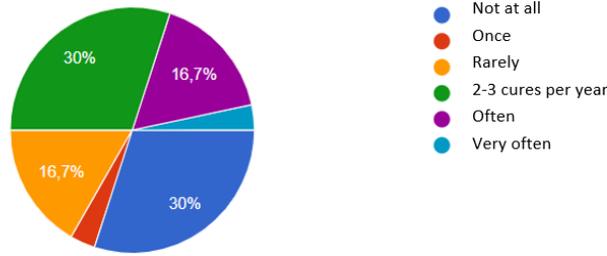


Fig. 4. The distribution of the participants in the study, according to their admission of using supplements

Regarding the factors/ causes that led the players toward using supplements, the most claimed triggers were the weight loss, followed by increased muscle mass and supporting the immune system. (figure 5)

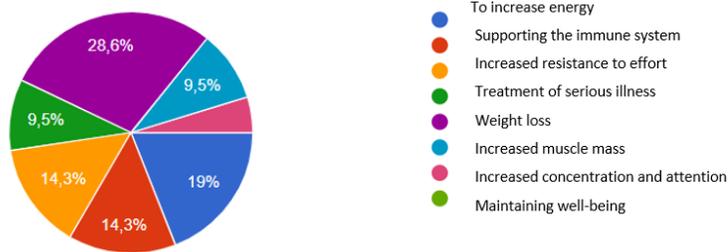


Fig.5. Factors leading the players toward using supplements

When asked whether they knew the possible biological effects after the administration of supplements, 18,2 % of the respondents admitted they were not sure of the effects, 4,5 % were not interested in the consequences, while 68,2 % were not aware of the side effects (figure 5).

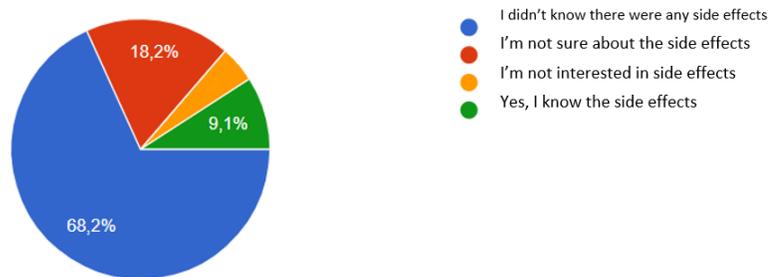


Fig.6. The percentage distribution of the participants in the study, according to the awareness regarding the biological effects of supplements

Inquired about the pharmacological formulation of the supplements, the majority of athletes responded they used oral administered forms (90,9%), while 9,1% used intramuscular formulations. (figure 7).

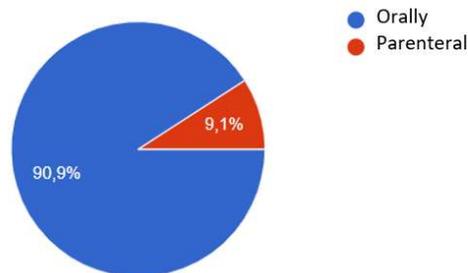


Fig.7. The percentage distribution of the participants in the study, according to the used

route of administration for supplements

The effects or modifications noticed by the study participants throughout the organism and even on their behaviour after the administration of supplements were assessed by the inquiry form (figure 8). No side effects were the most frequently registered (65,2%), followed by arrhythmia (13%) and vertigo (8,7%) effects. Other changes were observed at hypotension, tachycardia and allergic reaction.

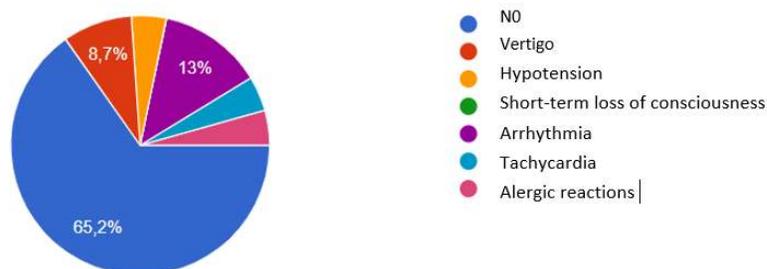


Fig.8. Registered effects after supplements administration

Regarding the factors/ causes that led the players toward using supplements, the most claimed triggers were the personal success, to please his partner and the uncertainty consequent to/associated with competition in life or at work.

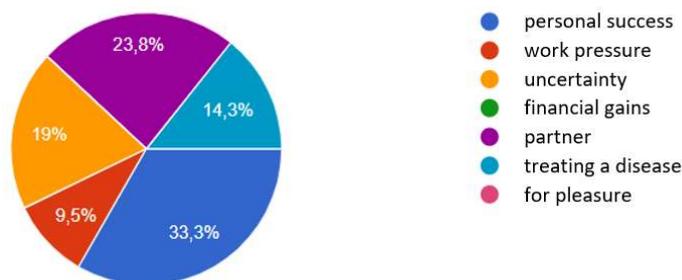


Fig.9. Causes leading the sportsmen toward using supplements

Conclusions

An increasing number of people interested in maintaining and improving their health are using food supplements for this purpose. In order to make an informed choice, consumers need to be well informed before purchasing and using a food supplement. Strengthen your consumer power by reading labels correctly and choosing the right and safe products.

Avoid products that are described as "miraculous", that have only no side effects, or that contain "a secret ingredient", as these are often false.

The common term "natural" does not always mean "harmless"; for example, there are certain botanical products that are harmful to the body. Avoid taking more than two or three food supplements at the same time, as some side effects may cause some side effects; shift and administration hours, take them 2-3 hours apart for better absorption and efficiency. The present study reveals several important aspects regarding consumption of analeptics among the amateur athletes

Since more than 65% of the athletes accepted that they used analeptics, and a great number of them admitted they did not know or were not sure of the biological effects of these substances, officials are required to offer information to every player informing them about these substances, because adequate knowledge about these food supplements and their adverse effects might help them to use properly these substances. The major route of substances administration was the oral one, followed by intramuscular ones. Consequent to their administration, athletes noticed different modifications due to the side effects of analeptics: cardiovascular, dermatologic and muscular effects. Psychological and social factors may contribute to the athletes' desire to use analeptic substances. These factors include the desire to enhance performance, the eventual criticism by partner, the lack of self confidence. The general psychology of the sportsmen is that in their activity only performance matters, no matter how they achieve it.

In conclusion a central issue in researching supplement use is the paucity of regulatory control of supplement providers coupled to a poor understanding within the user community. However, in broad terms many supplements have been associated, rightly or wrongly, with performance enhancement and/or health

maintenance [23,24] including: caffeine, ephedrine, creatine, adenosine, whey protein, antioxidants, ginseng, multivitamins, vitamin C, iron, Echinacea and magnesium supplements. To illustrate the complexities of studying this field, some thirty thousand individual commercially-available supplements exist [24] and over 60 supplements were listed in a recent UK survey [25].

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