

# ROLE OF BALANCED DIET TO ENHANCE PERFORMANCES OF COLLEGIATE ATHLETES

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## ABSTRACT

**Introduction** - A proper quantity of each vitamin that the body needs to develop, stay healthy, and be disease-free is present in a balanced diet. A healthy, balanced diet also gives you the energy you need, guards against vitamin, mineral, and other nutritional shortages, and strengthens your immune system. Heavy exercise training and other variables have an impact on sports performance, but a healthy diet and nutritional supplements are also crucial. It is true that food and nutrition have a big impact on how well athletes perform in sports.

**Aim of the study** – The main aim of this study is to discuss the Knowledge and awareness of athlete on balanced diet and Nutrition, to analyse the Attitude of Athletes towards Good eating habits and performance and assessing the Role of Balanced Diet to Enhance Performances of Collegiate Athletes.

**Research Methodology** – This research is descriptive in nature. The data of this study have been collected through the primary and secondary sources. The Primary data have been collected through the questionnaire distributed among the respondents. The total 165 Collegiate Athletes from Maharashtra State have been selected for the study. Further the data have been analysed using statistical tool.

**Data analysis** - The collected data have been analysed using descriptive statistics and chi square ( $\chi^2$ ) test have been using for hypothesis testing. This part examines the demographic characteristics of the participants who were chosen for the study project. It gives a breakdown of the athletes according to their sports, ages, religions, and genders.

**Conclusion** – The study reveals that the athletes' consumption of a diet rich in nutrients had a significant part in the improvement of their overall performance. It is concluded that, the hypothesis, which states that There is no significant role of the balanced diet to enhance the performance of the Collegiate Athletes in Maharashtra is rejected and alternative hypothesis is accepted and it is stated that the balanced diet played an important role to enhance the performance of the Collegiate Athletes.

**Keywords** - *Balanced Diet, nutrients, Collegiate Athletes, performance, etc.*

## 1. INTRODUCTION

Heavy exercise training and other variables have an impact on sports performance, but a healthy diet and nutritional supplements are also crucial. It is true that food and nutrition have a big impact on how well athletes perform in sports. This is why nutrition is so important to many nations. They want to know if the effects of exercise might alter their nutritional needs or whether adjusting their diets can enhance athletic performance, among other things. [Fernández-Landa, et al. 2020]. Academics from all over the globe are highly worried about this subject, but at the same time, many of them have already formed their positions on a number of different topics. However, there are a variety of schools of thought on how to build and organize the nutritional diet in accordance with the many sports and athletes who compete in them in a variety of locations, environments, climates, and times of the year, as well as the athletes' individual physiologic traits and circumstances. In conclusion, let's talk quickly about these concerns, with a particular emphasis on endurance training for the benefit of our coworkers. [Logue, et al. 2018].

A certain amount of caloric intake is required of athletes in order for them to fulfil their requirements for usable energy. In the event that the body's requirements for energy are not fulfilled, both fatty and lean tissue will be used for this purpose. This will result in a decrease in strength as well as endurance. In addition, problems will arise with the immunological system, the endocrine system, and the musculoskeletal system. A low-calorie intake may, over time, lead to a decreased metabolic rate at rest as well as an insufficient ingestion of important vitamins and minerals. If an athlete takes severe means to fast reduce weight in preparation for a competition in a weight class sport such as boxing, kickboxing, or mixed martial arts, they put themselves at risk for the negative consequences of low-calorie intake. This risk may be compounded if the athlete consumes less food overall. These kinds of energy constraints may lead to a loss of muscle and can be detrimental to sports performance. [Rodriguez, et al. 2009]

### 1.1 Balanced diet

A balanced diet is one that has all the nutrients needed by the body in the right proportions. From infancy forward, a healthy diet is essential for optimal physical and mental development. The health and nutritional status of a people is affected by the food they eat, which is in turn affected by production, distribution, cultural, and societal views. In addition to delivering nutrients, foods also contain a wide range of other components (non-nutrient phytochemicals) that have a positive effect on health [De Ridder et al., 2017]. The promotion of nutrition should focus on foods rather than nutrients because of the essential role food plays in people's lives.

The growth, development, proper function, and physical activity, and general health all depend on the nutrients supplied from eating. Thus, healthy diet is essential for continued existence and physical activity. For optimal health, we need to ensure that our food contains appropriate amounts of all essential nutrients. A deficiency condition or other chronic sickness, such as obesity, hypertension, diabetes, and other lifestyle disorders, may develop from eating too much food (overnutrition) or too little (undernutrition). An appropriate diet that supplies all nutrients is necessary for human survival. Consuming a balanced diet not only protects against all types of malnutrition, but also against noncommunicable illnesses and the disorders that often accompany them. [Ohlhorst et al., 2013].

### 1.2 Importance of balanced diet

A healthy diet should include macronutrients such as proteins, carbs, and fats, as well as micronutrients such as vitamins, minerals, and water. These are the components that, when combined, serve to sustain and control the functioning of the body. It is accountable for the appropriate upkeep of the immune system and contributes to the preservation of good health. [Jahnavi and Pawar, 2013]

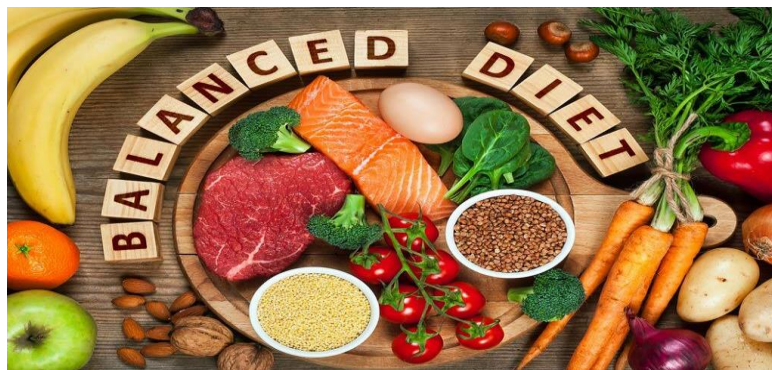


Figure 1: Balanced Diet

- ✓ **Carbohydrates** - Carbohydrates, in particular, are crucial because they provide the fuel that our bodies need.
- ✓ **Proteins** - Proteins are essential for tissue repair, maintenance, and the development of new cells.
- ✓ **Fats** - Fats are a concentrated source of energy and a delivery system for vitamins A, D, E, and K.
- ✓ **Vitamins** - Vitamins are essential for healthy development, bodily activities, and metabolic processes.
- ✓ **Minerals** - Minerals are essential for healthy bone and tooth development, as well as the generation of other tissues that provide structural support for the body.
- ✓ **Hydration** - Water aids in temperature regulation, the transportation of nutrients, the absorption of those nutrients, and the removal of waste materials, making it an essential part of any healthy diet.

### 1.3 Balanced Diet for Athletes

Although many athletes spend weeks, months, or even years preparing for competition, many of them end up injured just before or during the event. Extreme exhaustion, fatigue fracture, and similar occurrences are examples. It's not that athletes have little resistance; it's that we haven't figured out how to properly fuel and rest them scientifically. [Lorenzo, et al. 2020]. We are aware that high-volume training is essential for mastering and advancing technology, but it also reduces an athlete's physical strength. Take the sweat that the human body produces when exercising. According to Song, intense activity removes a significant percentage of the body's excess perspiration. Minerals including salt, calcium, and iron are also present. The body will lose a lot of minerals if you perspire too much. Minerals like calcium and other minerals cannot be supplied in order to maintain the equilibrium of a person's bodily processes; otherwise, bones would surely deteriorate over time. Fatigue fractures develop from this." During vigorous activity, muscles and blood are also consumed at a rate that is higher than that of non-athletes. In addition to making, it impossible to advance technology, a lack of the numerous nutrients needed to build blood and muscles would result in physical degeneration and "extreme fatigue" in humans [Sorrenti, et al. 2020]. In order to acquire excellent results during training or contests, it is crucial to take nutritional supplements in addition to doing a lot of activity. It is true that food and nutrition play a significant role in sports.

## 2. REVIEW OF LITERATURE

**Bonilla, et al (2023)** - A scientific field called sports nutrition studies the connection between dietary components and physical activity capacity. It looks at how vitamins, minerals, proteins, carbs, and lipids influence how the body uses its energy, how muscles work, and how the body recovers after activity. Research on sports nutrition tries to establish the ideal nutritional intake for athletes based on their training, performance objectives, and body composition. It also takes into account how different eating habits, such plant-based and ketogenic diets, affect physical performance. In general, it looks to learn how to improve nutrition in order to promote athletic performance and keep or improve health status. The possibility of adopting sports nutrition to lower the risk of injury and improve recovery in athletes has recently received more attention from researchers. For instance, drinking a recovery beverage after a game that contains native whey protein and carbs may lessen the rise of muscle damage signs brought on by exercise while maintaining physical performance in rugby players. The optimization of nutrient intake techniques to improve athletic performance, increase recovery, and promote health and well-being depends on on-going research in sports nutrition. This research is essential for providing practitioners with evidence-based and evidence-oriented advice.

**Chandel (2020)** - When it comes to a player's overall performance, nutrition may play a very significant part. The nutritional routine that an athlete adheres to may have a significant impact on whether or not they are successful in their bid to win the gold medal. However, this is not limited to just professional players; rather, in today's world, a significant number of amateur players also exercise on a regular basis in order to maintain themselves physically fit. As a result, it is very necessary for professional players to adhere to a nutritious diet that is both directed and planned, as well as participate in well-organized workouts. Alterations in body

composition, a lower risk of injury, and a longer career as a professional athlete are some of the additional benefits that may result from maintaining a healthy diet while participating in sports.

**Dr. Mahurkar (2019)** - A young organism's growth and development are greatly influenced by nutrition. It has a significant effect on athletic performance as well. A balanced diet and good eating habits lower the risk of disease and injury while enabling athletes to exercise hard, recover fast, and adapt better. To get the greatest outcomes, athletes should utilize suitable dietary methods both before and after competitions. They should pay close attention to the proportions of vitamins, minerals, proteins, carbs, and fats in their diet. This essay's main goal is to explore the fundamental concepts of a balanced diet and nutrition (carbohydrates, lipids, proteins, vitamins, and minerals) in relation to physical activity and general health. A healthy diet satisfies biological, psychological, and social demands; it enables complete physical and mental growth; it also keeps the body healthy and disease-resistant until old age for athletes' sporting performance.

**Indoria and Singh (2016)** - Children's physical and mental health depend on their participation in physical exercise. Teenagers who participate in sports have higher nutritional requirements owing to the added demands of increased physical activity in addition to needs for growth, development, and wellbeing. Due to a lack of appropriate nutritional guidance, the health and nutritional condition of this group may be impaired. Additionally, false information about wholesome meals spread by the media to school-age children may be highly dangerous. The goal of this review paper is to illustrate the nutritional requirements of young people playing various games, as well as to educate and empower young people about the value of nutrition during physical activity (PA) or game play. Fluids that deliver nutrients require the right amount of fuelling and recovery.

**Thomas, D. et al. (2016)** - The American College of Sports Medicine, Dietitians of Canada, and the Academy of eating and Dietetics all hold the view that proper eating practices improve both athletic performance and post-workout recovery. These organizations provide recommendations on the right kind, quantity, and timing of food, drinks, and supplements to be consumed in order to support maximum health and performance in a variety of training and competitive sport settings. For members of the Academy of Nutrition and Dietetics, Dietitians of Canada (DC), American College of Sports Medicine (ACSM), as well as other professional bodies, governmental organizations, business, and the general public, this position paper was created. It presents the opinions of the Academy, DC, and ACSM about nutrition-related elements that have been shown to affect athletic performance as well as recent developments in the area of sports nutrition. A licensed dietitian or nutritionist should be recommended to athletes for a custom nutrition plan. The Certified Specialist in Sports Dietetics (CSSD) is a licensed dietitian/nutritionist and a recognized sports nutrition specialist in the United States and Canada.

### 3. SIGNIFICANCE OF THE STUDY

The findings of this study project will contribute to a review that examines how an appropriate and well-balanced diet might aid improve Collegiate's athletic performance. There would be no omission of the nutrients that may be obtained from any one category of food. The results of this investigation have the potential to act as a manual for athletic trainers, event organizers, and participants. It is intended that the study may, in the future, contribute to further igniting the desire for additional research into related subjects.

### 4. OBJECTIVES OF THE STUDY

1. To discuss the concept of Balanced diet, importance of Balanced diet and Balanced Diet for Athletes
2. To evaluate the Knowledge and awareness of athlete on balanced diet and Nutrition
3. To analyse the Attitude of Athletes towards Good eating habits and performance
4. To assess the Role of Balanced Diet to Enhance Performances of Collegiate Athletes

## 5. RESEARCH METHODOLOGY

This part described the research methodology, and the approaches and procedures that were used in the execution of the study are mentioned under the following sub headings:

### 5.1 Research design

The study effort selected the descriptive survey research technique because it deals with the role of balanced diet on the performance of collegiate athletes in the state of Maharashtra. The research will benefit from this since it will be able to spot issues, conduct comparisons, analyse information, and gather more of it. The purpose of gathering information on the current state of a phenomenon via descriptive survey research is to gain information about the variables or conditions present in a scenario.

**5.2 Population of the study:** The participants in this research include all of the collegiate athletes from Maharashtra.

**5.3 Sample:** The participants in the research are comprised of a sample size of 165 collegiate athletes from state of Maharashtra.

**5.4 Sampling Techniques:** For this investigation, Purposive sampling procedures were used.

**5.5 Data collection:** The data have been collected through the primary and secondary sources. The data in the primary source have been collected through the questionnaire distributed among the athletes while secondary data have been collected through the internet, magazines, research papers, thesis, dissertation, books etc.

**5.6 Instruments used for Data Collection:** The instrument that was utilized for this study was a questionnaire that the researchers themselves had prepared, and it was used to collect information from the respondents. The questionnaire was closed-ended, and it used a modified version of the Likert scale.

- ✓ “SA”: Strongly Agree
- ✓ “A”: Agree
- ✓ “D”: Disagree
- ✓ “SD”: Strongly Disagree

**5.7 Validity of Instrument:** The degree of precision of the research instrument is defined as its validity. It is the degree to which a thought, conclusion, or measurement is well based and precisely corresponds to reality. A draft copy of the questionnaire was sent to the researcher's supervisor and other specialists in the area of Human Kinetics and Health Education for adequate examination, correction, modification, and required recommendations in order to verify the questionnaire.

**5.8 Reliability of the Instrument:** The applicability or correctness of the data gathered from a specific test is addressed by reliability. Asila (1991) defines dependability as the consistency of independent measurements of the same phenomena. To ensure the reliability of the research instrument Ten surveys were sent to a group of athletes who were not study participants, and the Cronbach Alpha reliability test yielded a reliability value of 0.07.

**5.9 Data Analysis and statistical tools:** Descriptive statistics such as frequency counts and simple percentages were utilized in the data collection, coding, and analysis; inferential statistics such as chi square ( $\chi^2$ ) were used for hypothesis testing at the 0.05 level of significance.

**5.10 Hypothesis of the study:** In the course of this research, we shall examine the following hypothesis:

*H1: There is a significant role of the balanced diet to enhance the performance of the Collegiate Athletes in Maharashtra*

*H01: There is no significant role of the balanced diet to enhance the performance of the Collegiate Athletes in Maharashtra.*

## 6. DATA ANALYSIS

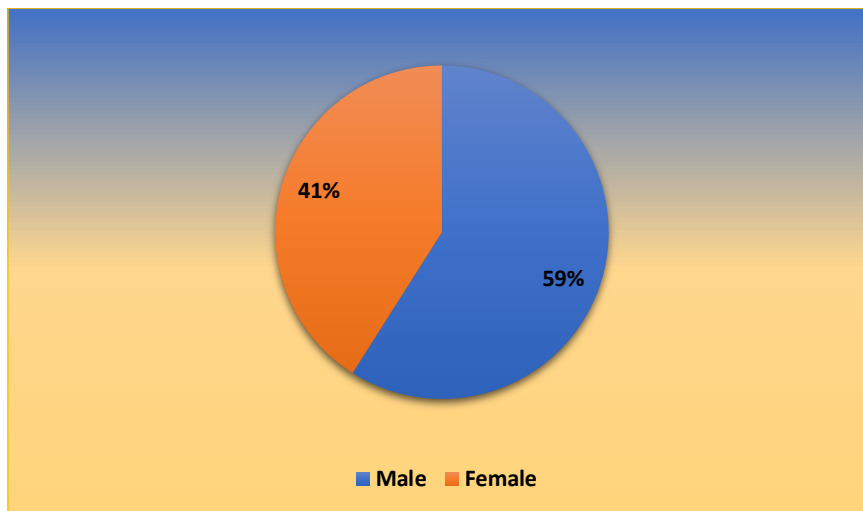
The collected data have been analysed in this section. In this part, the analysis of the data and result from the study activity were covered using appropriate tools.

### 6.1 Demographic Profile

This section examines the demographic characteristics of the participants who were chosen for the study project. It gives a breakdown of the athletes according to their sports, ages, religions, and genders.

**Table 1: Gender of the Athletes**

Gender	Frequency	Percent
Male	97	59%
Female	68	41%
Total	165	100%



**Figure 2: Gender of the Athletes**

According to the data shown in the table, 59% of the athletes are men, whereas only 41% of the responders are women.

**Table 2: Age of the Athletes**

Age	Frequency	Percent
15-18	33	20%
19-22	50	30%
23-26	56	34%



27 and above	26	16%
Total	165	100%

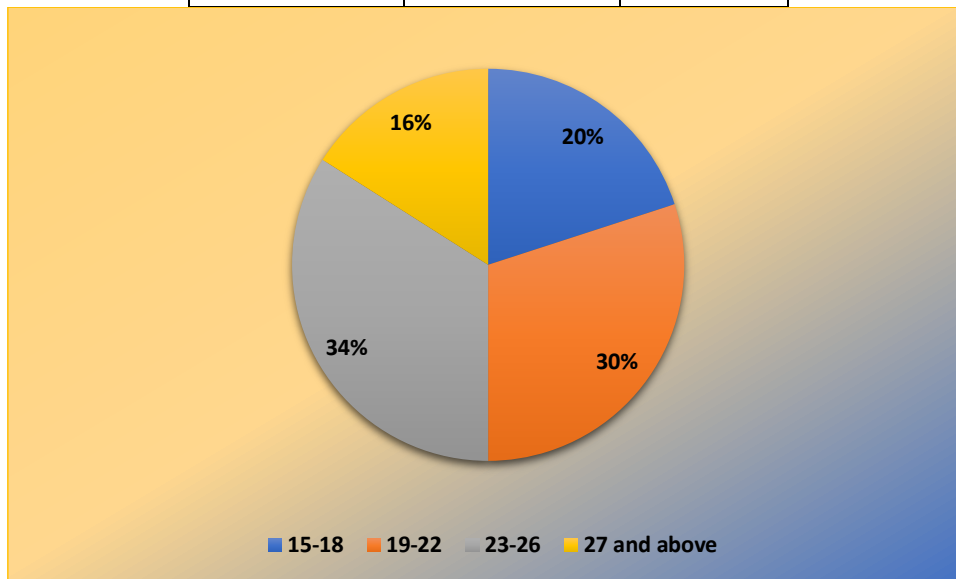
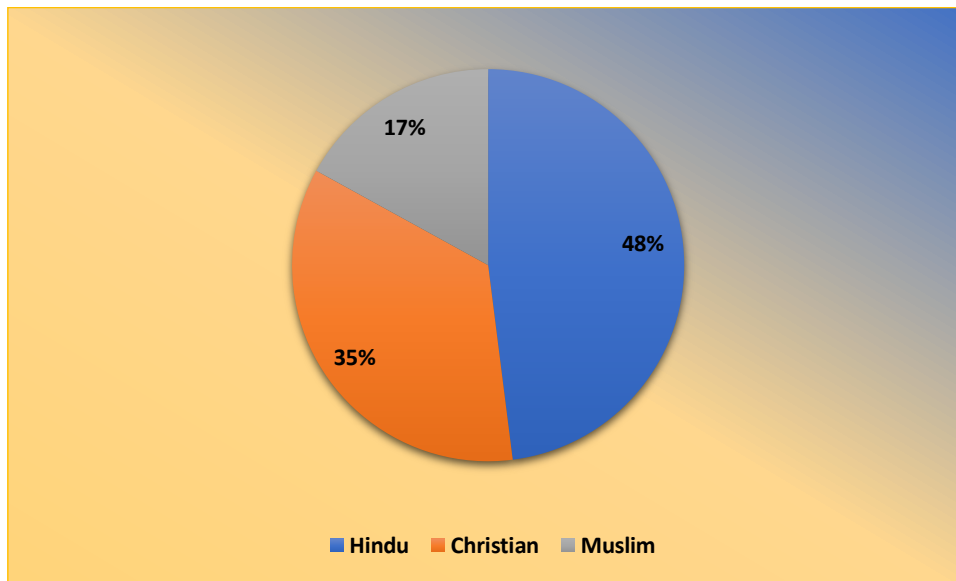


Figure 3: Age of the Athletes

The data shown in the table above reveals that 20 percent of the athletes are between the ages of fifteen and eighteen. 30 percent of the athletes are in the age range of 19 to 22 years, 34 percent are within the age range of 23 to 26 years, and the remaining 16 percent are 27 years old or over.

Table 3: Religion of the Athletes

Religion	Frequency	Percent
Hindu	79	48%
Christian	58	35%
Muslim	28	17%
Total	165	100%



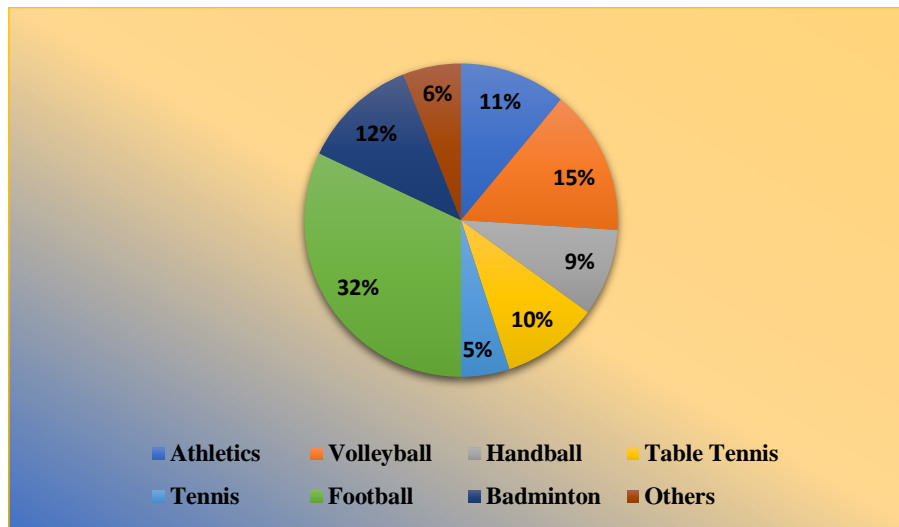
**Figure 4: Religion of the Athletes**

According to the analysis of the participants' religious affiliations, the table that was just above it revealed that 48 percent of respondents consider themselves to be Hindu, whereas 35 percent consider themselves to be Christian, and 17 percent consider themselves to be Muslim.

**Table 4: Sport of the Athletes**

Sports	Frequency	Percent
Athletics	18	11%
Volleyball	25	15%
Handball	15	9%
Table Tennis	16	10%
Tennis	8	5%
Football	53	32%
Badminton	20	12%
Others	10	6%
Total	165	100%





**Figure 5: Sport of the Athletes**

In addition, the many areas of sporting expertise held by the athletes that were chosen may be seen in the table that was just shown. From the data shown in the table, we can deduce that 11% of the athletes compete in athletics, 15% play volleyball, and 9% focus on handball as their primary sport. In addition, 10% of the population participates in table tennis, 5% in tennis, and 32% in football. In addition to that, 12% of the athletes compete in badminton, while the remaining 6% take part in sports other than the ones stated above.

## 6.2 Daily intake of the Balanced diet

**Table 5: Daily intake of the Balanced diet by the male and Female respondents**

Food stuffs	Daily intake			
	Male		Female	
	Adequate	inadequate	Adequate	inadequate
Cereals	54%	46%	52%	48%
Pulses	14%	86%	17%	83%
Roots and Tubers	10%	90%	9%	91%
Green leafy vegetables	5%	95%	3%	97%
Other vegetables	5%	95%	5%	95%
Fruits	22%	78%	40%	60%
Fish & Meat	52%	48%	47%	53%
Milk & milk products	32%	68%	41%	59%
Fats & oils	70%	30%	73%	27%
Sugar and Jaggery	58%	42%	56%	44%

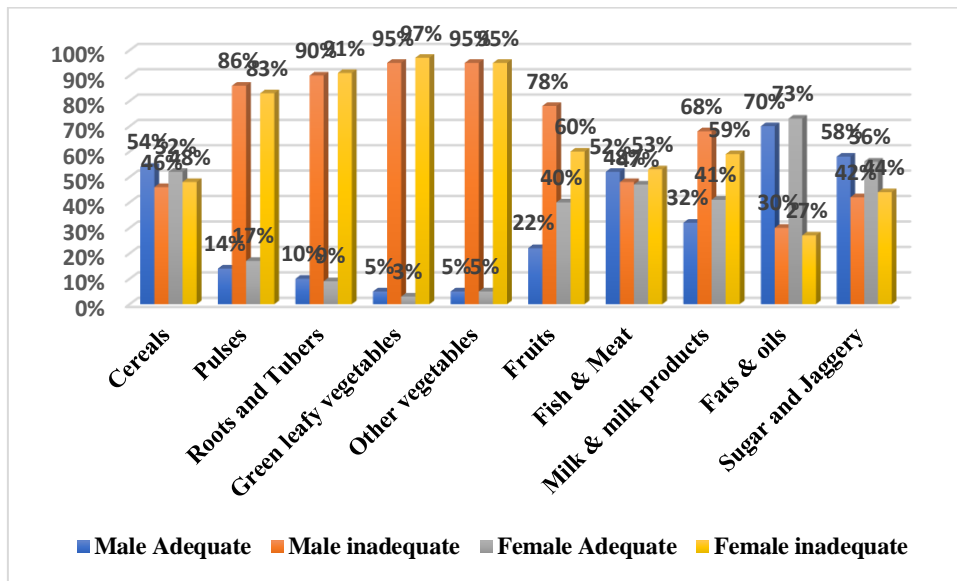


Figure 6: Daily intake of the Balanced diet by the male and Female respondents

Female participants were more likely than male respondents to report consuming inadequate quantities of cereals, roots and tubers, green leafy vegetables, fish, and meat, as well as sugar and jaggery, according to the data in the table above. Green leafy vegetables, other vegetables, roots, and tubers, and pulses are the most deficient nutritional components, according to both male and female respondents. Despite the fact that these items are taken more often, the quantity seems to be inadequate. This might be due to oral cavity difficulties or the respondents' specific preferences for and aversions to certain meals.

### 6.3 Knowledge and awareness of athlete on balanced diet and Nutrition

Table 6: Knowledge and awareness of athlete on balanced diet and Nutrition

ITEMS	Strongly Agree		Agree		Disagree		Strongly Disagree	
	N	%	N	%	N	%	N	%
Carbohydrates are the greatest source of energy.	104	63%	45	27%	13	8%	3	2%
Only food provides the body with the balanced diet and nutrition it requires.	41	25%	61	37%	51	31%	12	7%
Food contains the essential nutrients required by living organisms to sustain life, health, and performance.	101	61%	57	35%	5	3%	2	1%
When we consume a meal, digestion releases nutrients from the food.	83	50%	69	42%	8	5%	5	3%
Water is very essential in nutrition	116	70%	39	24%	7	4%	3	2%
Consuming healthy foods improves	99	60%	56	34%	8	5%	2	1%

performance.								
Eating the correct foods is always important for disease prevention and recovery after sickness.	104	63%	56	34%	3	2%	2	1%
Healthy eating gives us the nutrients we need for growth and development.	99	60%	54	33%	10	6%	2	1%
Good nutrition is essential for good health throughout one's life	101	61%	57	35%	5	3%	2	1%
To develop, reproduce, and sustain good health, humans need food.	102	62%	55	33%	5	3%	3	2%

According to the table above, 90% of the respondents concur that carbohydrates are the greatest dietary source for providing energy, while the remaining 10% disagree. Additionally, 62% of all respondents agree that the nutrients our bodies need can only be obtained from eating, whereas 38% of all respondents disagree. Similar to this, the majority of athletes (96%) believed that food supplies the nutrients required for life, health, and performance, whereas the remaining 4% of respondents disagreed.

In a similar vein, 92% of all respondents agreed that nutrients are released from food during digestion when we have a meal, whereas the remaining 8% of all respondents disagreed. The table also showed that 96% of all respondents believed that water is very important for nutrition, while just 4% disagreed. Additionally, the majority of respondents (94% overall) agreed that eating well improves performance, while just 6% disagreed.

Furthermore, 97% of all respondents agree that eating the correct foods always has a substantial part in preventing certain illnesses and recovering from sickness, while the remaining 3% disagree. Additionally, 93% of all respondents agreed that eating healthily gives us the nutrients we need for growth and development, whereas 7% of respondents disagreed. Additionally, 96% of all respondents agreed that a healthy diet is important for maintaining good health throughout the course of one's life, with 4% disagreeing. The majority of respondents, 95%, agreed that food is necessary for humans to grow, reproduce, and retain good health, while just 5% disagreed.

#### 6.4 Attitude of Athletes towards Good eating habits and performance

Table 7: Attitude of Athletes towards Good eating habits and performance

ITEMS	Strongly Agree		Agree		Disagree		Strongly Disagree	
	N	%	N	%	N	%	N	%
I love eating a few hours before an event.	78	47%	63	38%	21	13%	3	2%
I love eating protein food while working out.	41	25%	80	48%	36	22%	8	5%
I prefer to eat a lot of fatty food before any performance.	36	22%	25	15%	84	51%	20	12%
I want to drink water after every performance.	84	51%	66	40%	10	6%	5	3%
I like drinking water while engaging in any activity.	59	36%	69	41%	29	18%	8	5%

According to the table above, 85% of respondents say they like to eat before performing any event, while the other 15% say they don't. Additionally, whereas 27% of all respondents do not value protein food during

training sessions, the remaining 73% do. Additionally, just 37% of all respondents like eating enough fatty food before to any performance, while the remaining 63% find this to be undesirable. Additionally, 91% of all responders want to drink water after every performance, while the other 9% do not. Last but not least, 77% of all respondents said they like drinking water when engaging in any activity, while 23% disagreed.

### 6.5 Healthy eating habits and performance

**Table 8: Developing healthy eating habits and performance**

ITEMS	Strongly Agree		Agree		Disagree		Strongly Disagree	
	N	%	N	%	N	%	N	%
I drink plenty of water every day.	117	71%	43	26%	3	2%	2	1%
I eat a balanced diet every day.	64	39%	86	52%	15	9%	0	0%
I only consume foods high in carbohydrates.	43	26%	43	26%	66	40%	13	8%
I eat before every performance.	43	26%	89	54%	30	18%	3	2%
I like drinking water right after a meal.	79	48%	66	40%	13	8%	7	4%

According to the aforementioned data, 97% of the population as a whole drink enough water each day, while just 3% of the respondents do not. Additionally, 91% of all responders have a sufficient diet every day; the other 9% do not. Additionally, 52% of all respondents consume only foods high in carbohydrates, compared to 48% who do not. Additionally, 80% of all respondents say they always eat before attending any performance, while the other 20% say differently. Last but not least, 88% of all respondents agreed that they always drink water right after a meal, while just 12% disagreed.

### 6.6 Diet and nutrition are influenced by coaches

**Table 9: Diet and nutrition are influenced by coaches**

ITEMS	Strongly Agree		Agree		Disagree		Strongly Disagree	
	N	%	N	%	N	%	N	%
During the training session, our coach ensures that we have a balanced diet.	58	35%	74	45%	28	17%	5	3%
Coach highlights the need of eating adequate food before engaging in any physical exercise.	58	35%	68	41%	31	19%	8	5%
Coach ensures that the administration provides us with meal allowances during competition.	45	27%	79	48%	28	17%	13	8%
Coach advises us on the sort of food we should follow to improve our performance during the competition.	81	49%	66	40%	8	5%	10	6%

Coach ensures that we drink enough of water to replace the fluids lost during performance.	58	35%	82	50%	20	12%	5	3%
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According to the data above, 80% of all responders say their coach ensures they consume a healthy diet while exercising, while the other 20% say differently. Additionally, 76% of all respondents agreed that their coaches should stress the need of eating sufficiently before engaging in any physical exercise, while 24% disagreed. Furthermore, 75% of all respondents believed that their coaches ensure that the administration provides them with a meal allowance while competing, while 25% disagreed. Furthermore, 89% of respondents accepted, with 11% disapproving, that their coaches should advise them on the kind of diet to follow in order to improve their performance during competition. Finally, 85% of all responders say their coaches make sure they drink enough of water to replenish lost fluids while performing, while the other 15% say differently.

### 6.7 Effect of balanced diet on athletes' performance

**Table 10: Effect of balanced diet on athletes' performance**

ITEMS	Strongly Agree		Agree		Disagree		Strongly Disagree	
	N	%	N	%	N	%	N	%
Good performance	109	66%	51	31%	3	2%	2	1%
Average performance	30	18%	82	50%	46	28%	7	4%
Bad performance	36	22%	41	25%	55	33%	33	20%
Good health	89	54%	66	40%	10	6%	0	0%
Prevention of certain diseases	84	51%	68	41%	10	6%	3	2%

According to the aforementioned data, 97% of all respondents concurred that a balanced diet improved performance, while just 3% disagreed. Additionally, 68% of all respondents agreed that a balanced diet would lead to average performance, while 35% disagreed. A healthy diet will also improve performance, according to 47% of respondents, while the remaining 53% disagree. In addition, 94% of all respondents believed that a balanced diet contributed to good health, with just 6% of all respondents holding the opposing view. Last but not least, 92% of the population as a whole agreed that a balanced diet may help avoid various illnesses, while the remaining 8% disagreed.

## 7. HYPOTHESIS TESTING

**Table 11: Hypothesis Testing**

variables \* role of balanced diet on athletes' performance cross-tabulation

Variables	Items		Role of balanced diet on athletes' performance			
			SA	A	U	SD
	When I consume a healthy diet prior to a competition, I perform well.	Count	63	54	29	19
		Expected Count	39.1	33.5	17.5	9.9
	The food one	Count	60	63	25	17

consumes has a significant impact on one's performance.	Expected Count	39.1	33.5	17.5	9.9
I can go without food for days without affecting my performance.	Count	37	30	52	46
	Expected Count	39.1	33.5	17.5	9.9
Taking water during competition improves my performance.	Count	43	63	40	19
	Expected Count	39.1	33.5	17.5	9.9
Overeating before a performance is detrimental to performance	Count	78	42	22	23
	Expected Count	39.1	33.5	17.5	9.9

The cross-tabulation of the five variables that are used in the testing of the hypothesis developed for this study can be found in the table that is shown above. It displays the observed values of the different replies provided by the respondents as well as the predicted values that correspond to those responses. The results of the chi-square test for the hypothesis are shown in the following table.

**Table 12: Chi-Square Tests**

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.768E2 <sup>a</sup>	12	.000
Likelihood Ratio	137.845	12	.000
Linear-by-Linear Association	.069	1	.798
N of Valid Cases	825		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.80.			

According to the table that was just shown, the significance of the chi-square test result  $X^2$  (1.768) is 0.000, which is significantly less than the significance threshold of 0.05. As a result, there is a significant connection between maintaining a healthy diet and the performance of athletes. Therefore, the hypothesis, which states that *There is no significant role of the balanced diet to enhance the performance of the Collegiate Athletes* is rejected and alternative hypothesis is accepted and it is stated that *the balanced diet played an important role to enhance the performance of the Collegiate Athletes*.

## 8. CONCLUSION

Every individual, in their day-to-day existence, should prioritize maintaining a diet that is well-balanced. Having good health and taking care of it is of the utmost importance. Athletes have unique nutritional needs, and striking a healthy balance in their eating habits is essential to getting the best possible results in terms of both peak performance and overall health. For athletes to be able to satisfy their energy demands during competition, training, and recuperation, they need to ensure that the meals they put into their bodies provide them with the vitamins, proteins, carbs, and minerals that they need. Therefore, a diet that is well-balanced, along with excellent training and coaching, will be the winning mix and will assist the athlete in developing strength and

endurance. To become a world-class athlete, you need to have the right genes, as well as put in the work to improve your training and fitness, and maintain a healthy diet. When it comes to optimum performance, optimal nutrition is very necessary. Nutritional misunderstandings may cause an aspiring athlete just as much trouble as they can aid them when it comes to their performance. In order to maintain a healthy lifestyle, an athlete has to consume foods from a variety of food categories while also improving the decisions they make about food. Your daily diet selections have to comprise foods of all different sorts, including carbs, proteins, fats, vitamins, minerals, and, most importantly, fluids like water. When athletes consume the appropriate quantity of food at the appropriate time, they put themselves in the greatest position to reach their full athletic potential. As a result, we may conclude that nutrition does indeed have an effect on the results of athletic endeavours [Wojtys, 2015]

We may draw the conclusion that the athletes' consumption of a diet rich in nutrients had a significant part in the improvement of their overall performance. As a result of our research, we came to the conclusion that an individual's performance in a competition is positively impacted when that individual eats very well before the competition, when the type of food an individual eats has an effect on that individual's performance, when that individual drinks water during the competition, and when that individual overeats before a competition, the performance of athletes from Maharashtra State, is negatively impacted. However, regardless of how strenuously an individual may train in order to win a competition or improve his or her skills in a particular sport, the coaches and administration management should always make sure that adequate nutrition is provided to the athlete in question. This will ensure that the athlete has the diet that is most conducive to his or her activity and will result in a good performance from the athlete.

## 9. RECOMMENDATIONS OF THE STUDY

- Ample funds should be provided to the athletes as a meal allowance during competition, and coaches should ensure that the athletes utilize the funds to purchase wholesome food.
- Athletes should closely follow the advice of sport nutritionists and coaches in order to improve their performance on the field of play.
- Since people often overestimate how many calories they burn during exercise, it's critical to avoid consuming more calories than you burn off while exercising.
- The administration should always ensure that all athletes have a proper diet that will improve their performance.
- The coaches should place a strong emphasis on the kind of diet that will be consumed before to, during, and after competition.
- The management may hire a sports nutritionist to assist with the players' diet as coaches don't always stress a healthy diet to the sportsmen.
- The management should ensure that there is a forum where the administration prepares the athletes' meals in order to supervise their diet.
- To inform athletes and coaches about the impact of a balanced diet on performance, the administration should host an orientation seminar.

## REFERENCES

- Bonilla, D.A.; Boullosa, D.; Del Coso, J. Advances in Nutrition, Dietary Supplements and Ergogenic Aids for Athletic Performance: Trends and Future Prospects. *Nutrients* 2023, 15, 2246. <https://doi.org/10.3390/nu15102246>
- Chandel, A. (2020). Impact of Diet and Nutrition on Sports Performance. *International Journal of Research Culture Society*, Volume - 4, Issue - 6, Scientific Journal Impact Factor: 5.245, ISSN: 2456-6683, Pg no. 22-24. <https://ijrcs.org/wp-content/uploads/IJRCs202006003.pdf>



- de Ridder, D., Kroese, F., Evers, C., Adriaanse, M., & Gillebaart, M. (2017). Healthy diet: Health impact, prevalence, correlates, and interventions. *Psychology & Health*, 32(8), 907–941. <https://doi.org/10.1080/08870446.2017.1316849>
- Dr. Mahurkar, A. (2019). Importance of Balance Diet & Nutrition for Athletes Performance. Indian Journal Of Applied Research, Volume-9, Issue-11, PRINT ISSN No. 2249 - 555X, DOI: [https://www.worldwidejournals.com/indian-journal-of-applied-research-\(IJAR\)/recent\\_issues\\_pdf/2019/November/importance-of-balance-diet-and-nutrition-for-athletes-performance\\_November\\_2019\\_1572597802\\_6412416.pdf](https://www.worldwidejournals.com/indian-journal-of-applied-research-(IJAR)/recent_issues_pdf/2019/November/importance-of-balance-diet-and-nutrition-for-athletes-performance_November_2019_1572597802_6412416.pdf)
- Fernández-Landa J, Fernández-Lázaro D, Calleja-González J, Caballero-García A, Córdova Martínez A, León-Guereño P, Mielgo-Ayuso J. Effect of Ten Weeks of Creatine Monohydrate Plus HMB Supplementation on Athletic Performance Tests in Elite Male Endurance Athletes. *Nutrients*. 2020 Jan 10;12(1):193. doi: <https://doi.org/10.3390/nu12010193>
- Indoria A, Singh N. Role of Nutrition in Sports: A Review. *Indian J Nutri*. 2016;3(2): 147. <https://www.opensciencepublications.com/fulltextarticles/IJN-2395-2326-3-147.html#ref1>
- Jahnvi, M.V.S.K. and Pawar, A.K.M. (2013). Balanced Diet. *Journal of Global Trends in Pharmaceutical Sciences*. Volume 4, Issue 4. pp -1335-1345, <https://www.jgtps.com/admin/uploads/yrjQX.pdf>
- Logue D, Madigan SM, Delahunt E, Heinen M, Mc Donnell SJ, Corish CA. Low Energy Availability in Athletes: A Review of Prevalence, Dietary Patterns, Physiological Health, and Sports Performance. *Sports Med*. 2018 Jan;48(1):73-96. doi: <https://doi.org/10.1007/s40279-017-0790-3>
- Lorenzo Calvo J, Alorda-Capo F, Pareja-Galeano H, Jiménez SL. (2020). Influence of Nitrate Supplementation on Endurance Cyclic Sports Performance: A Systematic Review. *Nutrients*. 2020; 12(6):1796. <https://doi.org/10.3390/nu12061796>
- Ohlhorst, S. D., Russell, R., Bier, D., Klurfeld, D. M., Li, Z., Mein, J. R., ... & Konopka, E. (2013). Nutrition research to affect food and a healthy life span. *The Journal of nutrition*, 143(8), 1349-1354. <https://doi.org/10.3945/jn.113.180638>
- Rodriguez, N. R., DiMarco, N. M., Langley, S., Denny, S., Hager, M. H., Manore, M. M., et al. (2009). Nutrition and Athletic Performance. [Review]. *Medicine and Science in Sports and Exercise*, 41(3), 709–731. [https://boxing.nv.gov/uploadedFiles/boxingnv.gov/content/HotTopics/Nutrition\\_for\\_Athletes.pdf](https://boxing.nv.gov/uploadedFiles/boxingnv.gov/content/HotTopics/Nutrition_for_Athletes.pdf)
- Sorrenti, V., & Fortinguerra, S. et, al. (2020). Deciphering the Role of Polyphenols in Sports Performance: From Nutritional Genomics to the Gut Microbiota toward Phytonutritional Epigenomics. *Nutrients*. 12. 1265. <http://dx.doi.org/10.3390/nu12051265>
- Thomas, D, Burke, L. & Erdman, K. (2016). Nutrition and Athletic Performance. *Medicine And Science*. 48. 543-568. <http://dx.doi.org/10.1249/MSS.0000000000000852>
- Wojtys EM. (2015). Young athletes. *Sports Health*, ;7(2):108-9. doi: <https://doi.org/10.1177%2F1941738115572986> PMID: 25984254; PMCID: PMC4332650.