NUTRITIONAL SUPPLEMENTS & ATHLETES: AN ANALYSIS OF POTENTIAL SIDE EFFECTS

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ABSTRACT

Nutritional supplements are commonly accessible products used as an extension to the normal diet and are mostly used by athletes. Among all users of supplements, the utilization among athletes tends to be more noteworthy than the overall public. With such a vast number of athletes utilizing dietary supplements, it is vital to evaluate about side effects of nutritional supplements among gymnasium going athletes. This study was Analytical, conducted on 57 male athletes from Lahore, who were regularly going to gymnasium since past three months and were using nutritional supplements at the time of evaluation. The most frequently used supplements were the mostly consumed nutritional supplements were protein or whey protein powders (61.4%), multivitamins (56.1%), and creatine (38.6%). Most common side effects after utilizing nutritional supplements were Dry Mouth/Dehydration (n=28, 49.1%), Constipation (n=22, 38.6%), Insomnia/Lack of Sleep (n=18, 31.5%) Nausea (n=17, 29.8%) and Heart Palpitations/Abnormal Heartbeats (n=16, 28%). Pearson's Correlation indicated that the casein protein and soy protein were the major cause of many side effects. It is concluded that athletes were having some side effects after utilizing nutritional supplements and they were utilizing supplements without consulting a proper nutritionist/dietitian.

Keywords: *Utilization, Nutritional Supplements, Gymnasium Athletes, Dietitian.*

Introduction:

The utilization of dietary supplements in Pakistan is turning into constantly expanding trend. The utilization of nutriational supplements in the United States is on the ascent, with studies demonstrating evaluated use extending from 40% to 73% of Americans (Timbo, Ross, McCarthy, & Lin, 2006). Nutritional supplements are commonly accessible products used as an extension to the normal diet and are mostly used by athletes (Knapik et al., 2016). Among all clients and users of dietary supplements, the utilization among athletes and gymnasium adepts tends to be more noteworthy than the overall public. (T. Dodge, Litt, & Kaufman, 2011; Tscholl, Alonso, Dollé, Junge, & Dvorak, 2010). Of people who do

exercises at gymnasiums recreationally, 37% of them utilize at least one or more than one dietary supplements (Goston & Correia, 2010). With such a vast number of athletes utilizing dietary supplements, it is vital to evaluate about dietary supplements utilization. (Maughan, Greenhaff, & Hespel, 2011). A researcher used nationally representative data from 63 emergency departments obtained from 2004 through 2013 to tell about the visits to U.S. emergency departments because of negative effects related to use of nutritional supplements almost 23,000 emergency departmental visits in the US every year are associated to negative incidents related to nutritional supplements. Such visits usually have cardiovascular indications from energy products or weight-loss between adolescents and swallowwing issues, often related with the micronutrients, among older adults (Funded by the Department of Health and Human Services.) (Geller et al., 2015). The study was conducted to know about the supplement users among regular gymnasium going athletes and to achieve the proper information about nutritional supplements use among participants and also the effects of nutritional supplements on their health

Objective: To evaluate about the relationship between utilization of nutritional supplements and athlete's health.

Hypothesis:
H_0: There is no significant relationship between the utilization of nutritional supplements and athlete's health.
H_1: There is a significant relationship between the utilization of nutritional supplements and athlete's health.

Methodology:
Study Design: It was analytical study based on survey methodology, conducted in different gymnasiums of Lahore. The study duration was 9 months.

Sample: The sample size of the study was 57, in which male athletes were evaluated through a questionnaire who were regularly going to gymnasium from at least past 3 months and using nutritional supplements. Convenient sampling technique was used.

Instruments:

The 5-point Likert scale questionnnaire was adjusted from the Survey to Predict Adolescent Athletes Dietary Supplement Use (SPAADSU) (Perko, 1999) with an ethical permission from Mike Perko, Ph.D., MCHES, FAAHE Associate Professor Dept. of Public Health Education.

To check the side effects on health a questionnaire was adopted which reported the side effects associated with the utilization of nutritional supplements (Austin, Farina, & Lieberman, 2016).

Procedure:

Male athletes who were regularly going to gymnasium from at least past 3 months and using nutritional supplements were included. Female athletes and athletes who were using steroids or any banned substances were excluded.

Data Analysis:

Data was analyzed using SPSS version 23. Demographic Data, Mean and Standard deviation were calculated. Pearson's Correlation was used to evaluate the effects on health after using nutritional supplement's.

Results:

Figure 1 is the pictorial repressentation of the age distribution of participants who have utilized a nutritional supplement in the past 6 months at the time of interview.

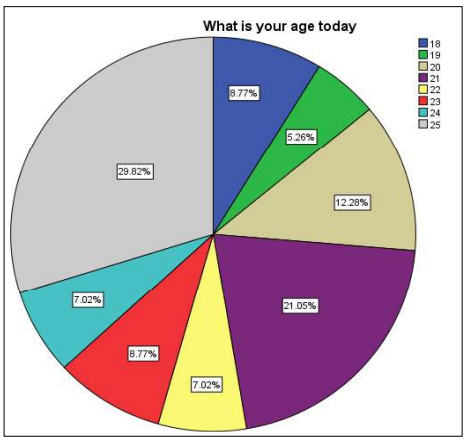

Figure 1: Age Distribution of the participant athletes who are utilizing nutritional supplements (n=57).

Figure 2, shows the nutriational supplements consumed by the participant athletes, some athletes opted multi supplements so overall out of 57 participants users of Carnitine 12, Multivitamin 32, Chondroitin 4, Conjugated Linoleic Acid (CLA) 5, Coenzyme Q10 5, Glucosamine 9, Creatine 22, Melatonin 4, Prebiotics or probiotics 6, D-ribose 4, Soy or

soy isoflavones 7, Sports drinks (e.g. Gatorade) 14, Energy drinks (e.g. RedBull) 19, Power bars 15, Protein/whey powders 35, Soy protein 13, Casein Protein 7, Caffeine 19, Meal replacement (e.g. Slimfast) 8, Arginine 6, Taurine 5, DMAA 5, β-alanine 6, Glutamine 12, Thermogenics 3, Nitric Oxide 7, HMB 5, Other 2, Pre-Workout Proprietary blends 5.

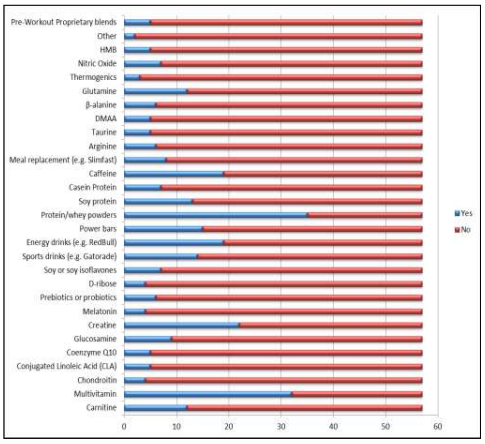

Figure 2: Nutritional Supplements consumed by participant athletes (n).

Figure 3, shows the pictorial representation of table 5.10. in which 63.16% of the participants don't have this facility while 7.02% were not sure about it and only 29.82% participants have that facility of registered dietitian in the gymnasium to consult.

Figure 3: Availability of Registered Dietitian in the Gymnasium for athlete's consultation

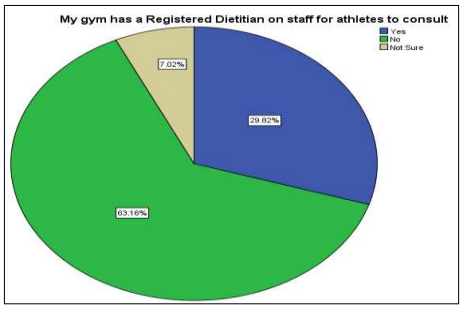

Figure 4, shows the pictorial representation of the effects on health after utilizing nutritional supplements. Many athletes felt these effects overall distribution is Dry Mouth (Dehydration) 28, Drowsiness (Sleepiness) 11, Headache 11, Constipation 22, Nausea 17, Itching 12, Dizziness (Spinning / Losing Balance) 14, Tremors (muscle rigidity / shaking / twitching) 12, Numbness / Tingling 10, Sneezing 8, Heart Palpitations (Abnormal Heartbeats) 16, Insomnia (Lack of Sleep) 18. Out of 57.

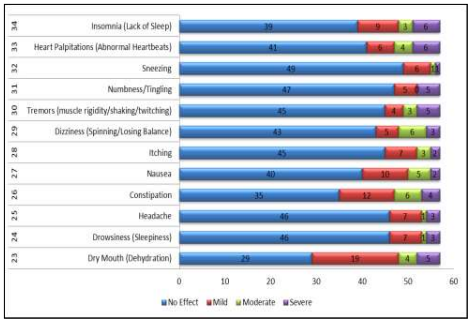

Table 1: Pearson Correlations for evaluating the effects on health of participant athletes after using nutritional supplements.

Table 1: Pearson Correlations for evaluating the effects on health of participant athletes after using nutritional supplements.

		Dry Mouth	Drowsiness	Headache	Constipation	Nausea	Itching	Dizziness	Tremors	Numbness	Sneezing	Heart Palpitations	Insomnia
Carnitine	PC	-.054	-.012	-.109	.073	.134	-.117	.170	-.126	-.089	.104	.031	-.220
Multivitamin	PC	-.016	-.089	-.166	-.030	-.062	-.064	-.056	-.187	-.235	-.119	-.036	-.124
Chondroitin	PC	-.078	.024	-.201	-.109	.071	-.250	-.014	-.165	-.126	-.029	-.051	-.047
CLA	PC	-.155	-.035	-.154	-.056	.100	-.197	.020	-.120	-.089	-.004	-.012	-.007
Q10	PC	-.021	.048	-.154	-.056	.100	-.282	.020	-.120	-.089	-.004	-.012	-.007
Glucosamine	PC	-.071	-.010	-.035	.087	.188	-.197	.115	-.054	.009	.065	.098	.010
Creatine	PC	-.264	-.098	-.102	-.159	-.179	-.082	.001	-.206	-.261	-.050	-.202	-.228
Melatonin	PC	-.152	.024	-.201	-.109	.071	-.250	-.014	-.165	-.126	-.029	-.051	-.047
Pre/probiotics	PC	-.036	-.008	-.206	-.074	.053	-.234	-.017	-.145	-.125	-.088	-.036	.027
D-ribose	PC	-.152	.024	-.201	-.109	.071	-.250	-.014	-.165	-.126	-.029	-.051	-.047
Soy	PC	-.106	-.127	-.086	-.206	.013	-.121	-.231	-.281	-.280	-.064	-.216	-.159
Sports drinks	PC	-.162	-.248	-.385	-.226	-.083	-.296	-.121	-.342	-.380	-.172	-.208	-.037
Energy drinks	PC	-.241	-.198	-.212	-.280	-.109	-.237	-.056	-.225	-.314	-.091	-.307	-.113
Power bars	PC	-.170	-.278	-.359	-.194	-.058	-.272	-.098	-.358	-.355	-.154	-.181	-.214
Protein/whey	PC	-.164	-.093	-.122	-.345	-.137	-.066	-.083	-.217	-.154	-.082	-.334	-.318
Soy protein	PC	-.244	-.327	-.413	-.260	-.109	-.266	-.241	-.460	-.406	-.191	-.236	-.189
Casein Protein	PC	-.337	-.411	-.502	-.436	-.323	-.267	-.292	-.624	-.649	-.358	-.480	-.321
Caffeine	PC	-.040	.049	-.212	-.160	-.062	-.338	-.226	-.265	-.186	-.091	-.123	-.113
Meal rep.	PC	-.060	.102	-.138	-.214	-.086	-.161	-.192	-.188	-.069	.050	-.126	-.223
Arginine	PC	.026	.068	-.117	-.013	.125	-.312	.048	-.083	-.059	.017	.021	-.204
Taurine	PC	-.155	.048	-.154	-.056	.100	-.282	.020	-.186	-.089	-.004	-.012	-.132
DMAA	PC	-.021	.048	-.154	-.056	.100	-.282	.020	-.120	-.089	-.004	-.012	-.007
β-alanine	PC	-.036	.068	-.117	-.013	.125	-.390	.048	-.083	-.059	.017	.021	.027
Glutamine	PC	-.007	.102	.025	.073	.134	-.117	.121	-.034	.010	.025	.031	-.089
Thermogenics	PC	-.067	-.005	-.142	-.093	.036	.000	-.056	-.225	-.176	-.061	-.102	-.100
Nitric Oxide	PC	-.049	.086	-.086	.024	.147	-.340	.072	-.110	-.033	.034	.049	-.051
HMB	PC	-.021	.048	-.154	-.056	.100	-.282	.020	-.120	-.089	-.004	-.012	-.007
Other	PC	-.157	.080	-.214	-.178	-.011	-.043	-.118	-.216	-.252	-.108	-.177	-.177
PW blends	PC	.046	.130	-.058	.011	.100	-.197	.020	-.053	-.089	-.004	-.012	-.194

Table-1**. Correlation (19) entries (Highlighted as green) are significant at the 0.01 level (2-tailed) which indicates that the correlation is 99%.
*.Correlation (25) entries (Highlighted as yellow) are significant at the 0.05 level (2-tailed) which indicates that the correlation is 95%.
Entries with'-'sign (231) indicates that the variables having the inverse relationship.
Without any sign, (73) entries indicate that the correlation between variables is weak and is below 95%.

Discussion:

The results of this study indicated that protein / whey powders, multivitamins and creatine were the mostly used nutritional supplements by gymnasium going athletes while similar study indicated that the mostly utilized nutritional supplements most utilized by athletes were protein and amino acids (Sekulic et al., 2019). Most common side effects after utilizing nutritional supplements were Dry Mouth / Dehydration, Constipation, Insomnia / Lack of Sleep, Nausea and Heart Palpitations / Abnormal Heartbeats similar study showed that the most common side effects related to supplements use were abnormal heart beats, dizziness and tremors respectively (Austin et al., 2016). Recent literature had shown that young athletes are rapidly experimenting nutriational supplements to improve the athletic ability and appearance (Knapik, Austin, Farina, & Lieberman, 2018). The learning and mastery of a Registered Dietitian is required to help instruct athletes to securely choose supplements (Gianfredi, Ceccarelli, Villarini, Moretti, & Nucci, 2019). In view of the results of current study, Registered Dietitians must remember that gymnasium going athletes are impacted by their own negative or positive convictions (Eck & Byrd-Bredbenner, 2019). Giving them exact infor-

mation on the efficacy and safety of nutritional supplements and also asking about their allergies to a specific ingredient in a suplement before recommendations can impact athlete's behavior, and at last offer them the chance to make an accurate decision about utilizing a nutritional supplement (Attlee et al., 2018).

Conclusions:

The results of this research examination are helpful for deciding strategies for instructing gymnasium going athletes with respect to nutritional supplements. Gymnasium going athletes are mostly influenced by their own negative or positive believes regarding decision of nutritional supplements utilization rather than by a registered dietitian. It is concluded that athletes were having some side effects after utilizing nutritional supplements and they were utilizing supplements without consulting a proper nutritionist/dietitian. While educating gymnasium going athletes on nutritional supplements, dietitians must identify them with satisfactory information and make sure the athletes consult them before utilizing supplements.

Recommendations:

The results of this research examination are helpful for deciding strategies for instructing gym going athletes with respect to nutritional supplements' possible side effects if used without proper consultation. This research can be done at a large scale for more significant results. Impact on performance after utilizing nutritional supplements can also be checked in the future studies by taking blood and urine samples of athletes.

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