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**A STUDY TO ESTIMATE THE NUTRITIONAL  
ADEQUACY OF LUNCH BOXES OF PRESCHOOL  
CHILDREN**

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# A Study to Estimate the Nutritional Adequacy of Lunch Boxes of Preschool Children

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**Abstract – This descriptive cross-sectional study was carried out to assess the nutritional status of children aged 4-5 year children, Muzaffarnagar district, Uttar Pradesh, in order to establish and provide baseline information on the health and nutritional status of the target group. Nutritional status was assessed using anthropometric measurements of height, weight and was compared with NCHS standards. The nutrient intakes were compared with the Recommended Dietary Allowance (RDA). The intakes of protein, iron, calcium and vitamin A were inadequate in both males and females children. The findings show that the nutritional status of Under-5 children in the study location which happens to be a rural area was quite poor. Also from the results, it is evident that malnutrition is still a major public health problem. There is a need for better nutrition of child.**

**Key words:** Nutritional status, ICMR, Anthropometric measurement.

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## INTRODUCTION

Early childhood is the 'preschool age' and also known as the pre-school age' and the age of exploration. Educators refer to early childhood as the 'preschool' the period preceding the child's entrance into school. Today it is widely recognized that childhood should be divided into two separate period early and late childhoods. Early childhood extends from 2 to 6 years and late childhood extends from 6 to the time the child becomes equally mature for preschool children healthy diet is necessary & play the important role for their growth & keep healthy .the lunch box of preschool children which prepared by their mother should be healthy .

Upper primary school children are mostly those between the ages of 9-12, even though there may be some who are younger or older than the required age for the class. Based on WHO definition of an adolescent, that is, a person between 10-19 years of age, it can be said that most of these pupils are in their early adolescence. People have various definitions for adolescence. To some, it is a stage of maturation between childhood and adulthood. A commonly accepted definition of adolescence according to Erikson (1968), it is a period during which young people try hard to understand the questions of who they are as well as who they will become.

## EFFECTS OF DIETARY PATTERNS ON HEALTH:

Health and nutrition are known to be closely related. Nutrition can have an effect on one's health either by improving it, or making it deteriorate, likewise health can also affect nutrition by either improving the individual's appetite or making it deteriorate. During adolescence there is high incidence of nutrition deficiencies and poor eating habits which exposes them to many risk factors leading to the development of chronic diseases such as diabetes, osteoporosis, hypertension, heart diseases, chronic kidney failure, cancer and many others. The leading causes of mortality and disease burden include risk factors for communicable, maternal, perinatal and nutritional conditions such as under nutrition. They also include risk factors for non-communicable diseases and injuries such as high blood pressure and cholesterol, smoking, alcohol use and overweight and obesity which affect most regions (Lopez et al., 2006). They continue to further state that, "the ten leading causes of death in people between the ages of 15-59 are: diabetes mellitus, breast cancer, colon and rectal cancers, stomach cancers, cirrhosis of the liver, cerebrovascular disease, ischemic heart disease, trachea, bronchus and lung cancer, road traffic accidents and self-inflicted injuries" (p 71). From this it can be deduced that seven out of these leading causes of death can be directly or indirectly associated with diet.

The key points to remember as a parent/caretaker:

- Adequate nutrition will help your child develop maximal intelligence (IQ) and wellbeing.
- The child should be guided to make independent food choices and eat a variety of foods.
- Malnutrition and its consequences will be prevented by eating the right kinds and amounts of foods.
- Encourage your child to practice proper hygiene at all times.



## EATING HABITS

A number of strategies can be adopted to encourage good eating habits and monitor food intake

- Establish routines where the child and caregiver sit down together and talk during meal times and snacks.
- Establish habits such as milk with a meal and water at bedtime that will help ensure variety and nutritional adequacy.
- Keep a 'snack-box' in the fridge or on the kitchen bench containing healthy snack foods such as pieces of fruit, vegetables, cheese and small sandwiches, that the child can either use independently or have offered to them. This helps to monitor what the child is eating between meals.
- Introduce the practice of having the child at the table for meal times as soon as he or she is able to sit up and grasp foods.
- Do not give the child too large a serving. It is better to offer small amounts and have more available if they want it.
- Provide foods the child likes, plus a new food to try. Be accepting if the child does not like

particular foods, but remember that likes and dislikes change over time.

## Growth (1, 3)

Children grow at a steady rate during the kindergarten and early school years. 'This slower growth rate is reflected in a decrease in appetite and less interest in food. Paradoxically, while parents worry that their preschooler may not be eating enough, the incidence of childhood obesity continues to rise'. Strict or low fat diets are not recommended because children's energy and nutrient needs are high. For parents who are concerned about excessive weight gain, a good approach to discuss with them is to:

Develop healthy eating habits for

- The whole family
- Encourage regular physical activities for everyone
- Limit television time.

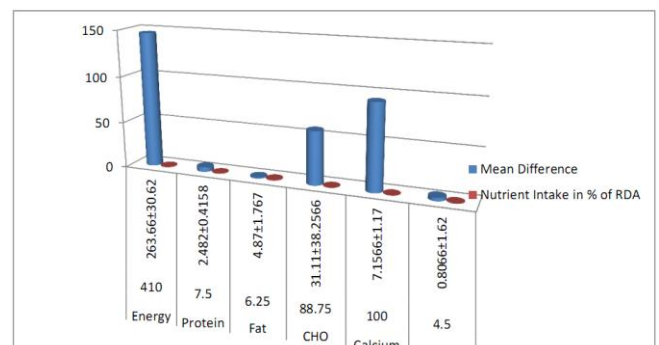
## RESULTS & DISCUSSION

### Nutrient Intake

The average daily intake of selected nutrients Energy, Protein, Fat, Carbohydrate, Calcium and Iron consumption of all subjects was compared to ¼ of RDA (ICMR)

Table shows the mean and percentage intake of nutrients in comparison to RDA by respondents.

Nutrient	ICMR RDA per day	Observed Mean	Mean Difference	Nutrient Intake in % of RDA
Energy	410	263.66±30.62	146.34	64.2 %
Protein	7.5	2.482±0.4158	5.0	33 %
Fat	6.25	4.87±1.767	1.38	77.9 %
CHO	88.75	31.11±38.2566	57.64	35.3 %
Calcium	100	7.1566±1.17	92.8	7.1566 %
Iron	4.5	0.8066±1.62	3.7	17.9 %



Distribution of the respondents on the basis of types of food group

Response	No. of Respondents	Percentage
<b>Milk and Milk Products</b>	27	9%
<b>Fruits</b>	156	52%
<b>Cereals</b>	69	23%
<b>Vegetables</b>	36	12%
<b>Fat and Oil</b>	12	4%

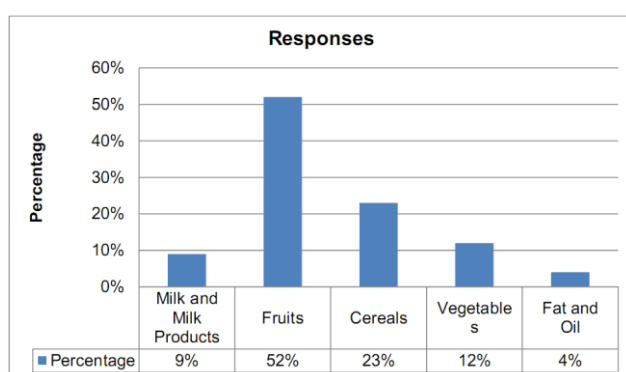


Table shows that 9% respondents like to add milk and milk products in lunch box, 52% like to add fruits, 23% like to add cereals, 12% like to add vegetables whereas 4% like to add fat and oil.

## CONCLUSION

After collecting & evaluate the data it concluded that Intake of calorie, protein, fat, CHO, calcium, iron was low as compared to RDA. The height- weight was lower compared to percentile of NCHS standard. Children should be encouraged to be physically active from a young age. Physical activity helps children feel good and encourages a healthy appetite. Encourage parents to promote a family setting that: plays games in the backyard, goes for a walk in the park, learns to swim, and participates in kindergarten and school activities, watches less television.

That's why it is very necessary to provide nutritious food in their lunch box by their mother to improve their growth and development according to age with respect to anthropometric measurement.

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