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# Anthropometry and Dietary Habit of Young Cricketers in Dhaka, Bangladesh

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## Abstract

**Background:** Over the past few years there have been significant changes in the structure of cricket to attract a larger global audience. Modern day cricket with increasing elite level representation has resulted in higher physical performance demands on players. Despite this there is little information available regarding the energy cost, dietary intake and hydration status of cricket players during matches.

**Objective:** To assess anthropometry and food habit of young cricketers in Dhaka was aim of this study.

**Materials and Methods:** This cross sectional study was conducted at National Cricket Academy, Bangladesh Cricket Board (BCB), Bangladesh Krira Shikhkha Protisthan (BKSP) and City Club, Mirpur, Dhaka. I took helped from office colleagues in this study. About 110 cricketers were selected. Nutritional status was measured by World Health Organization (WHO) cut off value for Asian people.

**Results:** Average weight, height, Body Mass Index (BMI) and Skin-Fold thickness was 61.5, 1.7 meter, 20.9 and 54.0 consecutively. Study showed that 98.2% were normal BMI. Significant differences were observed between age group, occupation, consumption of food groups and BMI of cricketers.

**Conclusion:** Consumption of food groups need to be improved.

***Keywords:*** *Anthropometry; Dietary Habit; Young Cricketers; Bangladesh*

## Introduction

The anthropometry of cricketers varies by position, with bowlers generally being taller and heavier, while batters are often shorter and lighter with more body fat. Bowlers have long legs and broad shoulders, whereas all-rounders typically have larger girth measurements compared to both batsmen and bowlers. Cricket players exhibit a wide range of heights and weights, and specific body compositions are often correlated with performance in their roles. People working with cricketers would also know the potential scope for intervention. At the basic level, it plays an important role in achieving and marinating health. Optimal nutrition can reduce fatigue, allowing a sportsman to train and compete longer or recover faster between training sessions. Nutrition is an important component of any physical fitness program. Nutritional status is an indicator of the effectiveness of a nutrition or health intervention. A comprehensive assessment of

nutritional status is a critically important component of any patient evaluation. Based upon clinical information, anthropometric data, and a small number of laboratory investigations, an accurate appraisal of nutritional status should be possible. Several studies have investigated the relationship between biomechanics and ball release speed in men's cricket [1-3]. In the last decade, research on male fast bowling indicates that ball release speed is linked to faster run-up speeds [4,5], reduced time at the back foot contact [4], braced front knee during front foot contact [5], greater trunk flexion and delayed onset of shoulder counter-rotation [5]. As food habit grows in our day to day practice and players need extra energy, evidence based dietary habit is necessary in early stage of career. Bangladesh is emerging power in cricket now, so anthropometry and food consumption of young cricketers need to be studied. This study generates evidence regarding the relationship between nutritional status and young Cricketers. The findings would increase awareness about nutritional requirement of cricketers and the risk factors of their malnutrition. People working with cricketers would also know the potential scope for intervention. The findings are also useful to create nutritional guideline in future for cricketers in Bangladesh.

## Methodology

The research was a cross-sectional study. Data were collected only once for each participant. Cricketers aged 10-23 years who are playing cricket in Dhaka, previously played in different districts, played in different countries specially Bangladesh Under 19 world cup champion team'2020 in South Africa were included in this study. Study participants (Cricketers) have been recruited following purposive sampling method considering the inclusion and exclusion criteria. Data were collected using a semi-structured questionnaire designed to collect information on related to nutritional status of young cricketers. An interviewer trained by the principal supervisor administered the questionnaire. The English questionnaire was converted into Bengali to ask the respondents during interviews. After collection of data, all interviewed questionnaire were checked for completeness, correctness and internal consistency and avoid missing data. Any inconsistent data were discarded. Continuous data were recorded as needed. Descriptive statistics were used to present and compare the findings. All data management and analyses were done using the statistical software namely statistical package for social sciences.

### Inclusion criteria

- Cricketers (aged 14-22 years), Bangladesh under 19 World Cup Champion '2020 cricketers, High Performance Squad Cricketers, Upcoming U 19 Cricketers, academic Cricketers of Bangladesh.
- Male cricketers only.

### Exclusion criteria

- Cricketers who have not willing to give their information.
- Cricketers who were not recovering from any injury.
- Cricketers who were not available to interview for data collection.

### Questionnaire

Socio-economic characteristics of a Young Cricketer:

1. Name:……..

2. Age:……

3. Cell Number:……..

4. Sex: Male /Female

5. Marital: Married /Unmarried

6. Educational Status:

| | | | | |
|---|---|---|---|---|
| Primary | Secondary | HSC | University | No Formal education |

Occupation:……..

7. Personal Income:……..

8. Total Family Income:……..Include Number of family member:

9. Area of living:

| | |
|---|---|
| Urban | Village |

Anthropometric measurement and calculation of a young cricketer:

1. Height:……

2. Weight:……..

3. Skin Fold thickness……..

4. BMI: Underweight/ Normal/ Overweight

5. Waist-Hip……..

## Determination of nutritional status by food/diet analysis of young cricketers in Bangladesh in general at home

### Breakfast

| **Rice** | **Potato** | **Dal** | **Egg** | **Vegetables** | **Salad** | **Roti/Porota** |
|---|---|---|---|---|---|---|
| Bread | Jelly | Butter | Fruits | Milk | Tea/Coffee | Intake of Food Supplement |

***Table A***

### Lunch

| **Rice** | **Ruti/Porota** | **Vegetables** | **Fish** | **Meat** | **Dal** |
|---|---|---|---|---|---|
| Vorta | Egg | Salad | Milk | Fruits | Intake of Food Supplement |

***Table B***

### Dinner

| Rice | Ruti/Porota | Vegetables | Dal | Fish | Meat |
|---|---|---|---|---|---|
| Milk | Card | Fruits | Intake of Food Supplement | | |

***Table C***

## Result

| Anthropometric measurements | Mean (SD) |
|---|---|
| Weight (kg) | 61.5 (9.9) |
| Height (m) | 1.7 (0.1) |
| BMI | 20.9 (2.2) |
| Skin-fold thickness | 54.0 (18.6) |

***Table 1:*** *Anthropometric measurements (weight, height, skin-fold thickness, muscle strength, handgrip dynamometer) of young adult cricketers.*

Table 1 illustrates that anthropometric measurements of young cricketers of BCB living in Dhaka, Bangladesh, the study findings showed that Mean (SD) of Weight in kg = 61.5 (9.9); Height in meter = 1.7 (0.1); BMI = 20.9 (2.2) and Skin-Fold thickness = 54.0 (18.6).

| Nutritional status | Frequency | Percentage |
|---|---|---|
| Underweight | 2 | 1.8 |
| Normal | 108 | 98.2 |
| Total | 110 | 100.0 |

***Table 2:*** *Nutritional status.*

Table 2 showed that 1.8% (n = 2) of the young cricketers were underweight and 98.2% (n = 108) were normal weight.

| Food groups | Frequency | Percentage |
|---|---|---|
| **Cereal, grains and starchy roots** | | |
| No | 5 | 4.5 |
| Yes | 105 | 95.5 |
| **Lentils and pulses** | | |
| No | 72 | 65.5 |
| Yes | 38 | 34.5 |
| **Animal protein** | | |
| No | 5 | 4.5 |
| Yes | 105 | 95.5 |
| **Vegetables** | | |
| No | 11 | 10.0 |
| Yes | 99 | 90.0 |
| **Fruits** | | |
| No | 74 | 67.3 |
| Yes | 36 | 32.7 |

***Table 3:*** *Dietary intake pattern in breakfast.*

The study findings showed that 4.5% (n = 5) of the young cricketers did not eat cereals, grains and starchy roots whereas 95.5% (n = 105) young cricketers of BCB eaten cereals, grains and starchy roots. 65% (n = 72) of the young cricketers did not eat Lentils and pulses whereas 34.5% (n = 38) young cricketers of BCB ate lentils and pulses. About 4.5% (n = 5) of the young cricketers did not eat animal protein whereas 95.5% (n = 105) young cricketers of BCB took animal protein, 10.0% (n = 11) of the young cricketers did not eat vegetables whereas 90.0% (n = 99) young cricketers of BCB consumed vegetables. 67.3% (n = 74) of the young cricketers did not eat fruits whereas 90.0% (n = 99) young cricketers of BCB had fruits.

| Food groups | Frequency | Percentage |
|---|---|---|
| **Cereal, grains and starchy roots** | | |
| No | 1 | 0.9 |
| Yes | 109 | 99.1 |
| **Lentils and pulses** | | |
| No | 15 | 13.6 |
| Yes | 95 | 86.4 |
| **Animal protein** | | |
| No | 6 | 5.5 |
| Yes | 104 | 94.5 |
| **Vegetables** | | |
| No | 5 | 4.5 |
| Yes | 105 | 95.5 |
| **Fruits** | | |
| No | 90 | 81.8 |
| Yes | 20 | 18.2 |

***Table 4:*** *Dietary intake pattern in lunch.*

Table 4 showed that 0.9% (n = 1) of the young cricketers did not eat cereals, grains and starchy roots whereas 99.1% (n = 109) young cricketers of BCB took cereals, grains and starchy roots. About 12.7% (n = 14) of the young cricketers did not eat lentils and pulses whereas 86.4% (n = 95) of young cricketers of BCB consumed lentils and pulses. Moreover 5.5% (n = 6) of the young cricketers did not eat animal protein whereas 94.5% (n = 104) young cricketers of BCB had animal protein. Besides 4.5% (n = 5) of the young cricketers did not eat vegetables whereas 95.5% (n = 105) of young cricketers of BCB ate vegetables. About 81.8% (n = 90) of the young cricketers did not eat fruits whereas 18.2% (n = 20) of young cricketers of BCB took fruits.

Table 5 showed that 3.6% (n = 4) of the young cricketers did not eat cereals, grains and starchy roots whereas 96.4% (n = 106) of young cricketers of BCB had cereals, grains and starchy roots, About 29.1% (n = 32) of the young cricketers did not eat lentils and pulses whereas 70.9% (n = 78) of young cricketers of BCB took lentils and pulses. About 5.5% (n = 6) of the young cricketers did not eat animal

| Food groups | Frequency | Percentage |
|---|---|---|
| **Cereal, grains and starchy roots** | | |
| No | 4 | 3.6 |
| Yes | 106 | 96.4 |
| **Lentils and pulses** | | |
| No | 32 | 29.1 |
| Yes | 78 | 70.9 |
| **Animal protein** | | |
| No | 6 | 5.5 |
| Yes | 104 | 94.5 |
| **Vegetables** | | |
| No | 5 | 3.7 |
| Yes | 105 | 96.3 |
| **Fruits** | | |
| No | 80 | 72.7 |
| Yes | 30 | 27.3 |

***Table 5:*** *Dietary intake pattern in dinner.*

protein whereas 94.5% (n = 104) of young cricketers of BCB had animal protein. Besides 3.7% (n = 4) of the young cricketers did not eat vegetables whereas 96.3% (n = 105) young cricketers of BCB ate vegetables. Moreover 72.7% (n = 80) of the young cricketers did not eat fruits whereas 27.3% (n = 30) young cricketers of BCB consumed fruits.

| Factor | BMI (Mean ± SD) | p value (ANOVA test) |
|---|---|---|
| **Age group** | | |
| <15 | 19.7 (2.6) | 0.008 |
| 15-19 | 21.1 (2.1) | |
| 20 and above | 21.8 (1.2) | |
| **Current occupation** | | |
| Student | 19.6 (2.6) | <0.001 |
| Professional | 21.6 (1.6) | |
| **Number of food groups consumed** | | |
| ≤3 | 19.6 (2.3) | 0.030 |
| 4 | 20.8 (2.1) | |
| ≥5 | 21.3 (2.2) | |

***Table 6:*** *Mean difference of age group, food group and BMI.*

Significant differences were observed between age group, occupation, consumption of food groups and BMI of cricketers.

## Discussion

Nutritional status is an important indicator of the overall health status and wellbeing of young cricketers. It portrays the physical and mental growth of young cricketers and whether they are at risk of being underweight, overweight or obese. The impact of poor nutritional status and poor growth among young cricketers may eventually lead to poor motor function, bone health, sports training participation, social participation and healthcare utilization. For example, the consequences of overweight and obesity problems in young cricketers are the increased risk of developing adult obesity and non-communicable diseases such as diabetes and hypertension. Malnutrition among young cricketers can lead to poor growth and nutrient deficiencies. As study area were BCB, BKSP and Mirpur City Club, Dhaka. All of my participants/ Cricketers were residential in BCB, BKSP and most of my young cricketers of City Club were from educated and solvent family, the parents were very conscious about their children's nutrition. The Caregiver and Caterers of BCB and BKSP were very conscious about their young Cricketer's nutrition and hygiene. However, the findings suggest that majority of our young cricketers are of normal nutritional status. Mean weight, height, BMI and Skin-Fold thickness was 61.5, 1.7 meter, 20.9 and 54.0 consecutively. Study showed that 98.2% were normal BMI. Significant differences were observed between age group, occupation, consumption of food groups and BMI of cricketers. The nutritional status of an athlete is critical for performance and is determined by their intake of macronutrients (carbohydrates, protein, and fat), hydration, and micronutrients (vitamins and minerals). A balanced diet, including proper timing of meals and snacks around exercise, is key for energy, muscle repair, and recovery. A nutrition assessment is the first step in advising athletes on dietary strategies or supplement use. Nutrition assessment is the "systematic method for obtaining, verifying and interpreting data needed to identify nutrition-related problems, their causes and their significance" (Academy of Nutrition and Dietetics, 2015). A complete assessment should ideally include dietary evaluation, anthropometry and body composition analysis, biochemical testing, nutrition-focused clinical examination, and patient history [6]. A 2025 study in Evolution used RNA interference to show that proteins in the male nuptial gift of decorated crickets influence female behavior to increase the male's paternity share. These proteins manipulate female feeding behavior and alter the balance of sexual conflict, even when a gift doesn't provide nutritional benefits [7]. This study has some limitations. This study was focused on identifying nutritional status and the probable causes for malnutrition among young cricketers. I did not explore the direct causal pathway for their nutritional outcome (e.g. interfamily food dynamics, nutrient adequacy of diet, energy expenditure level, body composition, etc.). Moreover, the nutritional status in terms of weight for age Z score and weight for height Z score could not be measured for all the cricketers because of the unavailability of standard reference charts for specific age group which need further attention. It was only the small study in which there is the limitation of time and fund and the result will not represent the condition of the other places due to pandemic COVID-19 situation. This was a descriptive cross sectional study so the caregivers of cricketers who are not available do not have a chance of participation and responses of the non-participants may differ from the addressed respondents.

## Conclusion

Nutritional status in terms of anthropometry was satisfactory but intake of food groups need to be improved.

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