

# A CROSS-SECTIONAL INVESTIGATION ON THE PREVALENCE AND ATTITUDE TOWARDS THE CONSUMPTION OF SPORTS NUTRITIONAL SUPPLEMENTS AND IT'S PROBABLE REASONS AMONG ELITE WEIGHTLIFTERS

*Original Article*

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## ABSTRACT

**Background:** The consumption of sports nutritional supplements is prevalent among athletes, particularly weightlifters, to meet the physical and mental demands of their sport. These supplements are often used to enhance performance, improve recovery, and optimize health. However, excessive reliance on supplements and insufficient awareness of their potential risks pose significant health concerns. Understanding the prevalence, attitudes, and reasons for supplement use is crucial for promoting safer practices and informed decision-making among elite weightlifters.

**Objective:** This study aimed to investigate the prevalence, attitudes, and reasons for sports nutritional supplement consumption among elite weightlifters to provide insights into their practices and perceptions.

**Methods:** A cross-sectional design was employed, involving 100 professional weightlifters (mean age: 32.5 years) from five weightlifting clubs in Lahore, Pakistan. Data were collected using a self-developed demographic questionnaire and the Dietary Supplement Scale. The scale assessed the prevalence of supplement consumption, attitudes toward use, and reasons for consumption. Data analysis was performed using SPSS version 22, with descriptive statistics summarizing findings.

**Results:** All participants (100%) reported consuming sports nutritional supplements, with the most consumed being multivitamins (84%), vitamin D (84%), and amino acids (62%). Sports drinks were consumed by 65%, while 51% used creatine. The primary reasons for supplement use included improvements in health (46%), performance (29%), recovery (16%), and physical appearance (6%). Coaches were identified as the main source of knowledge for 74% of participants. Additionally, 90% of participants reported enhanced endurance, energy, strength, and focus as benefits of supplement use.

**Conclusion:** The study highlighted widespread supplement use among elite weightlifters, driven by limited awareness of potential risks and the influence of coaches. These findings underscore the need for targeted educational programs for athletes and coaches to promote safer and more informed supplement practices.

**Keywords:** Athletes, Attitude, Nutritional Supplements, Prevalence, Safety, Vitamins, Weightlifting

## INTRODUCTION

Weightlifting is a physically demanding sport that requires athletes to achieve an optimal balance between muscular strength and physical appearance to excel in competitive settings (1). Unlike other sports, weightlifters cannot rely solely on one aspect—either strength or physique—but must master both to meet the rigorous standards of competition (2). Preparing for such contests typically involves an intensive period of strength training followed by a phase focused on achieving extremely low body fat levels to optimize performance (3). This dual focus imposes significant physical and mental demands on athletes, requiring them to adopt extraordinary measures to meet their competitive goals (4). Consequently, the use of sports nutritional supplements, such as protein powders and creatine, has become widespread among weightlifters seeking to enhance their performance, recover effectively, and manage the intense physical demands of the sport (5-7). These supplements are perceived as indispensable tools for addressing nutritional deficits, improving recovery times, and supporting the rigorous requirements of weightlifting training and competition (6, 7). Despite the recognized benefits of sports nutritional supplements, their misuse has raised global concerns, particularly within the weightlifting community, where reliance on such products has become prevalent (8). Many athletes view these supplements as a quick solution for enhancing performance without fully understanding the associated health risks (9). Several studies have documented adverse effects linked to excessive or improper use of these products, including gastrointestinal distress, liver damage, and cardiovascular issues (10). Compounding these concerns is the unregulated nature of the supplement industry, which has led to the presence of contaminants and prohibited substances in some products, posing significant threats to athletes' health and professional careers (11). Societal pressures to achieve unattainable physical ideals further exacerbate this issue, often compelling athletes to make uninformed decisions about supplement use despite awareness of potential negative outcomes (12).

In addition to the risks posed by unregulated and counterfeit products, excessive consumption of authentic supplements also carries significant health hazards. Long-term or high-dose use has been associated with severe conditions, such as kidney damage, urinary tract stones, liver dysfunction, and even hormonal imbalances caused by growth steroids and testosterone boosters (13-15). These disruptions to the endocrine system may increase the risk of hormone-related tumors, emphasizing the need for further clinical research to better understand the long-term impacts of supplement misuse on athletes' health. Given these multifaceted concerns, the study aims to address critical gaps in understanding by focusing on three primary objectives: determining the prevalence of sports nutritional supplement use among elite weightlifters, exploring their attitudes toward such consumption, and identifying the underlying reasons driving their reliance on these products. By investigating these dimensions, the study seeks to contribute to evidence-based knowledge that can enhance the health, safety, and performance of weightlifting athletes. Ultimately, the findings may inform the development of tailored policies, effective education programs, and informed decision-making among athletes, coaches, and practitioners, fostering the safe and responsible use of sports nutritional supplements.

## METHODS

The study employed a cross-sectional survey design to investigate the prevalence, attitudes, and reasons for the consumption of sports nutritional supplements among elite weightlifters. The target population comprised 150 elite weightlifters from Lahore, Pakistan, who were affiliated with various clubs and possessed either national or international competitive experience. The Yamane formula (16) was applied to calculate the required sample size, resulting in a target of 103 participants. Data were successfully collected from 103 weightlifters, with a mean age of 32.5 years. However, three responses were incomplete and excluded from the final analysis, leaving a final dataset of 100 participants, representing a response rate of 97%. Demographic data were collected through a self-developed section comprising nine items, including variables such as age, gender, marital status, daily training duration, height, weight, body mass index (BMI), level of participation in weightlifting, training frequency per week, and resting heart rate. To assess attitudes towards the consumption of sports nutritional supplements, the Dietary Supplement Scale developed by Aljaloud and Ibrahim (17) was utilized. This 18-item questionnaire was divided into three distinct sections. The first section examined the prevalence of sports nutritional supplement consumption, addressing areas such as sports drinks, usage purposes, sources of supplement knowledge, and categories including vitamins, proteins, fish oil, herbal products, and ergogenic aids. The second section comprised a single item focusing on attitudes towards the use of these supplements. The third section explored potential reasons for consumption, with items investigating motives such as improving health, enhancing endurance, using harmless supplements, gaining energy, facilitating smoother workouts, increasing strength, managing discomfort, and improving focus. The scale demonstrated good reliability in this study, with a Cronbach's alpha value of 0.87.

Prior to data collection, participants were briefed about the purpose and nature of the study, and they were provided clear instructions on completing the questionnaire. Their participation was entirely voluntary, and all individuals were assured that their responses would remain confidential and would be used solely for research purposes. No incentives or penalties were associated with participation. Sufficient time was allotted for questionnaire completion, and participants were encouraged to seek clarification about any aspect of the study or the data collection tool. They were also informed of their right to withdraw from the study at any stage without repercussions. Data were collected in a face-to-face setting, with the investigator present to address any questions, ensure uniformity in the process,

and maintain data integrity. Data analysis was conducted using SPSS version 22 (IBM Corp, 2022). Descriptive statistics were applied to summarize and analyze the data, ensuring an accurate representation of the study findings.

## RESULTS

The analysis revealed that all participants in the study reported consuming sports nutritional supplements. The primary purposes of supplement use were identified as health improvement (46%), performance enhancement (29%), recovery (16%), physical appearance (6%), and injury prevention (3%). Participants acquired these supplements from various sources, including stores or pharmacies (29%), nutritionists (19%), online stores (9%), and trainers or physicians (8%), while 35% reported other sources. Coaches were the most common source of knowledge about supplements, accounting for 74% of responses, followed by online sources (13%), nutritionists (9%), physicians (2%), and academic journals (2%).

Table: Prevalence of Sports Nutritional Supplement Consumption (N=100)

<b>Responses</b>	<b>f</b>	<b>%</b>
<b>Using a sports nutritional supplement at the moment</b>		
No		0
Yes	100	100
<b>Purpose of consumption of sports nutritional supplements</b>		
Health improves	46	46.0
Injury Prevention	3	3.0
Recovery	16	16.0
Physical appearance	6	6.0
Performance	29	29.0
<b>Purchase of Supplements</b>		
Store or pharmacy	29	29.0
Trainer or physician	8	8.0
Nutritionist	19	19.0
Online stores	9	9.0
Others	35	35.0
<b>Source of knowledge about supplements</b>		
Coach	74	74.0
Physician	2	2.0
Nutritionist	9	9.0
Academic journal	2	2.0
Online	13	13.0

Note: f= frequency, %= percentage

The frequency of specific supplement consumption varied widely among participants. Sports drinks were consumed by 65% of weightlifters, while 35% reported not using them. Health bars were consumed by 47%, whereas 53% did not use them. Similarly, 45% of participants consumed energy drinks such as Red Bull, while the remaining 55% refrained from using these products.

Table: Consumption of Sports Nutritional Supplements Among Elite Weightlifters (N=100)

Category of Supplements	No (%)	Yes (%)
<b>Sports Drinks</b>		
Sports Drink	35 (35.0)	65 (65.0)
Health Bar	53 (53.0)	47 (47.0)
Red Bull Energy Drink	55 (55.0)	45 (45.0)
<b>Vitamins</b>		
Vitamin C	20 (20.0)	80 (80.0)
Vitamin D	16 (16.0)	84 (84.0)
Vitamin E	24 (24.0)	76 (76.0)
Vitamin B	35 (35.0)	65 (65.0)
Multivitamins	16 (16.0)	84 (84.0)
<b>Protein Supplements</b>		
Amino Acid	38 (38.0)	62 (62.0)
Ephedra	82 (82.0)	18 (18.0)
Weight Gainer	73 (73.0)	27 (27.0)
<b>Fish Oil</b>		
Omega 3	46 (46.0)	54 (54.0)
Omega 6	68 (68.0)	32 (32.0)
<b>Herbal Supplements</b>		
Ginseng	67 (67.0)	33 (33.0)
Gingko Biloba	71 (71.0)	29 (29.0)
<b>Ergogenic Aids</b>		
Slimming Products	85 (85.0)	15 (15.0)
Coenzyme	84 (84.0)	16 (16.0)
Caffeine	57 (57.0)	43 (43.0)
Creatine	49 (49.0)	51 (51.0)

The findings also highlighted the prevalence of vitamin consumption among participants. Multivitamins and vitamin D were consumed by 84% of weightlifters, followed by vitamin C (80%), vitamin E (76%), and vitamin B (65%). Protein supplementation was also analyzed, with 62% consuming amino acids, 27% consuming weight gainers, and only 18% using ephedra-based supplements. Regarding fish oil supplements, 54% consumed omega-3 fatty acids, while 46% did not. In contrast, omega-6 fatty acids were consumed by only 32%, with 68% reporting no usage. Herbal supplement consumption showed limited usage, with 33% consuming ginseng and 29% consuming gingko biloba, while the majority refrained from using these products.

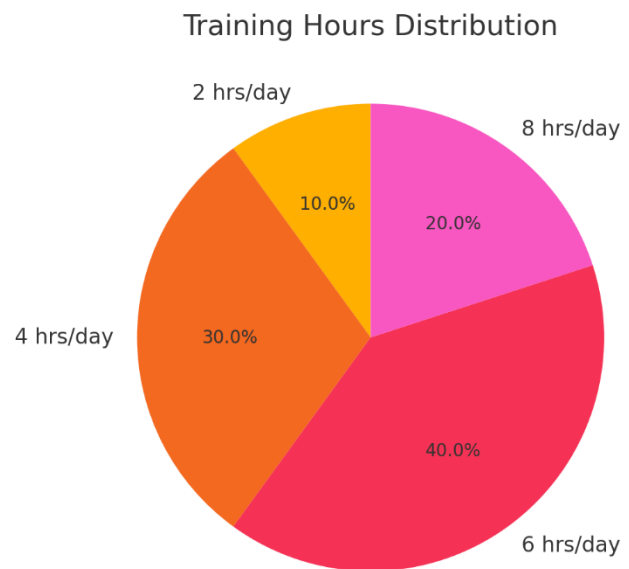
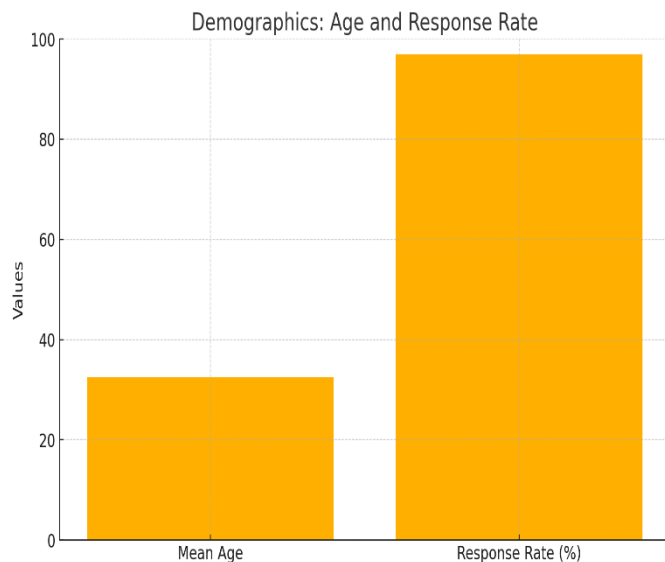
Table: Reasons to use Supplements (N=100)

Responses	f	%
<b>To Become healthier by supplements</b>		
Agree	98	98.0
Neutral	2	2.0
Disagree	0	0.0
<b>Improvement in endurance</b>		
Agree	92	92.0
Neutral	8	8.0
Disagree	0	0.0
<b>Nutritional supplements are harmless</b>		
Agree	90	90.0
Neutral	6	6.0
Disagree	4	4.0
<b>To gain energy</b>		
Agree	98	98.0
Neutral	2	2.0
Disagree	0	0.0
<b>For smooth and frequent workout</b>		
Agree	89	89.0
Neutral	7	7.0
Disagree	4	4.0
<b>I gain strength from nutritional supplements</b>		
Agree	90	90.0
Neutral	4	4.0
Disagree	6	6.0
<b>Nutritional supplements make it easier to manage discomfort</b>		
Agree	91	91.0
Neutral	5	5.0
Disagree	4	4.0
<b>Improvement in focus</b>		
Agree	90	90.0
Neutral	4	4.0
Disagree	6	6.0

Note: f= frequency, %= percentage

The analysis of ergogenic aids revealed that 51% of participants used creatine, 43% consumed caffeine, 16% used coenzyme supplements, and 15% consumed slimming products. The majority avoided these supplements, with 49% not using creatine, 57%

avoiding caffeine, 84% refraining from coenzyme use, and 85% not consuming slimming products. The investigation into the reasons behind supplement consumption showed that 98% of participants believed supplements improved their health and provided energy, while the remaining 2% were neutral. Similarly, 90% agreed that supplements increased strength, improved focus, and facilitated a smoother and more frequent workout routine, while 89% reported enhanced endurance. Most participants (91%) also believed that supplements helped in managing discomfort during training and recovery. A small proportion expressed neutrality or disagreement with these statements.



## DISCUSSION

The present research aimed to examine the prevalence, attitudes, and probable reasons for the consumption of sports nutritional supplements among elite weightlifters. The findings revealed an exceptionally high prevalence of supplement consumption, with all participants reporting the use of these supplements. The study also demonstrated a highly positive attitude among weightlifters toward the use of nutritional supplements, with over 90% attributing improvements in health, endurance, energy, strength, and focus to their consumption. These supplements were also reported to aid in managing discomfort and facilitating smoother and more frequent workouts. The widespread prevalence of sports nutritional supplement use aligns with prior studies conducted on athletes from various regions. Previous research highlighted that weightlifters, compared to athletes from other sports, demonstrated a higher rate of supplement consumption. This pattern underscores the unique physical and nutritional demands placed on weightlifters, requiring them to seek supplementary support to optimize performance. The high reliance on supplements such as amino acids, omega-3 fish oil, creatine, caffeine, and multivitamins further emphasizes the tailored nutritional approaches adopted by this group. These findings are consistent with earlier investigations that reported similar trends in supplement usage among weightlifters and athletes engaged in power sports.

One of the key factors influencing the consumption of nutritional supplements in this study was the significant role of coaches as the primary source of information. This finding reflects the weightlifters' trust in their coaches for guidance on dietary practices and supplement use, as corroborated by prior research in other athletic populations. However, this reliance on coaches raises concerns about the potential dissemination of misinformation or unverified practices. Coaches may lack comprehensive knowledge about the potential risks associated with excessive or inappropriate supplement use, highlighting the need for targeted educational training programs for coaches to enhance their awareness and ensure evidence-based recommendations. The lack of awareness and knowledge regarding the potential adverse effects of nutritional supplements was another critical factor contributing to their excessive consumption. Despite the perceived benefits reported by participants, such as improved health and energy levels, this unawareness exposes weightlifters to risks such as over-reliance on supplements and potential long-term health consequences. Prior studies on athletes from other regions have also identified a lack of adherence to dietary supplement guidelines, reinforcing the need for standardized educational interventions to mitigate these risks.

The practical implications of this study underscore the urgency of developing tailored educational programs to promote the safe and informed use of nutritional supplements among weightlifters. Such initiatives could empower athletes to make evidence-based decisions, reducing the likelihood of misuse and fostering a health-conscious approach to supplementation. Furthermore, these findings serve as a basis for policy development, emphasizing the regulation of supplement practices within the weightlifting community. The study

possesses notable strengths, including its focus on a specific athletic population and the use of reliable tools for data collection. However, certain limitations warrant consideration. The study population was limited to male elite weightlifters, which restricts the generalizability of the findings to female athletes. Additionally, the cross-sectional design employed provides a snapshot of behaviors and attitudes but limits the ability to establish causality or examine long-term patterns. Future research should address these limitations by including female participants and employing stronger study designs, such as longitudinal or randomized controlled trials, to validate and extend the current findings. The findings of this research provide valuable insights into the prevalence, attitudes, and reasons for sports nutritional supplement use among elite weightlifters. While the perceived benefits of supplement use are evident, the lack of awareness regarding potential risks highlights the importance of education and regulation to ensure safe practices. Future studies should aim to explore gender-specific trends and adopt robust methodologies to build upon the evidence base and contribute to the development of effective interventions.

## CONCLUSION

This study explored the prevalence, attitudes, and potential reasons behind the consumption of sports nutritional supplements among elite weightlifters. The findings demonstrated widespread use of these supplements, driven by limited awareness of their potential risks and the significant influence of coaches in guiding their use. These results underscore the pressing need for educational initiatives targeted at both weightlifters and their coaches to promote informed decision-making and minimize the risks associated with improper supplement use. By addressing these gaps, the health and performance of athletes can be safeguarded, fostering a more responsible and sustainable approach to supplementation.

## AUTHOR CONTRIBUTIONS

Author	Contribution
Jahanzaib Shahzad	Conceptualization, Methodology, Formal Analysis, Writing - Original Draft, Validation, Supervision
Asif Ali	Methodology, Investigation, Data Curation, Writing - Review & Editing
Fariq Ahmed	Investigation, Data Curation, Formal Analysis, Software
Muhammad Azam	Software, Validation, Writing - Original Draft
Asad Ali	Formal Analysis, Writing - Review & Editing

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