

## **A Study on factors influencing purchase of bodybuilding supplements for good health w.r.t Youth in MMR region**

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### **Abstract**

The growing awareness of health and fitness, particularly among the youth, has led to a significant increase in the consumption of bodybuilding supplements. This research explores the various factors influencing the purchase of bodybuilding supplements for health enhancement, with a specific focus on the youth demographic. By examining the role of socio-economic status, media influence, peer pressure, product accessibility, and individual health goals, this study aims to provide a comprehensive understanding of the motivations behind supplement

consumption. Data was collected through surveys and interviews with young adults actively engaged in fitness routines. The study identifies key drivers such as the perceived effectiveness of supplements, endorsements by fitness influencers, and the growing societal emphasis on physical appearance.

Additionally, it highlights the challenges faced by consumers in terms of product authenticity, affordability, and awareness of potential side effects. The findings underscore the need for a balanced approach, promoting informed decision-making while encouraging the adoption of

sustainable and safe health practices. This research contributes to the broader conversation on health sustainability by linking consumer behavior in the fitness industry to the evolving trends in health practices, policies, and education aimed at building a sustainable nation. The study also proposes recommendations for policy-

**Introduction:**

A healthy body is a state of complete physical well-being, free from illness or injury. It involves the optimal functioning of all bodily systems, including the cardiovascular, respiratory, digestive, nervous, and immune systems. There are various aspects of a healthy body like: Physical Fitness, Balanced Diet, Adequate Rest, Hydration, Stress Management, Regular Health Check-ups. One of the important aspects i.e. A Balanced Diet plays a very vital role for good health. The youth population in India got attracted towards bodybuilding and its related products particularly in the Mumbai Metropolitan Region(MMR). It resulted in a shift of youth to build the body with the help of supplements.

The Government of India is also taking various initiatives for good health and wellbeing under the umbrella of Sustainable Development Goals(SDG) i.e.

makers and fitness industries to address the emerging challenges and ensure youth well-being while promoting health sustainability.

**Keywords:** *Bodybuilding supplements, youth health, consumer behavior, fitness industry, sustainability, health practices.*

targeting 2030. The value of India’s nutritional supplements is USD 11.85 billion in 2023 and expected to reach USD 28.70 billion by 2032 at a CAGR 10.70%. There are various bodybuilding supplements containing products like; protein powders, pre-workout supplements, post-workout supplements, Multivitamins that help to achieve specific fitness goals. By using bodybuilding supplements responsibly and in conjunction with a healthy lifestyle, individuals can contribute to their overall health and well-being, aligning with the goals of Sustainable Development Goal-3 (Good Health and well-being).

**Current market status of bodybuilding supplements in India:**

The Indian bodybuilding supplements market is prospering due to increasing awareness about health and various socio-

economics factors. Following are the key drivers for the same

**Fitness and bodybuilding culture:** Due to the effective marketing strategies and social media influence on youth, it promotes fitness and bodybuilding culture in urban areas, which ultimately leads to high demand for supplements. Platforms like Instagram, YouTube and celebrity endorsement in advertisement inspiring youth to consume supplements for better body and achieve individual health goals.

**Ease of access and availability:** Availability of all types of supplements products on online platforms like Amazon, Flipkart and due to emerging level of competition consumers are getting all of these products at affordable and competitive prices.

**Health Awareness and benefits of Protein:** Growing concern about better health and better results of protein attract more youth for such bodybuilding supplements. Use of such supplements helps in faster recovery of muscles and endorsements in the body.

**Increased disposable income:** Due to increasing the disposable income of individuals now they are able to spend more on health supplementaries.

**Celebrity endorsements:** Sports, Bollywood, athletes personalities plays a very vital role in decision making of individuals for health and fitness goals.

### **Top brands in bodybuilding supplements segment:**

**MuscleBlaze(MB)** is a prominent Indian sports nutrition brand, renowned for its commitment to providing high-quality, affordable, and effective bodybuilding supplements. Founded in 2012, the brand has swiftly gained popularity among fitness enthusiasts and athletes across India.

**Optimum Nutrition (ON)** is a globally recognized leader in the sports nutrition industry, renowned for its high-quality and effective bodybuilding supplements. Founded in 1986, ON has consistently set the standard for excellence, providing athletes and fitness enthusiasts with cutting-edge products

**MuscleTech** is a renowned name in the sports nutrition industry, celebrated for its commitment to scientific innovation and cutting-edge formulations. Their products are designed to help athletes and fitness enthusiasts achieve their peak performance and physique goals.

**IsoPure** is a popular brand of whey protein isolate, known for its high protein content and low carbohydrate and fat levels. It's a preferred choice for many bodybuilders and fitness enthusiasts due to its purity and effectiveness.

**GNC (General Nutrition Centers)** is a well-known brand in the health and fitness industry, offering a wide range of bodybuilding supplements. They have been a trusted source for athletes and fitness enthusiasts for decades.

### **Challenges and Issues faced by bodybuilding supplements Companies in India:**

**Authenticity and adulteration issues:** India's supplements market is flooded with numbers of brands and that leads to identification of authentic and unadulterated products from the market.

**Lack of knowledge and awareness:** Because of more availability of knowledge and awareness about youth and due to that people consume such products which harm their body and do not give expected results to individuals.

### **Market Fragmentation**

The sports nutrition segment is highly fragmented, with small-scale producers

often unable to adhere to quality standards, which impacts the industry's overall image.

**Lack of logistic facilities:** Due to lack of infrastructure support and availability of retailers

It becomes very difficult to give products to the ultimate consumer at the right time . Although online platforms solve this issue to much extent, still it is difficult to reach rural areas.

### **Research Methodology:**

The data collected from primary and secondary sources. Primary data collected from Structured Questionnaire method and Snowball Sampling method. Sample size is 121 respondents. Secondary data collected from the 'Literature Review'.

**Problem Statement:** There is a need to study the factors influencing and challenges faced

by youth in purchase of bodybuilding supplements for good health.

**Objectives of the study:**

- 1.To study the awareness level among youth w.r.t. bodybuilding supplements.
2. To analyze the various influencing factors faced by youth in the purchase of bodybuilding supplements for good health.
3. To study the challenges faced by youth in purchase of bodybuilding supplements for good health.
4. To study the role of Sustainable Development Goals-3 and government in the bodybuilding supplement segment.

**Literature Review:**

**As per the study conducted by Alexa Rukstela, Title: ‘Bodybuilding Coaching Strategies Meet Evidence-Based Recommendations: A Qualitative Approach’.**

Bodybuilding is a sport where coaches commonly recommend a variety of nutrition and exercise protocols, supplements, and, sometimes, performance-enhancing drugs (PEDs). The present study sought to gain an understanding of the common decisions and rationales employed by bodybuilding coaches. Focusing on coaches of the more muscular divisions in the National Physique Committee/IFBB Professional

League federations (men’s classic physique, men’s bodybuilding, women’s physique, women’s bodybuilding) for both natural and enhanced athletes, coaches were recruited via word of mouth and social media, and 33 responded to an anonymous online survey. Survey responses indicated that participant coaches recommend three-to-seven meals per day and no less than 2 g/kg/day of protein regardless of sex, division, or PED usage. During contest preparation, participant coaches alter a natural competitor’s protein intake by -25% to +10% and an enhanced competitor’s protein intake by 0% to +25%. Regarding cardiovascular exercise protocols, approximately two-thirds of participant coaches recommend fasted cardiovascular exercise, with the common rationale of combining the exercise with thermogenic supplements while considering the athlete’s preference. Low- and moderate-intensity steady state were the most commonly recommended types of cardiovascular exercise among participant coaches; high-intensity interval training was the least popular.

**As per the study conducted by Li, Jiuzhang; Davies, Timothy B.; Hackett, Daniel A. Title: ‘Self-Reported Training and Supplementation Practices Between Performance-Enhancing Drug-User**

### **Bodybuilders Compared with Natural Bodybuilders'**

Self-reported training and supplementation practices between performance-enhancing drug-user bodybuilders compared with natural bodybuilders. *J Strength Cond Res* 37(5): 1079–1088, 2023—This study aimed to examine whether the training and supplementation practices differ between performance-enhancing drug (PED)-using bodybuilders (BB) and natural BB. One hundred eighty-seven competitive male bodybuilders with a median age of 27.0 years completed an online survey. Of this sample, 40 respondents reported using PED (PED-user) and 147 respondents reported to be natural. Compared with natural BB, PED-user BB reported greater off-season body weight ( $p < 0.001$ ) and weight loss before a competition ( $p < 0.001$ ). In the off-season, PED-user BB performed a greater number of exercises per muscle group ( $p < 0.001$ ), number of repetition maximum (RM) per set ( $p < 0.01$ ), and less recovery between the sets ( $p < 0.01$ ). During the precompetition phase, the natural BB increased their number of RM; however, the PED-user BB still reported using a greater number of RM per set ( $p = 0.02$ ), exercises per muscle group ( $p < 0.001$ ), and less recovery time between the sets ( $p < 0.01$ ). Both the PED-user BB and natural BB reported greater aerobic exercise frequency ( $p < 0.001$ ) and session duration

( $p < 0.001$ ), although PED-user BB performed a greater number of aerobic exercise sessions ( $p = 0.04$ ) and at a higher intensity ( $p < 0.01$ ). Findings suggest that PED-user BB perform more metabolically demanding resistance training sessions, more strenuous aerobic training during the precompetition phase, and may have different supplementation preferences compared with natural BB.

### **As per the study conducted by Pablo Jiménez-Martínez. Title: 'Dietary supplementation habits in international natural bodybuilders during pre-competition'**

Bodybuilding is characterized by high-rates of sport supplementation. This is the first study to compare the supplementation patterns of winners (WB) and non-winners (NWB) among international natural bodybuilders during contest preparation. Fifty-six natural bodybuilders (5 women) (age =  $28.85 \pm 8.03$  years; final body mass =  $71.50 \pm 10.28$  kg), 19 WB (athletes who had achieved victory in an official natural bodybuilding championship at least once) and 37 NWB (athletes who never achieved victory), from 18 countries (55.36% from Spain) responded to this cross-sectional online survey related to their nutritional habits, strategies and supplementation

practices. WB were significantly older ( $p = 0.024$ ), completed more competitive seasons ( $p = 0.027$ ) and participated in more competitions in the last contest year ( $p = 0.011$ ). Athletes' supplementation

**As per the study conducted by Yasaman Bajool, Mohammad Hemmatinafar.**  
**Title: 'Evaluation of nutritional knowledge and consequences of consuming dietary supplements among expert bodybuilders.'**

**Background:** of specific education programs from unreliable sources causes low nutrition knowledge and the use of many dietary supplements (DS) in bodybuilders. This study investigated the nutritional knowledge and prevalence of DS among Iranian bodybuilders.

**Method:** This cross-sectional research involved a sample of 648 bodybuilding clubs in Iran and a researcher who distributed questionnaires among clubs in different regions and analyzed categorical variables, DS, nutritional knowledge, and sports nutrition data from 160 bodybuilders aged 18 and above in Iran with the results of a quantitative questionnaire.

**Results:** There was a significant relationship between DS use and gender ( $p=0.000$ ,  $r= 0.330$ ), bodybuilding history

patterns were influenced by different sources of information. However, these natural bodybuilders mainly purchased their supplements through the internet without guidance from a coach or dietitian.

( $p=0.045$ ;  $r=0.158$ ), participation in nutrition courses ( $p=0.161$ ,  $r=0.111$ ), and exercise sessions per week ( $p=0.050$ ,  $r=0.156$ ). Whey protein (45.62%) and BCAA (33.75%), vitamin D (50%), Vitamin C (56.25%), caffeine (34.37%), and generally vitamin C (56.25%) were the most common DS used. The most information sources for bodybuilders regarding DS were trainers (35.62%) and nutritionists (34.37%), and regarding nutrition, registered dietitians/nutritionists (58.1%) and trainers (51.87%). This study concluded that the most common information sources for bodybuilders were coaches and nutritionists and found poor nutrition knowledge among bodybuilders. The most common DS used by bodybuilders were vitamins C, D and Whey protein. Also, gender, bodybuilding history, and the number of weekly exercise sessions had a significant relationship with the prevalence of DS.

**As per the study conducted by Jade, Amit S. Title: ‘Influence of Diet and Weight Training on HDL and LDL Levels of Endomorph Bodybuilders’.**

Bodybuilding is that form of physical activity that re-builds an individual’s body in way far better than its original form, as each and every part of the body is trained differently with required specifications so that a desired muscle development is achieved. That is why bodybuilding is called as one such sport that defines one’s body. It refers to a series of dedicated activities that result in body transformation. This not only means the outlook of the body at the outer level but the inner composition of the body also changes i.e. change in muscle fibres, muscle tissue, levels of lipoproteins, etc at a major level. All these changes when take place in a natural manner with extreme hard work and dedication, it makes wonders but when it is stimulated in an artificial manner for quick results it can turn to be harmful. The major effect of the weight training schedule and diets that are followed in the off season and competition season falls on the HDL and LDL levels of the body. This so happens because the fat in the diet is completely controlled in the competition season and then consumed in significant quantities in the off season. The same applies to weight training schedule which is rigorous in the competition season and a little lenient in the

off season. These changes in the diet and weight training pattern bring about drastic variations in the HDL and LDL levels in the blood.

### **Data Collection: Tools used for data collection:**

#### **Questionnaire:**

The researcher has undertaken primary research and used a Structured Questionnaire to collect data through Google forms. The Questionnaire contains Close ended questions with multiple choice options to obtain data.

#### **Sampling:**

For the purpose of this research Convenience or Random sampling method is used. Data is collected from 121 respondents.

#### **Limitations of study:**

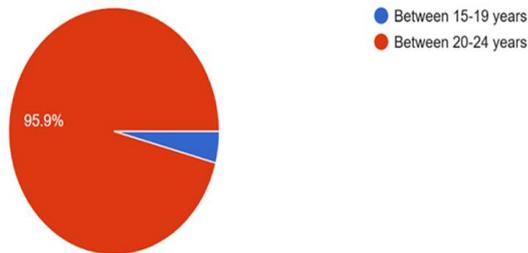
- 1.The sample size is small.
- 2.The analysis is based on the perception and opinion of a limited number of respondents.

**Data Analysis:**\_\_The analysis and interpretation of the primary data , collected through primary

questionnaire, reveals

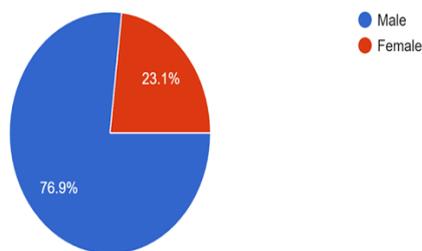
the following:

**1.Age:**



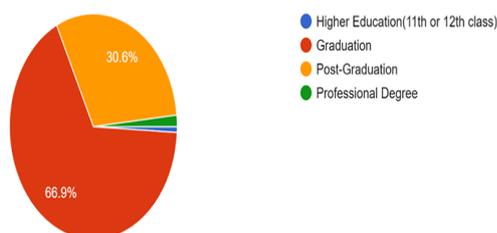
This chart reveals that the maximum of respondents i.e. 95.90% are in the age group between 20-24 years and 4.10% between the age group of 15-19 years.

**2.Gender:**



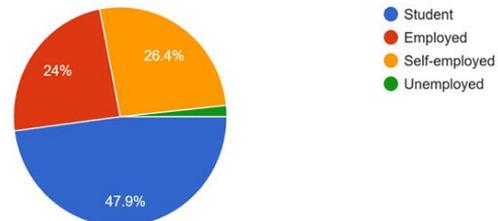
This chart reveals that 76.90% of the respondents are male and 23.10% are female.

**3. Education:**



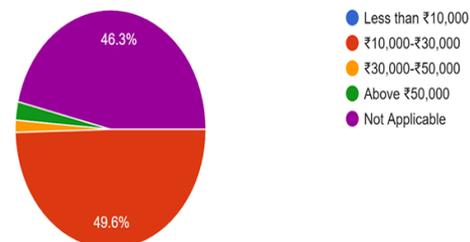
This chart reveals that maximum respondents are Graduate level i.e. 66.90%, 30.60% Post-Graduation, 1.7% HSC, 0.80% are holding Professional Degree and 0.80% Higher Education.

**4. Employment Status:**



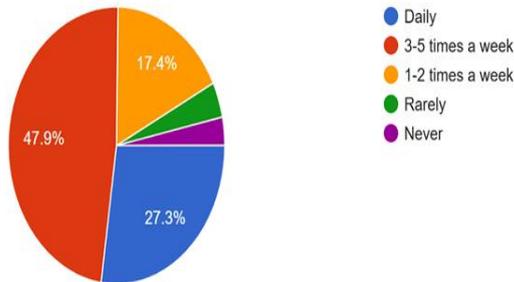
This chart reveals that 49.90% of respondents are Students, 26.40% are Self-Employed, 24% are Employed and 1.70% are Unemployed.

**5. Monthly Income (if applicable):**



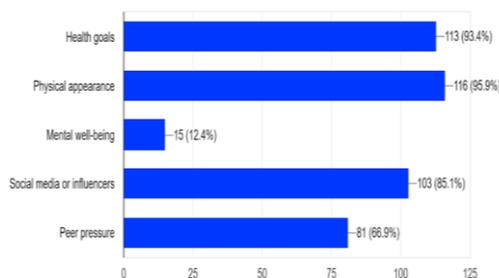
This chart reveals that 49.60% of respondents have a monthly salary between RS.10, 000 to 30,000, 46.30% respondents between not earning, 2.50% above RS. 50,000 and 30,000 to 50,000 1.70%.

## 6. How often do you engage in fitness and wellness activities?



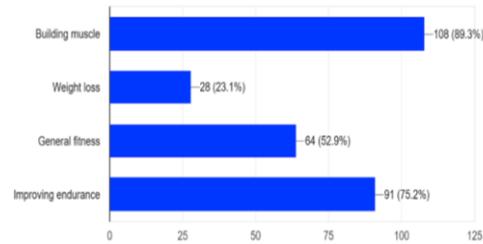
This chart reveals that 47.90% of respondents i.e. youth go for fitness activity 3 to 5 times in a week, 27.30% on daily basis, 17.40% 1 or 2 times in a week, 4.10% rarely and 3.30% never go for the same.

## 7. What motivates you to maintain your health and wellness routine?



The above data reveals that physical appearance (i.e. 95.90%) is the prime motivator to maintain health and wellness routine by youth, followed by health goals(93.40%), social media influence(85.10%), peer pressure(66.90%) and very less amount by mental well-being.

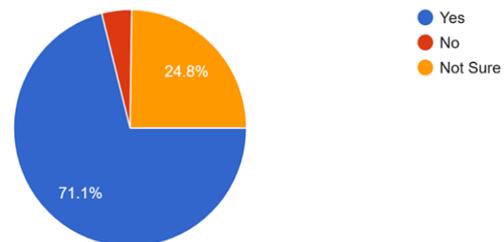
## 8. What are your primary fitness and wellness goals:



According to the above chart 89.30% people's primary goals of fitness and wellness is building muscle, 75.20% people are improving endurance, 52.90% general fitness and 23.10% weight loss.

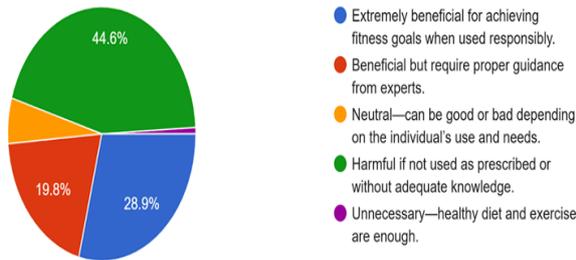
## 9. Do you believe bodybuilding supplements can improve your overall

### health and wellness?



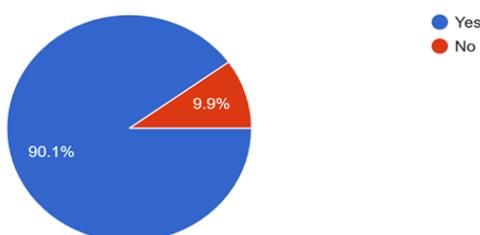
The above chart reveals that 71.10% of respondents believe that bodybuilding supplements will help them to build overall health and wellness, 24.80% are not sure and 4.10% responded no.

### 10. What is your perception about bodybuilding supplements for good health:



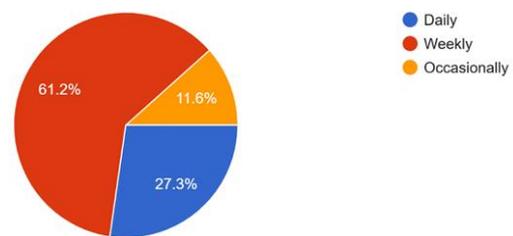
The above chart reveals that 44.60% of respondents agree that bodybuilding supplements are harmful if not used as prescriptions and adequate knowledge, 28.90% of respondents says supplements are extremely if used responsibly, 19.80% responded says that its is beneficial but require proper guidance and proper recommendation from expert and 0.80% of population believes that there is no need of supplements only healthy diet and exercise is enough.

### 11. Have you ever purchased bodybuilding supplements?



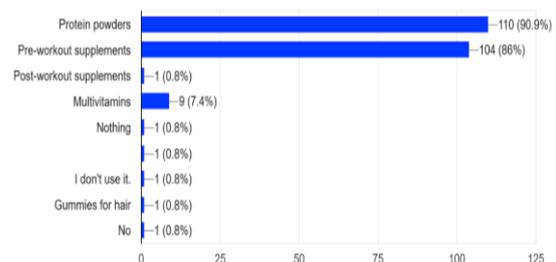
The above chart reveals that 90.10% of respondents purchased bodybuilding supplements to achieve their health goal and 9.90% of respondents never purchased.

### 12. If yes, how often do you consume bodybuilding supplements?



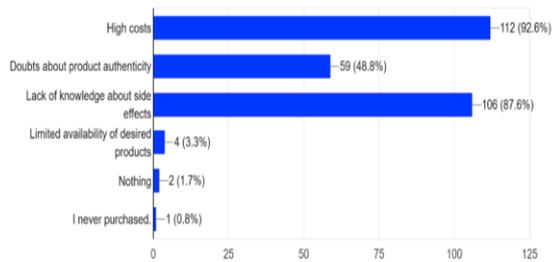
The above chart reveals that 61.20% of the population consume bodybuilding supplements on a weekly basis, 27.30 on daily basis and 11.60% occasionally.

### 13. What type of supplements do you use?



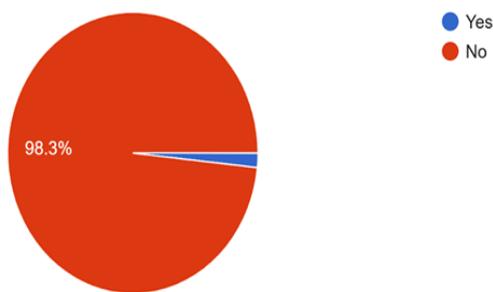
The above chart reveals that most of the youth use protein powders i.e. 90.90% , 86% Pre-workout supplements, 7.40% Multivitamins and 0.80% Post-workout supplements.

### 14. What challenges do you face while purchasing supplements?



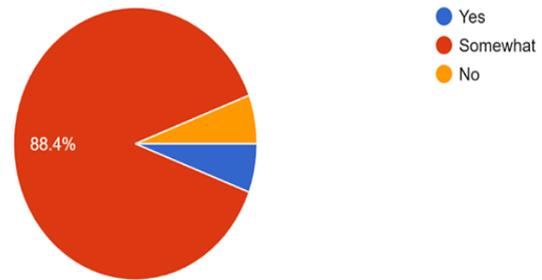
The above chart reveals that the primary high cost of supplements is the main challenge faced by 92.60% of youth, 87.60% face lack of knowledge as a challenge, 48.80% of youth doubt about the authenticity of products and 3.30% of youth face limited availability of product as a challenge.

### 15. Have you ever experienced any side effects from supplements?



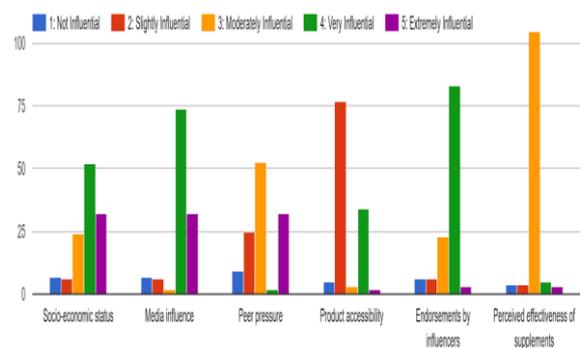
As per the responses 98.30% of youth experienced any side effects from supplements and 1.70% of youth never faced any side effect problem from supplements.

### 16. Do you feel informed about the benefits and risks of supplements?



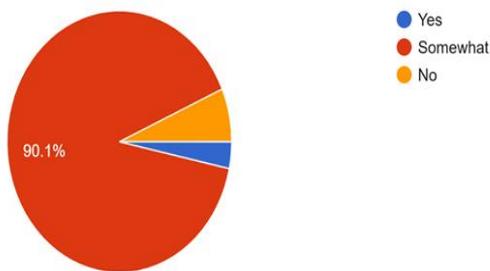
The above chart reveals that 88.40% of youth feel they require more information about the supplement products and 6% of youth feel they are not getting all the related information regarding the supplement and 5.60% of youth are getting all information.

### 17. How influential are the following factors in your decision to purchase supplements? (Rate on a scale of 1-5)



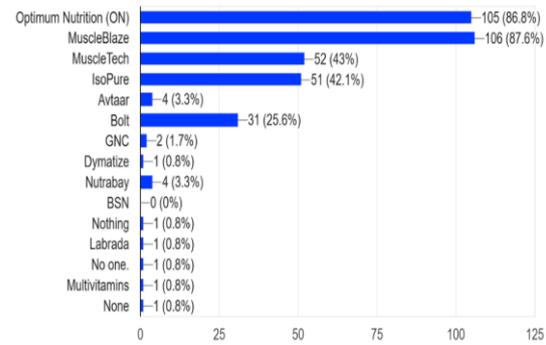
The above chart reveals that most youth feel that socio-economic status, media influence and peer pressure are the extremely influential factors in the decision making of youth in supplements purchase, followed by Endorsements by influencers and Perceived effectiveness of supplements.

**18. Do you believe there is sufficient awareness about safe supplement consumption practices?**



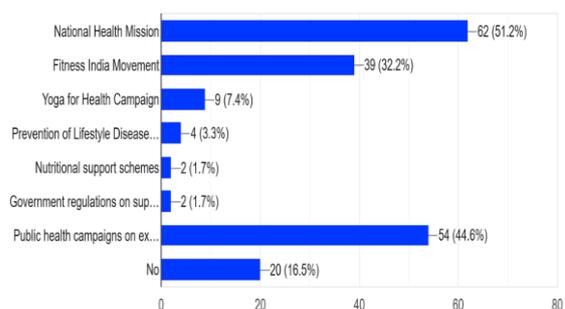
The above chart reveals that 90.10% of youth believe that there is sufficient awareness about safe supplement consumption practices, a bit of youth i.e. 6.60% believes that there is sufficient awareness and 3.30% youth believes that there is sufficient awareness.

**19. Which bodybuilding supplements do you prefer?**



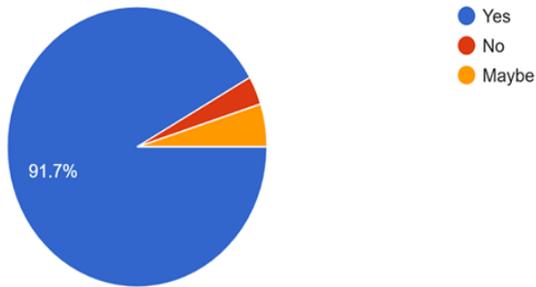
The above chart reveals that 87.60% of youth preferring MuscleBlaze(MB) company , 86.80% Optimum Nutrition (ON) , MuscleTech by 43%, IsoPure by 42.10%, Bolt by 25.60 and followed by other brands.

**20. Which of the following government policies or programs have you heard of in relation to youth health and wellness? (Select all that apply)**



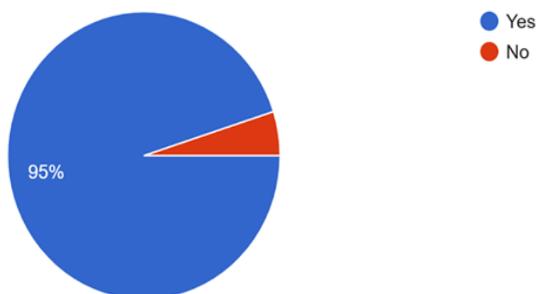
The above chart reveals that 51.20% youth are aware about the ‘National Health Mission’ policy of government, Public health campaigns on exercise and fitness by 44.60%, Fitness India Movement by 32.20%, 16.50% youth are not aware about any health policy or program.

**21. Do you believe that the government should regulate bodybuilding supplements to ensure safety and wellness?**



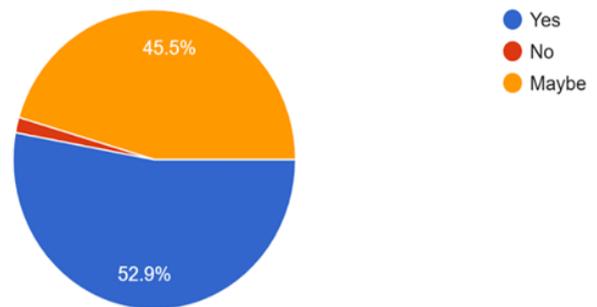
The above chart reveals that most of the youth i.e. 91.70% believe that the government should regulate bodybuilding supplements to ensure safety.

**22. Would you prefer purchasing bodybuilding supplements that are certified by government-approved health organizations or regulators?**



The above chart reveals that 95% of youth will prefer purchasing bodybuilding supplements that are certified by government-approved health organizations or regulators.

**23. Do you think government intervention in regulating supplements can help reduce misleading advertising or unverified health claims?**



The above chart reveals that 52.90% of youth think that government intervention in regulating supplements can help reduce misleading advertising or unverified health claims.

### Conclusion:

Majority of youth believe that bodybuilding supplements can improve their overall health and wellness. The findings reveal that building muscles and social media influence are the prime factors to take supplements along with diet. High cost of supplements and lack of information about products and its side effects become a challenge to youth. MuscleBlaze(MB) is the most preferred brand for supplements followed by Optimum Nutrition (ON). Most of the youth are looking for government intervention in this product segment so that they will add supplements in their diet without any hesitation and will be able to achieve their individual health and wellness goals.

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### Recommendations:

- Educational campaigns are needed to improve knowledge about responsible supplement use and potential side effects.
- Regulatory bodies should implement stricter measures to ensure product authenticity and safety.
- Fitness influencers and media platforms should promote evidence-based practices and discourage unrealistic expectations.
- Government initiatives can focus on promoting healthy eating habits and affordable fitness options alongside safe supplement use.
- [https://www.researchgate.net/profile/Lalita-Verma-2/publication/371915261\\_Use\\_of\\_Nutritional\\_Ergogenic\\_Aids\\_by\\_Adults\\_Training\\_for\\_Health-Related\\_Fitness\\_in\\_Gymnasia-A\\_Scoping\\_Review/links/6565c6eeb86a1d521b164913/Use-of-Nutritional-Ergogenic-Aids-by-Adults-Training-for-Health-Related-Fitness-in-Gymnasia-A-Scoping-Review.pdf](https://www.researchgate.net/profile/Lalita-Verma-2/publication/371915261_Use_of_Nutritional_Ergogenic_Aids_by_Adults_Training_for_Health-Related_Fitness_in_Gymnasia-A_Scoping_Review/links/6565c6eeb86a1d521b164913/Use-of-Nutritional-Ergogenic-Aids-by-Adults-Training-for-Health-Related-Fitness-in-Gymnasia-A-Scoping-Review.pdf)
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