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Comparative analysis of protein level found in female students of government and private secondary schools of Haryana

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Abstract

The aim of the present study was to examine the Protein in female students of government and private secondary schools. To achieve this target 1000 subjects, 500 from government secondary schools and 500 from private secondary schools were randomly selected from Kurukshetra district of Haryana. The study was delimited to 10-12 year old female respondents. The data was collected with IOI 353 Body Composition Analyzer. This device measured impedance by bio-electrical impedance analysis method and provided information using measured impedance and inputted personal data (weight, height, age, gender).

The data was tabulated and analyzed through T-Test. The level of significance was set at 0.05. A significant difference was observed in Protein level between the female students of government and private secondary schools.

Keywords: Essential and non-essential protein, bioelectrical impedance, body composition analyzer

Introduction

Proteins are the basic structure of all living cells. These are complex organic compounds. The basic structure of protein is a chain of amino acids that contain carbon, oxygen, hydrogen and nitrogen. The presence of nitrogen differentiates protein from carbohydrate and fat. Chemically, protein is compound of amino acids are organic compounds made of carbon, hydrogen, nitrogen, oxygen or sulfur. Amino acids are the building blocks of the proteins, and the proteins are the building blocks of muscle mass, according to the National Institute of Health (NIH, 2015).

Child weighing around 15kgs, about 15-20 grams of protein intake is required. However, the daily protein intake need not be the same for everyone. The easiest way to determine the quantity of intake is through the Recommended Dietary Allowance (RDA). The RDA is the amount of nutrient one need to meet basic nutritional requirements. The minimum amount needed to be healthy is 0.8 grams/kg/day. The amount may naturally vary of elevate for athlete, elderly, people who are trying to lose weight and for people who are very active or live a sedentary life (livepeppy.com). Hornell, *et al.* (2013) ^[1] conducted a study on infants and children, age (0-18years). The aim of the study to analyze the health effects of different levels of protein intake in these age groups. The results shows that a high protein intake in infancy and childhood thus seems to be less than optimal, and associated with increased risk of obesity later in life. The researcher suggest a mean intake of 15% E as the upper limit at 12 months as there is no risk of too low protein intake at this level but might be increased risk of later overweight with higher intake. One way to decrease protein intake would be to promote breastfeeding throughout the first year of life or as long as it suits the mother and child, and to avoid too high intakes of protein rich foods, for example- cow's milk.

Proteins are polymer chains made of amino acids linked together by peptide bonds. During human digestion, proteins are broken down in the stomach to smaller polypeptide chains by hydrochloric acid and protease actions. This is crucial for absorption of the essential amino acids that cannot be biosynthesized by the body.

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There are two types of proteins

Non-essential Protein: The human body needs approximately 20 amino acids for the synthesis of its proteins. The body can make only 13 of the amino acids that are known as the non-essential proteins or amino acids. In fact, they are

essential but we do not have to get them from food we eat.

Essential Protein: There are 9 essential amino acids which taken only from food and not made in the body. Requirement of protein in grams according to age for male and female;

Requirement of protein in grams according to age for male and female

Males (age)	Recommendation daily protein intake (for average age weight)	Specific intake recommended per kg of body weight
14-18y	65g	0.99g/kg
19-70y	64g	0.84g/kg
70 and above	81g	1.07g/kg

Females (age)	Recommendation daily protein intake (for average age weight)	Specific intake recommended per kg of body weight
14-18Y	45g	0.77g/kg
19-70Y	46g	0.75g/kg
70+	57g	1.07g/kg
Pregnant (18-50y)	60g	1.00g/kg
Lactating (18-50y)	67g	1.10g/kg

Source: bodyandsoul.com.au

Objective

To find out the difference in Protein level in government and private secondary school female students.

Hypothesis

There would be no difference in Protein level between government and private secondary school female students.

Methodology

The present study consisted of 500 government school girls and 500 private school girls. It was a survey study. The study was delimited to 10 to 12 years old girls only. All the subjects were randomly selected from the secondary schools of Kurukshetra district, Haryana. Health status, nutritional intake, proper diet, timings of food, life style, habits, heredity, physical activities, other physiological factors were away from the control of the investigator. The data was collected with the IOI 353 Body Composition Analyzer. This device measured impedance by bioelectrical impedance analysis method and provided information using measured impedance and inputted personal data (weight, height, age, gender).

Procedure: All the subjects were asked to remove the shoes and socks. Then investigator gave brief instructions about the equipment and demonstrate the subjects how to stood erectly barefooted in the manner that the feet covered the sensor

completely and how to hold the sensor handle. Once the subject stood on the sensor and hold the sensor bar at 30° and press the start button with thumbs at the same time, he was asked not to move for 10 seconds. After 10 seconds a beep came with the message "Measurement completed". The subject was told to get down from the instrument.

Results and Discussion

Table 1: Comparison of Mean Score of Protein between Govt. and Private School Female Respondents

Variable	School	N	Mean	SD	(df)	(t-value)	Sig.
Protein	Govt.	500	6.11	1.22	998	-9.463*	.000
	Private	500	6.85	1.25			

Level of Significance = 0.05 with df 998

Table-1 depicts the comparative statistics in terms of independent sample t-test as well as descriptive statistics such as mean and standard deviation. It was observed that mean and standard deviation of govt. school female respondents was 6.11 ± 1.22 and mean and standard deviation of private school female respondents was 6.85 ± 1.25 as per the obtained outcomes. The calculated t-value was -9.463 which shows highly significant difference between the selected respondents in their Protein. Therefore the null hypothesis which was formulated earlier was not accepted.

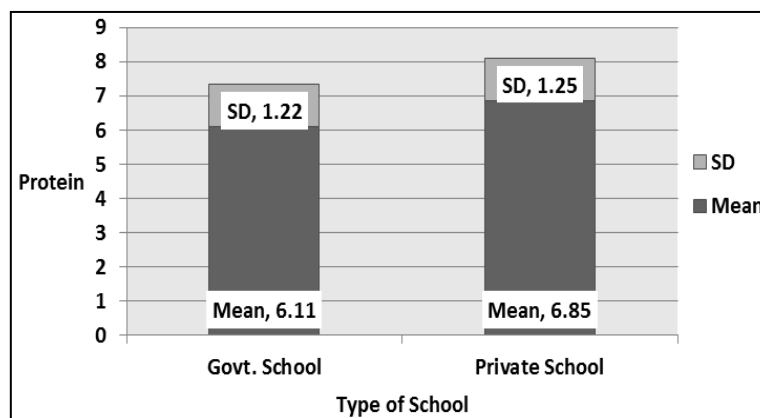


Fig 1: Mean Profiles Plot of Govt. School and Private School Female Respondents in their Protein

Conclusion

It is evident that there have been significant difference was found at 0.5 level of confidence in Protein level between both

the groups of female students. It is further concluded that private school girls have better Protein level as compare to government secondary school girls.

References

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