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# Diet and Sports Performance

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**Abstract**
The focus of this research study was to assess the perception of athletes about diet and its role in the maintenance of performance. The target population of this research study was comprised of all the players of different sports clubs of District Bannu. Two hundred and six (206) players were randomly selected as sample of the study. For the collection of data, the researcher developed a closed form of questionnaire. The developed questionnaire personally served by the researcher among the respondents and collected back after getting it filled by the respondents. The collected data were tabulated and analyzed by using percentage and mean average as statistical tool. After data analysis, the researcher arrived at conclusion that proper diet is the basic requirement of athletic performance. The data also revealed that carbohydrates, protein, fats, vitamins, minerals and water are more important to consume in proper amount for sports participation.
**Keywords***:* Athlete, Diet, Training, Sports Performance

## 1. BACKGROUND OF THE STUDY

According to Hoch etal.(2008) The term diet refers to the collection of such type of food which helps to improve the physical condition, control weight and helps to cure diseases by making the immune system strong. Similarly, Khan (2014) defines the sports diet as the diet, which need by athlete before, during and after the activity. The author further says that sports diet helps the athlete to maintain the performance while participating in sporting events.

Every athlete need to use proper diet before, during and after the activity. Lacking of proper diet not only adversely affects the performance of athlete but it significantly affects the overall functional capacity of the body of athlete (Khan, 2014). Sports diet has been one of the basic needs of every sportsmen participating at various level of sports. According to Hoch etal.(2008) Sports diet enhances athletic performance by decreasing fatigue and the risk of disease and injury; it also enables athletes to optimize training and recover faster. Athletes must fuel their bodies with the appropriate nutritional foods to meet their individual energy requirements in competition, training and recovery. If these nutritional needs are not met, there is an increased risk of poor performance and health issues.

Sports diet is a strong and valuable tool for promoting the athletic performance. It is an energy source for our body, which gives us to “get up and go.” Without sports diet an athlete, remain unable to show and to maintain performance during the competition. For the maintenance of performance a player need to used different nutrients such as carbohydrates, protein, and fats etc. (Coyle, 1995)

Sports diet must be consist of food nutrients, which are more beneficial such as according to Litte (2004) Carbohydrates should be the largest percentage of an athlete calorie intake, at least 50% to 60% in his food. This helps to meet with the demands of energy needed during exercise, maintain blood glucose and refill muscle glycogen stores.

According to Lemon (1998) Protein is required for the hormone and enzyme production, nutrient transfer in the blood, connective tissue support, and the repair of tissue in response to periods of exercise. They should consume 10%- 15% of total calories from protein. Similarly Cotugna, Vickery, & McBee (2005) stated that Fats intake is important for the energy production, protecting organs, providing insulation to the body, and facilitating fat-soluble vitamin uptake and essential fatty acid intake.

Food components may be classified as macronutrients and micronutrients. It is necessary for athlete to use both macronutrients and micronutrients. Lacking of both macronutrients and micronutrients may cause the poor or week performance of athlete during the competition (Khan,2014) Macronutrients are essential for players in energy production, bone health, immune function and antioxidant activity. Micronutrient itself does not provide energy but helps to maintain the functional capacity of the body of athlete (Maughan, King & Lea, 2004). Sports diet has been one of the basic needs of every sportsmen participating at various level of sports. Sports diet has the variety of benefits for maintenance and improvement of performance for an athlete. The performance of sportsmen is decreasing day by day. There may be many reasons behind this decreasing standard. Diet is one of the basic requirements for sportsmen. How much diet is necessary for athlete and is sufficient diet is provided to athlete before, during and after the competition? For the purpose to discover the fact the researcher, intend to conduct a research study under the title “Diet and Sports Performance”

## 2. LITERATURE REVIEW

### 2.1 Diet and Sports Performance

Diet refers to the collection of such type of food, which helps to improve the physical condition, control weight and helps to cure diseases by making the immune system strong (Hoch etal.2008). Use f diet directly linked with physical structure and intensity of the activities which is to be performed because some activities are high powered in nature such as football, tennis, and hockey, requiring large amounts of work, rapid movements, and more energy while others are more endurance-based, such as cross-country running and triathlon training, which require continual lower force outputs for longer durations. Diet may be given to athlete according to the nature and type of activity. Majority of athlete loss it performance due to improper use of diet (Frank, Engelke, & Schmid, 2003).

Research Study conducted by Frank etal.(2003) shown that athlete need to use diet according to the physiological demands of his or her sport. Such as

1. Muscles which produce high tension need more protein for recovery
2. Muscles which involve in the activity of high volumes and intensity need more carbohydrates to refill glycogen (sugar) stores.
3. Additionally, active bodies that produce large amounts of heat need more water to regulate the body temperature during the practice or competitive event.

According to Boyle (2016), Swinburn & Ravussin (2008) It is necessary for a coach to identify the actual demands of sports along with the added challenges of practice and training. It is important for athlete to understand the differences in required diet for health, fitness, and athletic performance. The author further stated that food, which selected should serve to prevent nutrient deficiencies or excesses that may decrease the risk of developing health-related problems or diseases. In moderate physical activity, a healthy diet should prevent weight gain, help to maintain appropriate body composition, and prevent any adverse health issues.

The primary need for the diet of the athlete is to meet the additional nutrient requirement imposed by the training load. Different kinds of physical activities demand different levels of energy. To fulfill the nutritional need of body before, during, and after the activity or training program it is needed to know the recommended intake of nutrition (Burke, 2007).

### 2.2 Guidelines for taking food nutrients for performing different physical activities

According to Khan (2014) it is necessary for athlete to give proper concentration to the following points as guidelines for taking food nutrients for performing different physical activities:

- Proper or adequate amount of diet helps in maintaining of health and performance. Therefore, it should be taken according to the need of the body.
- High amount of Carbohydrates should be taken for maintaining of energy level before, during and after the activity.
- After the activity, proper concentration should be given to the right intake of major nutrients for maintenance of performance.

### 2.3 Recommended Nutrients for Short, Moderate and Long Duration Sports Events

A variety of research studies shown that dietary need of athlete vary from activity to activity. The following few tables shown the dietary need of athlete during, before and after the activity

**Table No 2.3.1 showing the recommended Nutrients for short duration events players:**

| Nutrients | Percentage (%) |
|---|---|
| • Carbohydrates | 60 |
| • Proteins | 15-25 |
| • Fats | 15-25 |

**Table No 2.3.2 showing the recommended Nutrients for Moderate duration events players:**

| Nutrients | Percentage (%) |
|---|---|
| • Carbohydrates | 55-60 |
| • Proteins | 15 -25 |
| • Fats | 15-20 |

**Table No 2.3.3 Showing the recommended Nutrients for long duration events players:**

| Nutrients | Percentage (%) |
|---|---|
| • Carbohydrates | 60-70 |
| • Proteins | 10-15 |
| • Fats | 20-30 |

**2.4 Pre-Training Diet, During Training Diet and Diet After Training**

Sports diet is provided in three main areas:

2.4. 1. Pre-training diet

2.4. 2. During training diet

2.4. 3. Diet after training

**2. 4.1 Pre-training diet**

The diet, which need by athlete before to participating in any kind of training program s known as pre-training diet. Pre-event diet provides energy and strength needed to finish strong. Pre- event or training diet should be high in carbohydrate, adequate in protein, and moderate in fat and fiber. A larger food should be consumed 3 to 4 hours prior to exercise to build and maintain energy stores, while a small snack 30 to 60 minutes before exercise will provide a last minute boost of energy to the body.Hargreaves, 1999 of the view that consumption of a high carbohydrates diet 3 to 7 days before the competition may be more appropriate which may contains:

- Carbohydrates 70 to 80 %
- Protein 10 %
- Fats 10 to 20%

**2.4.2 Diet during training**

The diet which utilized by an athlete during sports performance is called during competition diet. Sport activities that extend over a long period may require mid-activity refueling in order to enhance performance. Easily digestible, carbohydrate rich foods can help maintain sufficient energy levels throughout the duration of exercise. According to Bonci L, 2009 that Carbohydrates are needed to provide energy during exercise. Because carbohydrates are stored mostly in the muscles and liver. And during activities the store carbohydrates are utilized for the production of energy for sports performance.

During sports performance full meal cannot be consumed. However, a small, high-carbohydrate snack will need to be consumed along with adequate fluid intake from sports drinks and water. Generally, in these situations the athlete would not want to consume more than about 300 calories. The main focus is to keep the athlete hydrated and not feeling hungry, yet still leave the gastrointestinal tract empty when competition begins.

**2.4.3 Post-Event Diet or Diet After Training**

The diet, which need by athlete after performing sports activities is known as post competition diet. Post events or training diet needed by the body to recover the body from fatigue and to adopt the load of activities. Refilling the body's energy and nutrient stores is needed immediately after high-intensity physical activity. Post-event diet should provide carbohydrate in order to restore energy losses from exercising and also protein to assist in energy restoration, in addition to muscle tissue repair and development. Fluid and electrolytes (sodium and potassium) lost in sweat should also be restored.

## 3. OBJECTIVES OF THE STUDY

3. 1. To assess the perception of athletes about diet provided diet provided before the competition

3. 2. To assess the perception of athletes about diet provided diet provided during the competition

3. 3. To assess the perception of athletes about diet provided diet provided after the competition

## 4. SIGNIFICANCE OF THE STUDY

Sufficient intake of diet before, during and after the competition is the basic need of athletic performance. Lacking of proper diet significantly affect the performance of athlete. Therefore, this research study will helps in creating awareness among the players about the role of diet needed before, during and after the activity.

## 5.HYPOTHESES OF THE STUDY

**The following null hypotheses were formulated and tested**

**H01.** There is no significant provision of diet before competition as perceived by athletes.

**H02.** There is no significant provision of diet during competition as perceived by athletes.

**H03.** There is no significant provision of diet after competition as perceived by athletes.

## 6. METHODS AND MATERIALS

For the purpose to reach at certain findings and conclusion the researcher adopted the following procedural steps.

### 6.1 Population of the Study

The population of this study was comprised of all the players participated in different sports clubs at different level of sports activities in the locality of District Bannu.

### 6.2 Sample and Sampling Size

There are total 72 sports clubs in District Bannu KP Pakistan and the total one thousand and twenty eight (1028) players are registered in these sports clubs. It is very difficult to contact each and every player of the population. So the researcher confined his population and taken randomly two hundred and six players by twenty percent (20%) of total population. The below table shows the detail of sample and sample size

**Table No 6.1**

| S. No | Game/Event | Total Club | Total players |
|---|---|---|---|
| • | Football | 19 | 304 |
| • | Cricket | 22 | 352 |
| • | Hockey | 8 | 128 |
| • | Basketball | 4 | 40 |
| • | Volley Ball | 16 | 192 |
| • | Table Tennis | 3 | 12 |
| | **Total** | 72 | 1028 |

### 6.3 Instrument and Instrumentation

For the collection of data, the researcher developed a closed form of questionnaire. The developed questionnaire personally served by the researcher among the respondents and collected back after getting it filled by the respondents**.**

## 7. PRESENTATION AND ANALYSIS OF DATA

Data collected form the respondents were analyzed by using percentage and mean average as statistical tool. The analysis are shown in tables 1,2 ,3 and 4.

**$H_0$1: There is no significant provision of diet before competition as perceived by athletes.**

**Table No 8.1. Showing the Provision of Diet Before Competition**

| S.No | Diet Provided Pre-Competition | A | % | UD | % | D | % |
|---|---|---|---|---|---|---|---|
| • 1. | Do you aware about the importance of pre-competition diet. | 102 | 78.46 | 08 | 6.15 | 20 | 15.38 |
| • 2 | Food consists of all required nutrients for sports are provided pre-competition. Do you agree? | 82 | 63.07 | 28 | 21.53 | 20 | 15.38 |
| • | Do you agree that sufficient amount of diet is provided before competition? | 50 | 38.46 | 05 | 3.84 | 75 | 57.69 |
| • | Carbohydrates are an important food nutrient to be taken before competition. | 112 | 86.15 | 13 | 10 | 05 | 3.84 |
| • | Proper carbohydrates are provided for athlete before competition. | 110 | 84.61 | 12 | 9.23 | 08 | 6.15 |
| • | Protein is essential for heavy training session. | 90 | 69.23 | 15 | 11.53 | 25 | 19.23 |
| • | Protein is provided before sports competition. | 107 | 82.30 | 07 | 5.38 | 16 | 12.30 |
| • | Fatty acid is provided in food for the maintenance of endurance performance. | 95 | 73.07 | 05 | 3.84 | 30 | 23.07 |
| **Percentage (Total):** | | **748** | **71.92** | **93** | **8.94** | **199** | **19.13** |

Table No 8.1 shows that there is significant provision of diet before competition as perceived by players because 71.92% players are agree, 8.94% are undecided and the percentage of disagree is 19.13(71.92>8.94 & 19.13).While null hypothesis stating that there is no significant provision of diet before competition as perceived by the players. So Hypothesis No.1 is rejected.

**$H_0$2: There is no significant provision of diet during competition as perceived by athletes.**

**Table No 8. 2 Showing the Provision of Diet During Competition**

| S.No | DIET PRIVIDED DURING COMPETITION | A | % | UN | % | D | % |
|---|---|---|---|---|---|---|---|
| • | Easily digestible form of energy is important during sports competition. | 116 | 89.2 | 7 | 5.4 | 7 | 5.4 |
| • | Carbohydrate is the basic food nutrient provided during sports competition. | 92 | 70.8 | 3 | 2.3 | 35 | 26.9 |
| • | Carbohydrates like juice, sugarcane are provided during competition. | 122 | 93.8 | 0 | 0.0 | 8 | 6.2 |
| • | Glucose is providing to an athlete during competition. | 85 | 65.4 | 5 | 3.8 | 40 | 30.8 |
| • | Food consist of fluids with suitable nutrients is provide during participation. | 115 | 88.5 | 2 | 1.5 | 13 | 10.0 |
| • | Proper amount of vitamins and glucose are provided during competition to an athlete. | 90 | 69.2 | 18 | 13.8 | 22 | 16.9 |
| **Percentage (Total):** | | **620** | **79.5** | **35** | **4.5** | **125** | **16** |

Table No 8.2 shows that there is significant provision of diet during competition as perceived by players because 79.5% are agree and undecided are 4.5% and percentage of disagree is 16(79.5>4.5 & 16). While null hypothesis stating that their is no significant provision of diet during competition as perceived by the players. So hypothesis No.2 is rejected.

**$H_0$3: There is no significant provision of diet after competition as perceived by athletes.**

**Table No 8. 3 Showing the Provision of Diet After Competition**

| S.No | Diet Provided After Competition | A | % | UD | % | D | % |
|---|---|---|---|---|---|---|---|
| • | The use of high amount of carbohydrate is important for an athlete after competition. | 103 | 79.2 | 7 | 5.4 | 20 | 15.4 |
| • | Carbohydrates are provided to athlete after competition. | 105 | 80.8 | 8 | 6.2 | 17 | 13.1 |
| • | Vitamins and minerals are provided after sports competition. | 95 | 73.1 | 10 | 7.7 | 25 | 19.2 |
| • | Refilling of athlete body's energy is the major function of post-competition diet. | 105 | 80.8 | 5 | 3.8 | 20 | 15.4 |
| • | Protein is also an important part of post competition diet. | 112 | 86.2 | 3 | 2.3 | 15 | 11.5 |
| • | Diet is provided in sufficient amount to athlete after competition. | 82 | 63.1 | 18 | 13.8 | 30 | 23.1 |
| **Percentage (Total):** | | **602** | **77.2** | **51** | **6.5** | **127** | **16.3** |

Table No 8.3 shows that there is significant provision of diet after competition as perceived by players because the percentage of Agree is 77.2 and undecided are 6.5% and disagree are 16.3%(77.2>6.5& 16.3) While null hypothesis stating that there is no significant provision of diet after competition as perceived by the players. So hypothesis No 3, is hereby rejected

**$H_0$4: There is no significant diet provided during training as perceived by the players**

**Table No. 8.4 Showing the Mean average of Perception of Players regarding the Provision of Diet Before, during and after the Competition**

| S.No | Variables | Agree% | Undecided% | Disagree % |
|---|---|---|---|---|
| • | **Diet provided before competition** | 71.92% | 8.94% | 19.13% |
| • | **Diet provided during competition** | 79.5% | 4.5% | 16% |
| • | **Diet provided after competition** | 77.2% | 6.5% | 16.3% |
| **Mean(total):** | | **76.2** | **4.75** | **17.14** |

Table No 8.4 shows that there is significant diet provided during training as perceived by players because the mean of Agree is 76.2 and undecided is 4.75 and mean of disagree is 17.14 (76.2>4.75 & 17.14) while null hypothesis stating that there is no significant diet provided during training as perceived by the players. So hypothesis No 4 is hereby rejected.

## 8. FINDINGS

On the basis of data analysis the finding of the study are following

1. To test the 1st Null hypothesis $H_0$1 the researcher found that there is significant provision of diet before competition as perceived by players because 71.92% players are agree, 8.94% are undecided and the percentage of disagree is 19.13(71.92>8.94 & 19.13).While null hypothesis stating that there is no significant provision of diet before competition as perceived by the players. (See table No. 8.1)
2. To test the 2nd Null hypothesis $H_0$2 the researcher found that there is significant provision of diet during competition as perceived by players because 79.5% are agree and undecided are 4.5% and percentage of disagree

is 16(79.5>4.5 & 16). While null hypothesis stating that there is no significant provision of diet during competition as perceived by the players.. (See table No. 8.2)

3. To test the 3rd Null hypothesis $H_0$3 the researcher found that there is significant provision of diet after competition as perceived by players because the percentage of Agree is 77.2 and undecided are 6.5% and disagree are 16.3%(77.2>6.5& 16.3) While null hypothesis stating that there is no significant provision of diet after competition as perceived by the players.. (See table No. 8.3)

## 9. CONCLUSION

On the basis of finding, the researcher concluded that significant diet is provided to athletes during training. The data revealed that carbohydrates, protein, fats, vitamins, minerals and water are more important to consume in proper amount for sports participation.

In addition, the researcher found that food consists of sufficient amount of energy with carbohydrates, fats, protein and other micronutrients are provided before, during and after competition to athletes.

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