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## Survey on diet and nutrition supplement habits of bodybuilding in Manipur

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### Abstract

The purpose of the study was to find out the significant difference between proteins intake per day, carbohydrates intake per day and calories intake` per day during off-season period and on-season period of the state level bodybuilders of Manipur by collecting the data regarding diet and nutrition supplement habits. This study consisted of nineteen (N=19) men state level bodybuilders with different weight categories and different division. The subjects had experience of participating in the state level bodybuilding competitions. In the descriptive analysis, mean, standard deviation and mean difference calculated to determine the amount of dietary intake such as proteins per day, carbohydrates per day and calories per day and Independent‘t’ test is computed on the recorded data. The subjects are categories into four groups according to their weight category and division. Six (N=6) state level bodybuilders from 55kg – 60kg category, three (N=3) state level bodybuilders from 65kg – 70kg category, four (N=4) state level bodybuilders from 75kg – 80kg category and six (N=6) state level bodybuilders from Men’s Physique division. The analysis of the study indicated that the dietary habits and amount of proteins intake, carbohydrates intake and calories intake in a day during off -season and on- season was significantly different. The amount of proteins intake in off- season period is lower than on-season as the on-season period is a cutting phase which the bodybuilders focused to give more muscle definition and losing the fats. So, to improve the muscles quality, it is needed to take more protein in on-season period. And the amount of carbohydrates is lower in on-season period because to achieve the goal of fat loss and defining the muscles, bodybuilders need to decrease the amount of carbohydrates. Thus, the amount of calories intake is higher in off-season and lower in on-season period. From the study it may be concluded that the protein intake during the on-season period was increased while the carbohydrates intake during the on-season period was decreased and calories intake also decreased in the on-season period in order to achieve the goal of fat loss and defining muscles.

**Keywords:** Protein, carbohydrate, calorie, on-season, off-season, Independent‘t’ test

### Introduction

Bodybuilding is the use of progressive resistance exercise to control and develop one's musculature (muscle building) by muscle hypertrophy for aesthetic purposes. A balanced diet is a diet that contains differing kinds of foods in certain quantities and proportions so that the 3 requirement for calories, proteins, minerals, vitamins and alternative nutrients is adequate and a small provision is reserved for additional nutrients to endure the short length of leanness. In bodybuilding, the bodybuilders exercise regularly with heavy loads to gains their muscles and strength. So, the body needs a good amount of energy and good supplement apart from those diets to help the muscle allows to performing in best way during exercises. A supplement can provide nutrients either extracted from food sources or that are synthetic in order to increase the quantity of their consumption. Creatine is a substance that is found naturally in muscle cells. It helps our muscles produce energy during heavy lifting or high-intensity exercise. Whey protein is a mixture of proteins isolated from whey, which is the liquid part of milk that separates during cheese production. Proteins are the main building blocks of the human body. They are used to make various important things, including tendons, organs and skin, as well as hormones, enzymes, neurotransmitters and various molecules. They're assembled from amino acids, smaller molecules that are linked together like beads on a string. It's particularly high in important branched-chain amino acids (BCAAs) like leucine, and also contains a high amount of cysteine.

Weight gainers are supplements designed to conveniently help in getting more calories and protein. Branched-chain amino acids, more commonly known as BCAAs, are a group of just three essential amino acids: leucine, isoleucine and valine. Glutamine is an amino acid. Amino acids are molecules that play many roles in the body. Their main purpose is to serve as building blocks for proteins.

**Methodology**

To achieve the purpose of the study nineteen (N=19) male state level bodybuilders were randomly chosen. The subjects are categorized into four groups according to their weight category and division. Six (N=6) state level bodybuilders from 55kg – 60kg category, three (N=3) state level bodybuilders from 65kg – 70kg category, four (N=4) state level bodybuilders from 75kg – 80kg category and six (N=6) state level bodybuilders from Men’s Physique division. In the descriptive analysis, mean, standard deviation and mean difference calculated to determine the amount of dietary intake such as proteins per day, carbohydrates per day and calories per day and Independent’t’ test is computed on the recorded data. The analysis has shown significant difference at 0.05 level of significance.

**Finding of the study**

**Table 1:** Independent t test of bodybuilder dietary intake per day

Dietary intake	Seasons	N	Mean	SD	df	p-value
<b>55kg – 60kg</b>						
Protein	Off	6	135	13.78	4	0.00103*
	On	6	198	29.27		
Carbohydrates	Off	6	475	61.23	4	0.00029*
	On	6	236	38.30		
Calories	Off	6	2440	283.97	4	0.000575*
	On	6	1740	241.00		
<b>65kg – 70kg</b>						
Protein	Off	3	223.33	25.17	1	0.0187**
	On	3	313.33	32.15		
Carbohydrates	Off	3	550	50	1	0.17202**
	On	3	400	50		
Calories	Off	3	3093	272.27	1	0.3347**
	On	3	2853	254.03		
<b>75kg – 80kg</b>						
Protein	Off	4	287.5	85.39	2	0.0285***
	On	4	362.5	75		
Carbohydrates	Off	4	625	170.78	2	0.0934***
	On	4	412.5	62.92		
Calories	Off	4	3600	541.60	2	0.1603***
	On	4	3100	476.10		
<b>Men’s Physique Division</b>						
Protein	Off	6	195	46.37	4	0.0015*
	On	6	266.67	60.55		
Carbohydrates	Off	6	536.67	53.54	4	0.0035*
	On	6	345	46.37		
Calories	Off	6	2926.67	321.41	4	0.0264*
	On	6	2446.67	419.84		

\*Significant at 0.05 level, df (4) =2.132

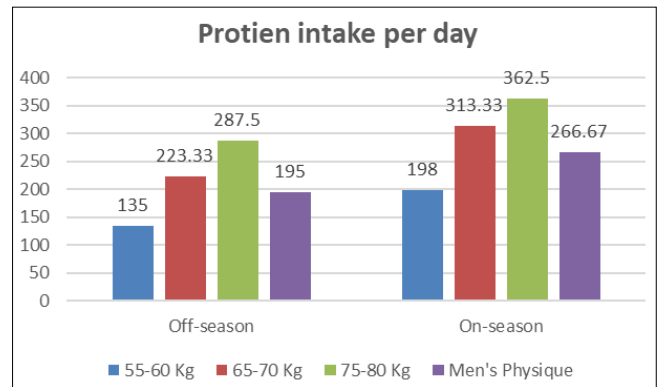
\*\* Significant at 0.05 level, df (1) =6.314

\*\*\* Significant at 0.05 level, df (2) =2.920

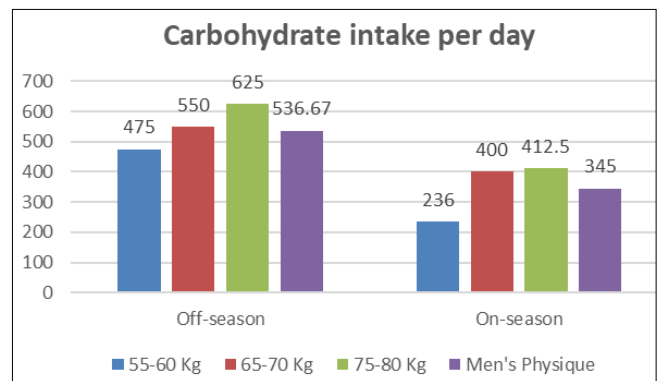
Table 1 reveals for every category there is a significant difference found in the dietary intake during off season and on season period since the calculated p-value is less than tabulated value at 0.05 level of significance for the respective degree of freedom.

Comparison of mean for protein, carbohydrate and calories intake for respective categories in on and off- season is

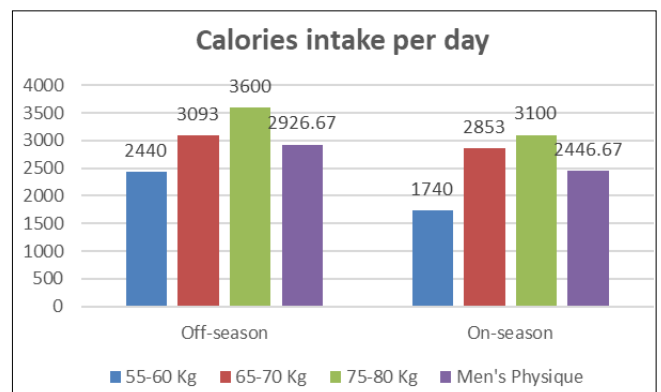
depicted graphically in Graph 1, Graph 2 and Graph 3 respectively.



**Graph 1:** Comparison of mean of Protein intake per day



**Graph 2:** Comparison of mean of Carbohydrate intake per day



**Graph 3:** Comparison of mean of Calories intake per day

**Conclusion**

On the basis of the findings of the study the following conclusion was drawn that there was significant difference in the dietary habit and amount of protein, carbohydrate, and calories intake per day during off-season and on-season.

During on-season protein intake is higher but carbohydrate and calories intake is lower compared to off-season so as to achieve the goal of lean muscle mass and better muscle definition.

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