

# NUTRITIONAL SUPPLEMENTS AND THEIR USE WEIGHTS AMONGST THE AMATEUR BODYBUILDERS

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**Abstract:** *In bodybuilding, the physical training takes different aspects, in particular the relationship with a specific diet and a substantial contribution of nutritional supplements. The diet for amateur bodybuilders is usually poor, having a negative impact in achieving sportive performance, because the muscle strengthening is closely bounded to vitamins, proteins, carbs, minerals, etc. In this study we have tested the hypothesis according to which in bodybuilding, achieving a good physique and sportive performance is not possible without nutritional supplementation.*

*The study revealed that the athletes manifest a great interest into diet, corroborated with a protein supplementation in different concentrations.*

**Key words:** *performance; nutritional supplements; bodybuilding; doping; training;*

## 1. Introduction

Bodybuilding, as body shaping physical activity, as close to what it currently represents in the sports system, is the result of the evolution of the human society, and, in particular, it appeared from the structure of the professions, which are more and more static [1].

Longing to be healthy and tonic is innate in every human being. Lifting weights in the daily gymnastics is an acknowledged means, that ensures health and harmonious muscle development [8]. The

people deploying sedentary activities discover, to their satisfaction, that by training with weights they can increase their working capacity [12]. Bodybuilding training can be practiced by anyone, anywhere (at home, in specially arranged bodybuilding clubs), and with simple means.

There is also the perception (and there is no doubt about it here, especially when it comes to professional bodybuilding) that you can't achieve performance without the help of steroids, which are banned at the Olympics and is contrary to

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the Olympic spirit [9].

The fitness bodybuilding industry is increasingly developing, there are gyms providing full services for body training, cardio and strengthening equipment, nutritional supplements, entertainment options, their goal being to meet as closely as possible the needs of the practitioners looking for an environment as pleasant as possible in terms of space and provided services [10].

Bodybuilding practitioner's weights lifting training is not dangerous but, on the contrary, it strengthens the health and it may be done by anyone who does not suffer from serious organic disorders. The muscle speed and coordination of those trained with weights are higher than of those not trained with weights [4].

Athletes hold multiple knowledge about the theory of sports training as well as about nutrition, medication and even doping, although their diet is many times deficient, due to lack of time or financial resources, which has a negative impact on achieving sports performance [6], for muscle hypertrophy, strength and muscle defining are closely related to vitamins, proteins, carbohydrates, minerals, etc.

Nutritional supplements are conditioned preparations in the form of pills, capsules, gumdrops, powder or liquid, which contain nutrients (macronutrients and micronutrients) and/or other edible agents, that are consumed in well-defined quantities, additionally to the usual food intake [3].

Effort supporters are natural or synthetic physiological compounds, that interfere with energy-release reactions in the athletes' body [2]. They are a specific group of natural or synthetic physiological products, that usually act to compensate the metabolism, by replenishing up to

overcompensation the body's energy reserves [5].

Training's contents require to have an adequate diet [7], both to sustain the effort and to enable appropriate recovery following effort. Physical efficiency is directly related to the energy released by food, which is the underlayer of the body's energy potential [11].

Conducted between October 2019 and March 2020, our study aims to validate **the hypothesis** according to which it is impossible to attain sports performance in bodybuilding without supplementing daily food intake with nutritional supplements, both by professional athletes, who participate in the competitions, and by „*de loisir*” practitioners, such supplementing being a frequent practice in bodybuilding clubs to enhance performance.

## 2. Material and Methods

The subjects of the study were 104 practitioners of fitness bodybuilding. The subjects practiced or practice fitness or bodybuilding activities in 6 locations. There were surveys and discussions had with the individuals directly involved in the sports activities deployed there.

The research methods were the Method of documentation, the Method of observation, the Sociological inquiry – the survey.

In the current study, the survey was designed to ask the subjects' opinion from various points of view.

### **SURVEY regarding the role and intake of nutritional supplements in the sports diet**

1. Are you a legitimate athlete or do you practice bodybuilding as a hobby?
  - Athlete
  - Hobby
2. Do you use nutritional supplements in your diet?
  - Yes
  - No
3. If yes, how many times
  - Once
  - Twice
  - 3 times
4. What type of supplements do you use?
  - Solid (bars)
  - Liquid
  - Powder
  - Pills
5. What mix of supplements do you use?
  - Amino acids
  - Protein
  - Based on carbs
  - Mixed
6. Do you use fat burners?
  - Occasionally
  - In the period before competition
  - Weekly / monthly
7. In your opinion, nutritional supplements are harmful to your body?
  - Yes
  - No
  - I don't know
8. How well informed are you in terms of origin, ingredients and effects of the supplements you use?
  - Very well
  - Well
  - At all
9. In what extent do you consider that supplements help you to achieve your training goal
  - to a large extent
  - to a small extent
- I don't think they help
10. How much money do you spend in a month to buy these products?
  - less than 100 lei
  - between 100 and 200 lei
  - between 200 and 300 lei
  - more than 300 lei
11. Are you able to ensure your daily calories requirement without these nutritional supplements?
  - Yes
  - No
12. How well informed are you about doping substances (and their impact on the body)
  - Very well
  - Well
  - Satisfactory
  - At all
13. Have you ever taken doping substances in your sports activity?
  - Yes
  - No

The discussions with the subjects under study (trainers and managers of the companies or clubs where the athletes were working), as well as with other specialists, took place before the actual implementation of the survey, being necessary to ground our scientific endeavour.

We hereby specify that the number of surveys performed was varied, depending on the number of subscribers to the clubs. The surveys were filled-in within 5 to 8 minutes, and the answers only asked for those aspects referring to motivation in sports activity or to improvement of the conditions in the clubs in the field.

### 3. Results and Discussions

The answers collected from the respondents have been centralised as tables and plots, for a better view of the

aspects under study.

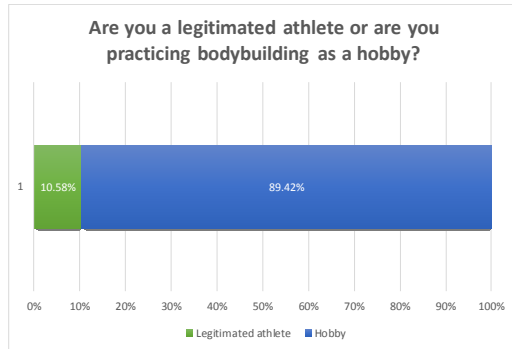


Fig. 1. *Weight of answers to question no. 1*

Out of total 104 respondents, 11 are legitimate athletes in the specialized clubs in Bacau (approx. 10,6%) and race in national competitions, and 93 are amateur practitioners (of passion, hobby) of this discipline (approx. 89,4%).

In case of question no. 2, it is obvious the confidence that athletes put in the use of these nutritional supplements and we understand that, at list in their view, the supplements are essential to obtain sports performance.

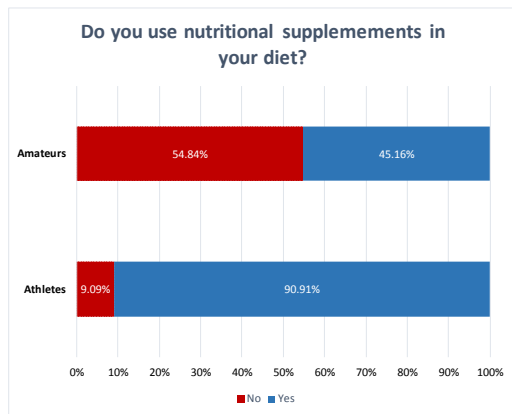


Fig. 2. *Weight of answers to question no. 2*

As far as question no. 3 is concerned, we may highlight that, while athletes stick to their caloric intake as a daily ritual,

because they understand their scientifically proven role and therefore, they respect the instructions of the manufacturers of those supplements, well, the other practitioners, for some reason, they approach this supplementation as something optional, without having a strict discipline.

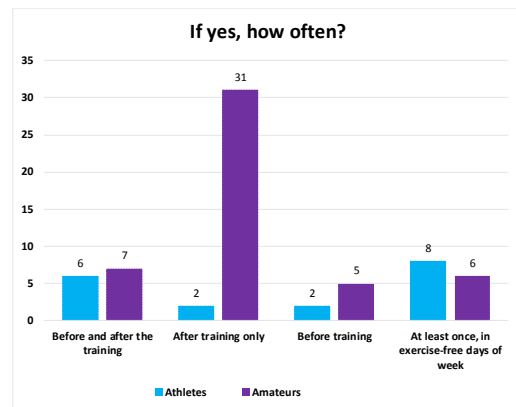


Fig. 3. *Weight of answers to question no. 3*

Considering the training in the gyms, as far as we observed in almost every club where we have initiated this survey, many focus on powder protein supplements, either due to taste or to faster absorption in the body or because of their instantaneous preparation and, not lastly, due to their better price, which explains the percentage obtained.

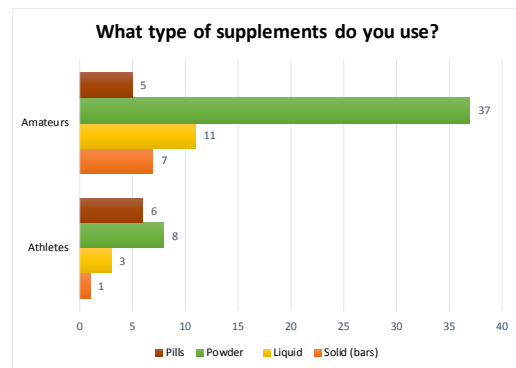


Fig. 4. *Weight of answers to question no. 4*

In case of question no. 5 there is a variety of options, the proteins being mainly used, and this is explained by the fact that most literature sources consider proteins as „the bricks of muscle mass”.

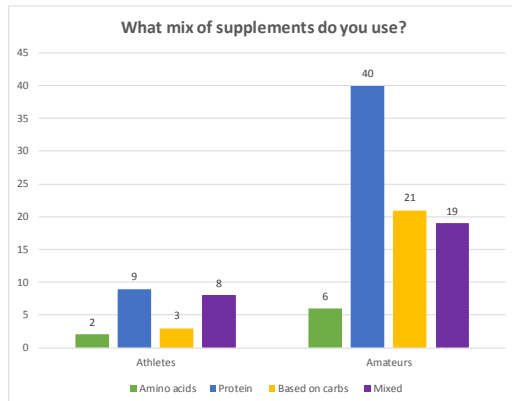


Fig. 4. *Weight of answers to question no. 5*

Those who have extensively chosen mixed supplements, justified their choice by their goals, meaning to gain weight and muscle hypertrophy. 21 respondents have chosen carbs as main source of caloric intake, for it is known that carbs trigger an „explosion” of muscle mass and strength, even if the „quality” of the muscle mass is obstructed by the fat tissue.

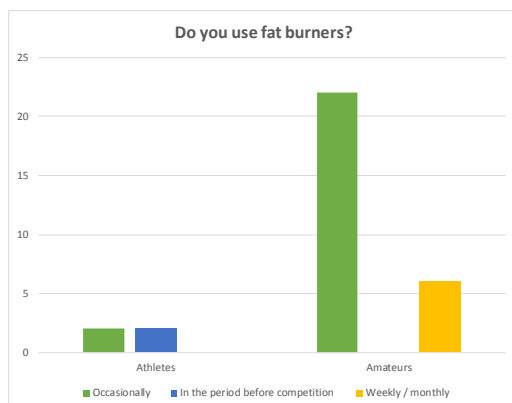


Fig. 5. *Weight of answers to question no. 6*

The answers were sort of anticipated to

question no. 6, because fat burners are used in the competition period by legitimate athletes to gain pronounced muscle definition by draining the water under the tissue, and, in case of amateurs, most often women, the wish to obtain remarkable and fast results was noticed.

Question no. 7 helps clear up a myth, that forbidden substances are used in bodybuilding; hence, the interviewed athletes have answered almost unanimously (9/10) that nutritional supplements do not harm the body, but, on the contrary, they use the supplements very strictly, and during our discussions they have insisted on clear distinction between substances authorized by the Ministry of Health and the doping substances, that they do not embrace.

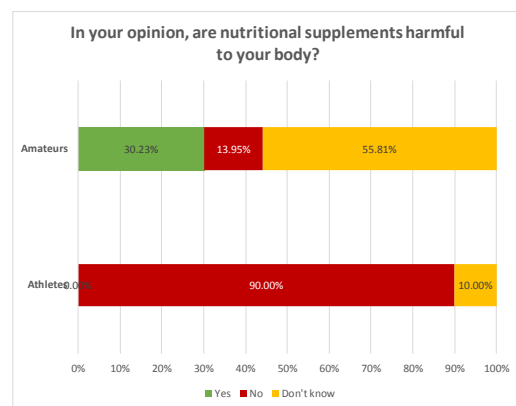


Fig. 6. *Weight of answers to question no. 7*

At the same time, a high number of amateur practitioners have expressed their opinion that these supplements do harm the health, although, for not making the scope of the current study, we were unable to find out their reasoning; many said that they do not have information about the potential effects or not, but they do embrace the idea of using them because they are certain that the supplements are checked and authorized

by competent bodies in this case.

Considering that, in general, the consumers of such products and this sports branch have minimum information about the brands in the field, most of them order online the products they like from various brands or they consume in the club lobby strictly after training various products available. It is certain that the consumer is less interested in the origin and more interested in the quality (colour, taste) and main ingredient.

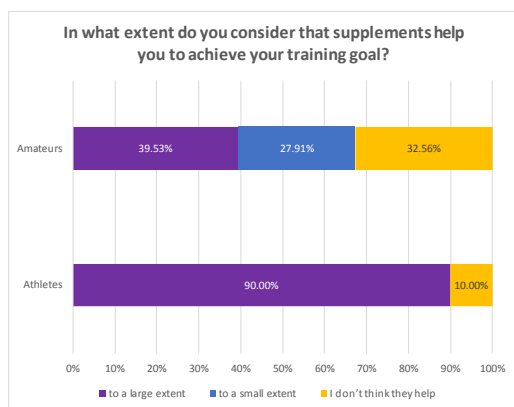


Fig. 7. *Weight of answers to question no. 9*

If the proportion of legitimate athletes who believe that nutritional supplements help them reach their goals is overwhelming (90%), expressing their confidence in the effects of the consumption of supplements, in the case of amateur practitioners the opinions are split almost equally between sceptical and fully confident.

We may somehow interpret the results in conjunction with the confidence the users have in supplements. Therefore, performance athletes highly rely on a balanced diet and sufficient caloric intake, meaning support of minerals, vitamins and other nutritional substances, and they invest relatively significant amounts in this considering an average income, because

such supplements exist independently of their training period (competition or before competition), while amateurs do not make a religion from buying those supplements but they neither give up on them, many considering that „maybe supplements are not good for me, but for sure they are not bad for me”.

Considering that there is no statute of professional in this sports, it results that athletes have the most diverse jobs, with regular working hours, with families and related obligations, with varied incomes and, therefore, many times they make financial and time sacrifices. The answers obtained entitle us to claim that they are not able to ensure their caloric requirement only from their daily diet, either due to work of the day, or to other time-consuming obligations. Depending on weight, training level and training difficulty, an average bodybuilder needs approx. 3-4k calories per day, which means 4 to 6 meals per day, that require time to purchase, prepare, etc. From this it results the need of the support of such supplements.

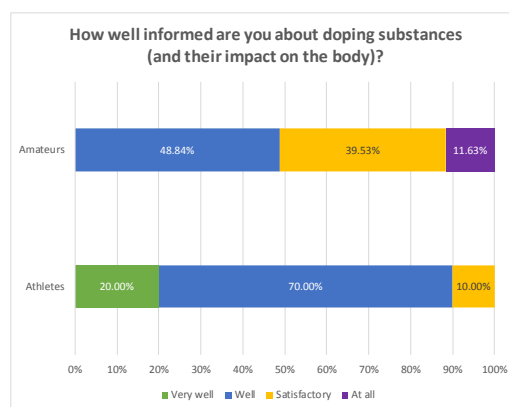


Fig. 8. *Weight of answers to question no. 12.*

Centralized answers confirm that, in general, individuals are aware of the

effects of the doping agents on the body, in particular of the negative ones, fact revealed by the percentage of almost 50% amateurs and 70% legitimate (fig. no. 9), although a sufficiently high number of amateurs are not aware at all of the doping agents' effect on the body, case that does not exist with legitimate athletes. It is true that information about those types of substances require often medical, pharmaceutical, biochemical knowledge, which is not available to parties not interested in. Instead, a concern for minimum information was observed, for general knowledge level or, on the contrary, as a concern in case it could be used.

Centralized answers do not surprise us somehow due to, in bodybuilding, as in many other sports there is a real tendency to obtain results at any risk, in whatever form; appreciating that the answers were honest, we consider that those 40% who used them at least once is alarming, and this might be a deeper theme of study; while 28% of the amateurs already tried those substances, we may assert that such substances were occasionally consumed by them, out of interest or for eager to achieve immediate goals in the shortest time. Anyway, 72% is a high percentage, which expresses the refusal of many of those who embraced this activity to obtain results in whatever form and at any risk.

#### **4. Conclusions**

Following centralized data, we may claim that for the most part, the hypothesis according to which it is impossible to obtain sports performance in bodybuilding without adding nutritional supplements to daily intake [13], both in case of legitimate athletes who race in

competitions, and in case of „de loisir” practitioners, such practice being frequent in the clubs in the field to increase performance, comes true [11]. We claim „for the most part” because our current endeavour would have been complete if we would have also considered a lot of athletes that we monitor both before and after the competition period, in order to prove undoubtedly the position impact of nutritional supplements on performance.

The most important conclusions to be drawn from this study are:

1. Fitness / bodybuilding athletes, legitimate or not, pay high attention to food intake, corroborated with protein supplements in various concentrations and doses.

2. An interesting fact is that a very high number of interviewed individuals are fully aware when they procure, consume and take those supplements.

3. It is also very important, and this was also one of our goals, to separate products agreed by the relevant bodies in the field (ministries, agencies with competence in people's health, etc.) from doping substances, and, therefore, to clear out the myth that vilifies this sports branch, a myth according to which all bodybuilders are doped.

4. Perhaps if those supplements would cost less, the number of consumers and, therefore, the performance, would rise. It is obvious that in this world, athletes, amateurs and professionals, have used / continue to use those supplements which, after all, do not have negative effects, at least that was revealed in the discussions we had.

As proposals, following the study, we appreciate that the clubs in the field could and must provide to interested individuals' quality products that are

authorized by the relevant bodies and, more than that, they should guide the athletes with the help of the trainers and physicians (in the case of clubs), in such way that athletes consume supplements closely related to their goals.

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