

Knowledge and Use of Dietary Supplements in Gym Going Population of Thane District, India

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ABSTRACT: Current population of the world is highly inclined towards health, fitness and aesthetics. These can be achieved with an active lifestyle and a healthy balanced diet. For such a population, apart from the regular food, dietary supplements in form of protein powders, creatine, glutamine etc may play a major role in boosting their nutrition levels. These products do have their downside with their short term and long term side effects. This survey intended to study the use of dietary supplements and awareness about them among non athletic gym going population. Method: A community based cross sectional survey was done on 100 gym -going non athletic individuals chosen by convenience sampling. Conclusion: There is widespread use of dietary supplements among non-athletic gym going individuals. Most of the consumers were introduced to these products by their gym trainers or friends. Nearly 35% of the users were unaware of any possible side effects despite using them.

KEYWORDS: Dietary supplements, proteins, creatine, knowledge, non-athletic.

I. INTRODUCTION

It is well known that there is growing awareness about the concept of body image and aesthetics. Most of us are concerned about our appearance. This trend is mostly influenced by the concept of the perfect body, a trend portrayed and propagated by the media [1]. People of all ages get deluded by this trend, especially adolescents. When it comes to comparison among genders, Algars, M and Santtila, P et al., found that females were more concerned about their body image than males [2]. It was further emphasized by Drewnowski A and Men et al. that females were concerned more about being overweight and tried to lose weight whereas males were concerned about being underweight and tried to put on muscle mass [3].

In order to achieve these results, it is important to have an efficient training program, adequate rest, nutritious diet. Exercise results in development of strength, endurance, flexibility. Desired component may be targeted based on exercise prescription. Resistance exercises are aimed towards muscle building, thus sculpting the body. These exercises work by causing micro trauma to the muscle fibres signalling increase in the protein synthesis [4]. Protein requirement increases after performing intense resistance exercises, in order to repair the muscle micro-trauma [5]. This increased demand may be met with a balanced diet. Sleep too plays a crucial role in muscle recovery. It causes surge in the Insulin-like Growth Factor-1, testosterone, hormone responsible for muscle growth [6], while reducing the amount of cortisol, a hormone which is secreted during stress & low blood glucose level [6]. Dietary supplements may play a major role in boosting one's chances of meeting this increased nutritional demand. These dietary supplements are taken in form of protein powders, creatine, glutamine etc. These products are reported to increase muscle mass and overall performance of the consumers [7]. Products like Creatine are very popular for their effects in resistance training. They are commonly used as sports supplements. Consumption of Creatine causes increase in the muscular strength [8]. Its regular consumption has been found to increase fat free mass in elite athletes as well as untrained individuals [8]. Creatine enhances the body's capacity to perform high intensity work and assists greater muscle size, possibly by its water driving effect and formation of new muscle tissue [9]. Protein powders are available in various forms. The three common ones are Whey, Soy, and Casein protein. Proteins are well known for their building ability. An average person

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who is not a competitive athlete requires at least 0.8 grams of protein per kilogram every day. [10] Some other commonly used products are Fat burners, pre workout products and glutamine.

These products do have their downside with their short term and long term side effects. Short term side effects include digestive problems, headache, muscle cramping etc. Long term side effects are reported as cardiovascular problems, kidney stones, kidney failure, gout etc. The level of awareness about these products and thus judicious use of them by the people is questionable. A comparative study by Antonino Bianco, Caterina Mammina et al. in Palermo, Italy found that about 24% of the dietary supplement consumers were taking protein and creatine together. Most of them were unaware of the appropriate quantities in which these products were required [11]. A study by Janine Lavalli Goston in Brazil also indicated that about 55% of dietary supplement users were consuming them without any professional guidance [12].

Earlier studies done in different countries indicate that a large number of gym going population is consuming these dietary supplements. But there is lack of awareness about the indications, required amount, and possible side effects of these supplements. They were found to be consuming the supplements without any professional guidance. Lately, India has also witnessed a surge in number of people attending gym and fitness centres. Indian population exhibits varying levels of education and socio-economic status as compared to the above mentioned countries where awareness regarding the dietary supplements have been evaluated. There is dearth of evidence suggesting usage and awareness about the dietary supplements among the Indian population. Thus, this survey intends to study the use of dietary supplements and awareness about them among non athletic gym going population of local area i.e. Thane district, India.

II. RELATED WORK

Yuko Yamamiya and Thomas Cash et al., signified that exposure to thin-and-beautiful media images adversely influenced the body image of participants with high internalization levels. [1] Drewnowski and Men et al. found that females were concerned more about being overweight and tried to lose weight whereas males were concerned about being underweight and tried to put on muscle mass.[3] Lemon PW indicated that requirement of protein increases after performing intense resistance exercises in order to repair the muscle breakdown.[5]Clarkson PM, Rawson ES reported increase in muscle mass and overall performance of the consumers of nutritional supplements.[8] Antonino Bianco, CaterinaMammina et al, concluded from their study that the use of protein or combination of protein, creatine and amino acid supplementation were highly prevalent amongst gym going population of in Palermo, Italy .[11]

III. METHODOLOGY

Research Approach: Community based cross sectional study

Sampling: Convenience sampling.

Sources of Data Collection: Gyms in Thane district

Sample Size: 100 Gym going individuals

Duration of Study: 3 months

Inclusion Criteria: Individuals who go to the gymnasium to perform resistance and cardiovascular exercises.

Exclusion Criteria: 1) Competitive athletes attending gym

2) Individuals from field of healthcare

Procedure:

The data for this study was collected with the help of a validated questionnaire .The questionnaire was modified from various previously performed studies and validated, in order to accommodate the differences in the intended populations of study. A pilot study was done using the same. Required changes were done in accordance to the results of the pilot study and the resultant questionnaire was used in this study.

Written informed consent was obtained from all the participants of the study. Information regarding their identity obtained during the study has been strictly kept confidential. The Questionnaires were administered to 100 gym going individuals through: 1) Face to face administration of the questionnaire 2) e-mail distribution of the questionnaire, with questionnaires returned to the authors by e-mail.

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The questionnaires were analysed using simple percentages and graphs. Qualitative statistics was used to describe the data.

IV. RESULTS

Analysis of the study data provided following information:

In the present research it was found that 65% of the target population followed a balanced diet with or without supplementation 84% of study subjects were found to be consuming some form of dietary supplements (Fig 1) 85% of the subjects using supplements were males and 15% females

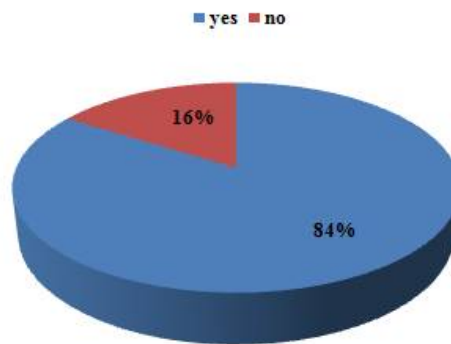
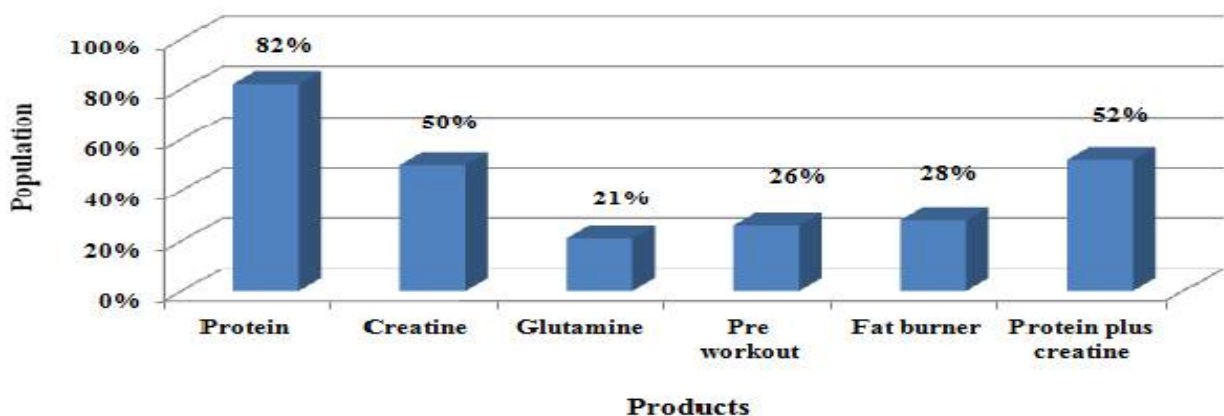


Fig 1: Use of Supplements

42% of study subjects (using supplements) were aged between 26-30 years. A Small percentage (8%) were in the age group of 15-20 years. 48% consumers were introduced to supplements by their trainers, and 30% by friends 71% of the targeted population desired to gain lean muscle mass & 72% desired to improve strength with the use of the supplements. Proteins (82%) were the most used products and glutamine (21%) was used the least (Graph 1).



Graph 1: Usage of different Supplements

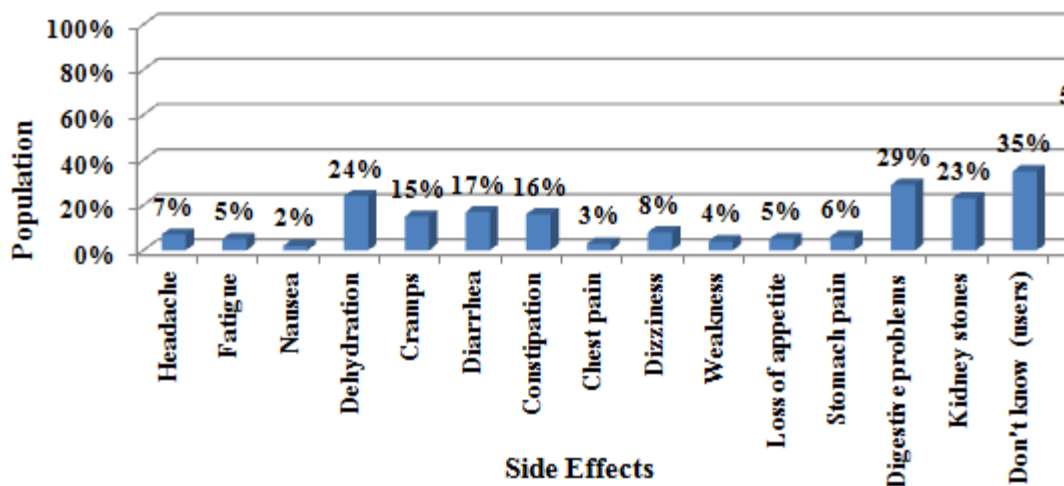
35% were unaware of any side effects of these products despite using them.

International Journal of Innovative Research in Science, Engineering and Technology

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Website: www.ijirset.com

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Graph 2: Awareness about side effects

Some consumers reported to have experienced some side effects of these products viz. digestive problems (22%) constipation (20%) & diarrhoea & (19 %,) (Graph 2). Whereas 30% consumers had never experienced any side effects till the date of filling the questionnaire.

V. DISCUSSION

Earlier dietary supplements used to be exclusive to professional bodybuilders and athletes. Increasing awareness regarding body image and aesthetics along with easier availability has lead to increased usage of these supplements by the common non-athletic population attending gymnasiums. This survey was done to check the awareness & the usage of the dietary supplements amongst the gym going population of Thane district.

An adult requires 0.8 grams of protein per kilogram of body weight per day [13]. This daily requirement of protein increases to 1.2 to 1.7 grams per kg of body weight for a regularly exercising individual and athletes [5]. It is difficult to complete this increased protein demand by regular diet alone. On an average, a large size chicken egg white contains almost 4 grams of proteins. So, an individual weighing 80 kgs will need to consume 16 egg whites daily in order to match his daily protein requirements (around 64 grams of proteins). This may not be an easy task for everyone. This could possibly be reason for usage of these supplements.

In our research we found 65% of the study subjects followed a balanced diet with or without supplementation. 84% of our subjects were consuming dietary supplements. Among the users, 85% were males & 15% were female. In a survey done by D. El Khoury and S. Antoine-Jonville in Beirut city, Lebanon, 40% of the dietary supplement users were found to be female [14]. It can be noted that number of females using dietary supplements the study is more as compared to the present study. In the present study low female participation could be one reason for this finding. Secondly they were found to be more inclined towards losing weight rather than increasing muscle mass.

Majority (42%) of the study subjects were found to be aged between 26-30 years. This indicates growing awareness about fitness and aesthetics among the younger generation. The younger generation desires quick results as well. 71% of the subjects desired to gain lean muscle mass & 72% to improve strength .Dietary supplements could hasten these effects when combined with proper exercise training. Present study also found a small percentage of subjects in the age group of 15 to 20 years. Harvey Guyda also found popularity of these supplements among adolescents and college athletes. [15] But, the percentage of subjects in this age group was found to be 38%, which is quiet high as compared to findings of present study. Use of these supplements did not lead to any serious health abnormalities in these

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Website: www.ijirset.com

Vol. 6, Issue 5, May 2017

adolescents and college athletes. The authors emphasise on educating and counselling the adolescents regarding diet & nutrition.

Results of this study signify that Glutamine was used by least number of subjects (21%). 82% of the subjects, were consuming proteins either alone or with any other supplement. Similarly, 50% subjects were using creatine either alone or with any other supplement. This also indicates that many of the study subjects simultaneously used more than one dietary supplement. Most of them (52%) used protein & creatine supplements together. These findings are akin to results of a study by Antonino Bianco and Caterina Mammina et al., in Palermo, Italy where they found 24% of their gym-going subjects to be consuming proteins and creatine simultaneously [11]. Probable explanation behind this could be expectation of accelerated results with combined usage of dietary supplements.

Most of the study subjects achieved their desired results with use of these dietary supplements. Richard Kreider in his study has proven the role of dietary supplements in promoting muscle growth when combined with resistance exercise. He found that ingestion of these supplements increases the anabolic hormonal profile and promote growth of the fat free mass [16]. When questions regarding possible side effects of these products were asked, it was found that about 35% subjects were unaware of any side effects of these products despite using them. Maximum subjects were only aware about digestive problems and dehydration. Similar results were obtained by Tian et al., where 86.4% of university athletes in Singapore were unaware that supplements can adversely affect health. [17]. El Khoury and Antoine-Jonville also found that most of supplement users of their study were not familiar with the negative impacts of nutritional supplements on health if inappropriately used. [14] Many of the subjects of present study reported to have experienced side effects in form of digestive problems (22%), constipation (20%) & diarrhoea (19%). They continued using them for their benefits. Average duration of use was found to be two years. As the amount and frequency of consumption of these supplements was beyond scope of this study, relation between the side effects and the dosage can't be commented. But, high consumption rate may reflect inappropriate and dangerous consumption patterns. [14]

Their source of information regarding dietary supplements can be held responsible for this lack of awareness. The study subjects got introduced to these dietary supplements through varying sources. Majority of them mentioned their source to be trainers (47%), and some through friends (29%). Gym trainers are the first person of contact for the gym going population. It is quite a predictable source of information for this population. Antonino Bianco and Caterina Mammina et al also noted that most of their subjects (37.0%) relied on the gym instructor's guidance, as well as on their own knowledge about these products (33.0%) [11]. But a study by El Khoury and Antoine Jonville signifies that most of the coaches, trainers and the users had limited knowledge about nutrition. Many of them were unaware about the possible side effects of the dietary supplements [14]. This indicates the need for further research on the knowledge base of gym trainers about nutrition and dietary supplements.

VI. CONCLUSION

There is a widespread use of the dietary supplements by the population regularly attend gyms. Proteins were found to be widely used, followed by Protein- Creatine combinations. Most of the subjects were not aware of the possible side effects of the dietary supplements inspite of using them regularly.

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