NUTRITION AND ITS IMPACT OF SCHOOL CHILDREN

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ABSTRACT -*Infancy, childhood and adolescence are all important stages in the overall development of a person. There is no condition in them that can be ruled out or underestimated. Childhood, also known as "late childhood", it is a stage for children to go to school. This stage is very important in terms of development. The pace of physical, mental and intellectual development of the child in childhood is often very fast and the physical organs also achieve instantaneous maturity and maturity. Social development takes place in the child and now he starts understanding the importance of resources. As a result, his actions and behavior change, which has a direct indirect effect on the child's food. Childhood requires more nutritious food. At this age the child does not get full poultry food, then it has adverse effects on physical, mental, intellectual, sports and emotional development. Therefore, children of this age should pay special attention to mothers on proper and nutritious food.*

KEY WORD-Late Childhood**,** Nutrition, Food

INTRODUCTION-A balanced diet and regular exercise are important for everyone, especially for school-age children (6-12 years).These children are required to eat different types of foods from each food group to ensure optimal intake of all vitamins and minerals. Also, they may face new challenges regarding food choices and habits. Decisions about what to eat are partly provided by school, at home, influence from friends at school and the media, especially television. Poor nutrition compromises both the quality of life of school-aged children but their ability to benefit from education. Maintaining optimal nutrition limits the intake of high-sugar and high-fat foods, along with eating three time meals a day and nutritious snacks twice a day. Eating moderate amounts of fruits, vegetables, lean meats, and low-fat dairy products, including three servings of milk, cheese, or yogurt to meet your calcium requirement, can also prevent many medical problems.

This includes being overweight, developing weak bones, and developing diabetes. Adequate nutrition of school-aged children will also ensure that they develop to their full potential, and take steps towards a healthier life.

CHARACTERISTIC OF SCHOOL GOING CHILDREN-

1. The activity of children of this age increases. At the same time self-reliance increases. They want to get their work done quickly and they do not want to interfere with others. They take various actions like eating, wearing clothes, bathing, keeping their things in place, etc. on their own.

2. School children are extremely careless towards themselves. They are in such a hurry that they do not pay even a little attention to themselves. Especially on food, children become so busy that they cannot even open their lunch box in school.
3. Group spirit prevails in school children. They want to spend more and more time with their fellow classmates.

4. School children live in a state of tension. School work: Competitive feeling in class, problems in adjusting with classmates, etc. are many reasons why they remain tense.

5. In childhood, the development of the arms and legs of the child is more than that of the body, due to which their legs appear. Hence this age is also called crane age

6. The pace of development slows down in childhood compared to infancy, but whatever is in the pre-development stage, it gets a temporary form and shape. Therefore, in this state physical and mental abilities begin to mature. Therefore, this age of children is also called a stage of Pseudomaturity.

7. School people are inquisitive. Want to get proper information about the various items you come in contact with.

8. At this age, the child develops a sense of morality to some extent. Consequently, the child tries to behave according to the rules of family, group, peers and school and society.

NUTRITION REQUIREMENT OF SCHOOL CHILDREN-

1. **CALORIES -**The amount of calories a school-age child needs daily depends on his age, sex, and activity level. Your child's pediatrician will make sure that his weight is in a healthy range and that it is growing at a steady rate. According to RDA 2010, the calorie requirement for girls ages 4 to 18 is between 1350 and 2440 per day, while boys typically need between 1690 and 3020 per day. These needs gradually increase from least to greatest as children grow and develop. Ideally, most of these calories come from nutritious foods.

2. **PROTEIN-**In childhood, the length, weight and other body parts of the child increase. Therefore, at this age, protein-rich foods are absolutely required because protein is essential for the formation of cells and the formation of broken cells and fibers. According to the RDA, most children get enough protein, and more is unnecessary and potentially risky. Children ages 4 to 9 need 39 grams of protein a day. This increases from 9 to 13 years to 41-55 grams. For teens ages 14-18, girls usually need 51-55 grams of protein a day, while boys that age need 62 grams a day. Protein-rich foods include lean red meat, chicken, turkey, seafood, eggs, dairy products, peanut butter, soy products, legumes, nuts, and seeds.

3. **CARBOHYDRATES-**Carbohydrates are the main source of energy for school-age children. The acceptable macronutrient distribution range for carbohydrate is 45 to 65

percent of total calories. Sugar and starches supply energy to the body in the form of glucose. The recommended dietary allowance for carbohydrates is 130 grams of carbohydrates for children of all ages. This amount provides enough carbohydrates to fuel the brain with sufficient amounts of glucose. Choosing carbohydrate sources such as whole grains, milk products, fruits, vegetables and legumes more so than refined grains and added sugars will help increase the nutrition of your child's diet.

4. **FAT-**Fat are more concentrated form of energy then carbohydrate. They are found in the adipose (fatty) tissue of animals. An ingested fat undergoes emulsification, digestion and absorption. In presence of an adequate supply of carbohydrate, fat is stored in the fatty tissue. Fat provide

5. **VITAMINS**-A vitamin is a vital substance. It is needed in very small quantity for growth and good health. Vitamins are vital body regulators. They may be defined as a name given to a group of protein organic compounds which are not carbohydrates, proteins or fats in nature, but are present in foods and are essential in minute quantities for specific body functions of growth, maintenance and reproduction. Most of them are not synthesized by the body and must be simplified through diet, except a few whose requirement may be partially met by synthesis in the body, such as folic acid and vitamin D.

   Vitamin A is essential for growth and also for normal function of retina and development of epithelial surface. The retina of the eye contains two kinds of light receptors- the rods for vision dim light and cones for vision bright light and colour vision.The rod produce a photosensitive pigment, rhodopsin or visual purple, and the cones produce iodopsin or visual violet. In the both these pigments, vitamin A in the form of a retinaldehyde is the prosthetic group. Therefore, foods rich in vitamin A should be included in the diet of children. Green leafy vegetables, milk, eggs, carrots, papaya, mangoes and other yellow fruits should be included to get vitamin A.Some experts of ICMR have reported daily requirement of 600 micrograms retinol and 2400 micrograms of carotene.

6. **VITAMIN D-**Vitamin D is known as the sunlight vitamin as it is synthesized with the help of sunlight. It occurs in two major forms, but from nutritional point view it occurs in two major forms. Vitamin D2-Ergocalciferol, VitaminD3- Cholecalciferol. Vitamin D2 is formed when ergosterol found in plants is exposed to ultraviolet light. Vitamin D3 is the chief forms occurring in animals and develops to 7- dehydro-cholecalciferol on exposure to ultraviolet light from Sun.

   Vitamin D is absolutely necessary for proper development of bones. For this, children should be fed vitamin D food. The ICMR Expert Panel has proposed a daily requirement of 400 I.U. vitamin D. At this age, the demand for vitamin D reduces through food because the children keep playing outside the house in the sun shade most of the time. Therefore, vitamin D is replenished by sunlight.

7. **THIAMINE-**At this age, children get infectious diseases quickly. Vitamin C and B complex are absolutely necessary in the diet to protect it. Thiamine protects children

from berry berry diseases. To get thiamine, it should include leavened food (idli, dosa, dry yeast etc.) and whole grains and pulses. The Food Expert Panel of ICMR has reported 0.9 to 1.1 mg of thiamine daily requirement.

8. **ASCORBIC ACID**-Its ascorbic acid is necessary in sufficient quantity to protect children from various diseases and to increase immunity. Vitamin C keeps gums and teeth healthy. In the absence of this, blood starts coming out from the teeth and becomes scurvy. ICMR states 40 mg of ascorbic acid is required.

9. **IRON**-It is absolutely necessary to have iron content in the diet to prevent blood deficiency. Therefore, to fulfill this, children should be motivated to eat green leafy vegetables and foods full of iron elements. ICMR food experts have proposed 26 to 34 mg per day for boys and 19 to 26 mg of iron content for girls.

10. **CALCIUM**-Calcium is essential for the development of teeth and bones of children. At this age, the "teeth of milk" of children break and permanent teeth grow in its place. In such a situation, there should be sufficient amount of calcium in their food. Milk and milk products should be fed to get calcium. ICMR experts have proposed 400 to 600 mg of calcium per day

11. **PHOSPHORUS**-The requirements of phosphorus are closely related to dose of calcium. It is generally agreed that Phosphorus requirements are about 20% higher than calcium requirements. A large part of the Phosphorus present in serials, pulses and nuts is in the form of phytin. Only a small part of phytin phosphorus is aavailable to the human body.

TABLE: RECOMMENDED DIETARY ALLOWANCES FOR SCHOOL CHILDREN (ICMR,2010)

Nutrients	Boys and Girls		Boys	Girls
	4-6 years	7-9 years	10-12 years	10-12 years
Energy(K. cal)	1350	1690	2190	2010
Protein (gm)	20.1	29.5	39.9	40.4
Fat (gm)	25	30	35	35
Iron (gm)	13	16	21	27
Calcium (gm)	600	60	800	800
Retinol (πg)	400	600	600	600
β Carotene(πg)	3200	4800	4800	4800
Riboflavin(gm)	0.8	1.0	1.3	1.2
Niacin (gm)	11	13	15	13
Vit.B6(gm)	0.9	1.6	1.6	1.6
Vit. C(gm)	40	40	40	40
Folic Acid(gm)	100	120	140	140
VitB12(gm)	0.2-1.0	0.2-1.0	0.2-1.0	0.2-1.0
Zink(gm)	7	8	9	9
Magnesium	70	100	120	160

(gm)				

BALANCED DIET FOR SCHOOL CHILDREN-A balanced diet statement is presented for the children of upper, middle and low economic class. Expensive fruits and vegetables are included in the diet of children of high income group. Protein derived from animal sources is used more for the fulfillment of protein, like milk, meat, fish, egg etc. Cereals are used more in the diet of poor children. Pulses are used to supply protein.

1. **BALANCED DIET FOR HIGH INCOME GROUP-**Milk and expensive fruits are used more in the food of the children of high economic class. The quantity of pulses and grains is less. Milk, meat, fish and dry fruits are used more for the supply of protein.

TABLE: BALANCED DIET FOR HIGH INCOME GROUP

Food Stuffs (gm)	**7-9 years Boys and Girls**		**10-12 years Boys and Girls**	
	Vegetarian	**Non-vegetarian**	**Vegetarian**	**Non-vegetarian**
Grain	200	200	260	370
lentils	40	30	40	30
Green leafy vegetables	75	75	100	100
Sweet potato and other vegetables	50	50	75	75
Milk	1000	700	1000	700
Expensive fruit	100	100	100	100
meat and fish	-	90	-	90
dry fruits	30	-	30	-
Oil and ghee	30	30	35	35
Jaggery and Sugar	50	50	50	50

2. **BALANCED DIETS FOR SCHOOL CHILDREN/MIDDLE INCOME GROUP-** Balanced diet of middle-class children has more quantity of grains and pulses than high-income children. Neither expensive fruits and vegetables are included in their diet nor milk and dry fruits are included in large quantities. Lentils and peanuts are used to supply protein.

TABLE: BALANCED DIETS FOR SCHOOL CHILDREN MIDDLE INCOME GROUP

Food Stuffs (gm)	**7-9 years Boys and Girls**		**10-12 years Boys and Girls**	
	Vegetarian	**Non-vegetarian**	**Vegetarian**	**Non-vegetarian**
Grain	220	220	290	290
lentils	70	60	70	60
Green leafy	75	75	100	100

vegetables				
Sweet potato and other vegetables	50	50	75	75
fruit(at ordinary prices)	100	100	100	100
Milk	600	400	600	400
meat and fish	-	60	-	60
Jaggery and Sugar	30	30	30	30
Roasted Peanuts	30	-	30	-
Oil and ghee	30	30	30	30

3. **BALANCED DIETS FOR SCHOOL CHILDREN/LOW INCOME GROUP**-Grains and pulses are high in the diet of children of lower economic class. Lentils, sprouted gram, sprouted moong and roasted peanuts are used in the food to supply protein. Jaggery is used more in place of sugar. Because the quantity of iron in jaggery is high. Milk and meat, fish are used less. Cheap fruits and vegetables are included.

TABLE: BALANCED DIETS FOR SCHOOL CHILDREN LOW INCOME GROUP

Food Stuffs (gm)	**7-9 years Boys and Girls**		**10-12 years Boys and Girls**	
	Vegetarian	**Non-vegetarian**	**Vegetarian**	**Non-vegetarian**
Grain	250	250	320	320
lentils	70	60	70	60
Green leafy vegetables	75	75	100	100
Sweet potato and other vegetables	50	50	75	75
Milk	250	200	250	200
Cheap fruit (of the season)	50	50	50	50
meat and fish	-	30	-	30
Roasted Peanuts	30	-	30	-
Jaggery and Sugar	50	50	50	50
Sprouted gram	50	50	50	50
Oil and ghee	30	30	35	37

It is necessary for school children to consume the quantity of food items as mentioned above. But it is a matter of great sadness and regret that not only the children of low-income families, but also the children of middle-income families have to be deprived of many nutrients.

In particular, food items are not available to children in the lower income group families in India according to the table used. Use of milk, dry fruits and fruits is only

possible for the children of high income group. Hence, in almost 70% of Indian families, school children do not get nutrition according to their physical needs.

Most Indians meat, fish, eggs, liver, etc. do not accept food items obtained from animal sources. Due to this they are also deprived of high quality protein. Not only this, they treat non-vegetarian food items with disgust. Therefore, today there is a need to create awareness among the people, so that they can get nutritious food in balanced quantities from various foods.

SOLUTION OF FOOD PROBLEMS-

1. Children should be encouraged to eat all kinds of diet.

2. Breakfast in the morning should be full and nutritious and take less time to eat. Therefore, a glass of milk and egg will be sufficient in the morning breakfast.

3. The child eats lunch at school, but due to short medieval vacation time, the child is not able to eat the food properly. Therefore, the food should be such that it is attractive to look at, tasty and tasteful to eat, warm and soft to the touch and full of all nutrients.

4. Children should not be allowed to eat excessively sour-sweet things such as tamarind, raw mango etc. This causes hunger.

5. Salads and fruits must be included in the children's diet so that the mineral salts and vitamins can be obtained in sufficient quantity.

6. Children should be fed food in a calm, sweet and loving environment. For this, serve food to the children along with family members. Children learn well by following the elders

7. At least 15 to 20 minutes of time must be spent on food so that the child can rest assured and take food.

8. Explain the importance of various food items to children so that the child can understand the importance of nutritional and quality of food and can accept food with pleasure.

9. Never feed the child with scolding. This will fill the stomach of the child but he will remain mentally unimpressed.

10. Teach the child the right food habits.

11. New food items should be included in the food in such a way that the child ingests that food with eagerness and happiness.

12. If the child does not accept any special diet, then change its form, shape and cooking method. The child will be happy and eat that food.

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