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## Effect of nutrition on child health

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### Abstract

Child health is a state of physical, mental, intellectual, social and economical well being. Mounting evidence that health during childhood set the stage for adult health. Healthy children are more likely to become healthy adults. Good nutrition is essential for physical growth and mental development. In Infant stage, breastfeeding is the Main balanced nutrition diet. Macro and micro lesson both are necessary for child's good health. During childhood under nutrition causes children to have less energy and less interest for learning, which negatively influence cognitive development and academic performance. Under nutrition will also affect physical growth and maturation i.e. growth rate, body weight and height.

**Keywords:** child development, infant feeding, nutritional requirement and body growth

### Introduction

Health of people is not only are desirable goal but it is also an essential investment in human resources. Adult men grow from a child if we want good human resources, we must take care of health of child. Health of child depends on good nutritional food and good environment. Nutritional can be defined as process by which the organism ingests, digests, absorbs, transport and utilizes nutrient and disposes of their and end product of nutrient in suitable amount essential for the growth, maintenance, function and Reproduction of cell or organism. These are proteins, carbohydrate, fat, minerals, vitamin, water and roughage. The word health refers to the condition of the body. Good health not only implies freedom from diseases but physical, mental and emotional fitness as well. Health of a child as influenced by the quality of food eaten and the ability of the body to utilize these foods to meet its needs. Optimum and good nutrition is used to indicate that the supply of essential nutrients is correct in an amount and proportion. It also implies that the utilization of such nutrient in the body is such that the highest level of physical and mental health is maintained through the life cycle. Malnutrition means and undesirable kind of nutrition leading to ill health. It results from a lack, excess of imbalance of nutrient in the diet it includes under nutrition. Under nutrition is a state of an insufficient supply of essential nutrients. Over Nutrition refers to an excessive intake of one or more nutrients which create a stress in the bodily function. Nutrition play and very important in the field of human health. Without good nutrition we can't think about a good health. Giving a child a solid nutrition start has an impact for life on her or his physical mental and social development. Malnutrition weakens the immune system, making a child susceptible to disease, increasing severity of illness and impending recovery. A sick child in twin can quickly become malnourished. Age appropriate breastfeeding and nourishing complementary foods along with adequate health care and break the vicious cycle.

### Major Physical & Cognitive Development in Normal Child

For normal growth and development of children, it is necessary to take adequate in a diet to maintain the current body weight. Healthy diet meets the energy requirement and supplies essential macro and micro nutrients. The growth of the child in infancy period is rapid. Therefore during this period that energy and nutrient requirement at higher than other growth period.

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The table below shows the major physical and cognitive skill development in normal children.

Age	Physical skill development	Cognitive skill development
2 Years	Child jump, throw the ball over head. Can dress itself under the supervision of elders.	Child has the understanding power of how to avoid simple obstacles.
3 Years	Most children can broad jump and stand on one foot 5 seconds.	Child can answer simple question. It can tell its name and count upto 3.
4-5 Years	Children can catch the bounced ball. They can hop and balance on one foot.	Children ask question. They can count 5 -10 objects. They understand the concept of opposite and consecutive.
6-11 Years	The complex gross and fine motor and perceptual skill are improved through practice.	Their thinking becomes logical and rational concrete operational thinking develops.

### Maternal Nutrition

A child's nutritional future begins before conception with mother's nutritional status prior to pregnancy. A chronically undernourished mother is likely to give birth to an underweight baby, who may be stunted as a child and in turn give birth to malnourished baby. A well nourished woman over the age of 18 has a much greater chance of serving pregnancy and her child of growing up healthy.

Eliminating malnutrition in mother's can reduce disabilities in their infant by almost their one third. It is also important that expectant mother eat a variety of foods, receive essential micronutrients and have adequate rest. During fetal growth is when most of the child's organs and tissues, blood, brain and bones are formed and his or her potential is shaped lack of maternal nutrition and nutritional stores can create irreversible harm.

### First Three Years: Infant and Young Child Feeding

The period from birth to the age of three is a time of rapid growth and represent a singular opportunity to provide a child with a strong nutritional and immunological foundation. Intellectual & physical growth is the most rapid with doubling of brain size and quadrupling of body weight. If a child is malnourished during these early years much of the damage is Irreversible the answer lies in prevention.

If everybody immediately put skin to skin at the breast, hypothermia would be prevented, saving about 20,000 lives annually. If every baby were exclusively breastfed for six months, an estimated 1.3 million additional lives would be saved every year and millions more would benefit in terms of health, intelligence and productivity. Breast milk is the perfect food it contains all the nutrition and micronutrients and infant need for normal growth during the first six months of life.

Breast feeding stimulates an infant's immune system and response to vaccination and in continually changing to meet the babies' needs. Breast milk contains hundreds of health enhancing cells, proteins, fats, hormones, enzymes and other factors found now where else but in mother's milk.

After six months, the infancy should continue her frequency of breast feeding while beginning responsive complementary feeding with nutrient and iron dense food provide additional vitamins, minerals, proteins and carbohydrates to meet her or his growing needs. Complementary feeding should start gradually but the 6-8 months old child should receive.

### Essential Macro Nutrients

**Carbohydrate** - Carbohydrate is the primary source of energy. It should provide 45% to 65% of total calories in a diet. Complex carbohydrates should contribute to a greater extent than simple carbohydrate. A higher intake of simple sugar in children can displace essential macro & micronutrients. Fruits are a good source of simple carbohydrates is rich source of vitamins and fibers. Whole fruits instead of fruit juices should be given to the children.

**Protein** - Protein requirement is Greater for child than an adult. All essential amino acid is provided by protects breast milk is a very good source of protein for infant for vegetarian child, the requirement of essential amino acids can be got from legumes corn & milk from 10 % to 35% of total calories should be come from protein.

**Fats** - Fat provide essential fatty acid and have important structural and functional roles. fatty acid are needed for nervous system myelination in children younger than 2 years of age. Fat also facilitate absorption of fat soluble vitamins. These function of fat are important for neurological ocular development for children younger than two years. 25% to 40% of total calories should be come from the fat and for older children, 10% to 35% calories should come from fat.

### Essential Micronutrients

Tiny dose of minerals, vitamins and trace element and mean are difference between life and death for mothers and children. Micronutrients- particularly iron, vitamins A, iodine and folage -play a vital role in the mineral survival in pregnancy and childbirth and the child's development.

**Vitamin A** :- It is essential for the functioning of the immune system. Vitamin A deficiency causes blindness and Renders children susceptible to common childhood Killers measles, diarrhea, malaria and pneumonia. Increasing the vitamin A intake of pollution with VAD can decrease childhood death from such illness as by 25%.

**Iodine**:- Iodine is a critical nutrient for the proper functioning of the thyroid gland which regret growth and metabolism. iodine deficiency is the primary cause of preventable learning disabilities and brain damage.

**Iron**:- The body need iron to manufacture hemoglobin – protein in red blood cells that carries oxygen around the body –and several enzymes, necessary for muscle, brain and the immune system. The body's iron requirement increase during menstruation, pregnant, breastfeeding and high growth periods.

**Calcium**:- During childhood adequate calcium intake is important for bone health. Milk and dairy products are good source of calcium. Recommended dietary allowances for calcium are about 600 to 800 mg/day. Children can get calcium from other source such as green leafy vegetables, ragi and sesame seeds etc.

**Vitamin D**:- Vitamin D is very important for bone health in child. Vitamin D deficiency can cause rickets in child. Very severe deficiency can also lead to hypocalcemic seizures. Children can get vitamin D from breastfeeding and sunlight.

**Nutrition Requirements for Infant**

<b>Nutritive Elements</b>	<b>1-3 Months</b>	<b>4-9 Months</b>	<b>10-12 Months</b>
Protein (gram)	3.0/kg	2.5/kg	2.0/kg
Calories	120/kg	100/kg	100/kg
Calcium	0.3	0.5	0.7
Iron (mg)	3	4	7
Vitamin A (IU)	1500	1500	1500
Thiamin (mg)	0.2	0.3	0.4
Riboflavin (mg)	0.3	0.5	0.6
Niacin (mg)	3	4	5
Vitamin C (mg)	10	15	20
Vitamin D (IU)	400	400	400

6. WHO guidelines for infant feeding, 2018.
7. Dr. Neeta Agarwal, Dr. Akansha Tripathi. Human development, chapter 9, page 98.

**Intellectual Development and Education**

A 2010 study from "The general of Nutrition" found that under nourished 2 year old were 16% more likely to fail at least one grade in school and entered school later than their well-nourished counterparts. The scientist behind the studied determined that this could decrease the child's life time income by about 10%. The United Nations Standing Committee on nutrition says that even in mild or moderate situation, stunted growth resulting from poor nutrition is correlated with poor academic performance and lowered mental capacity.

**Emotional and Physiological Development**

Poor nutrition can pave the road to emotional or psychological development issue. Dr Lawrence Wilson from the centre for development has studied psychiatric issues in relationship to hair sample mineral analysis in children. Some minerals such as calcium have proved to be extremely important issue related to Autism, hyperactivity depression bipolar disorder, schizophrenia and anxiety are associated with some nutritional imbalances.

**Conclusion**

After analysis of these facts it is crystal clear that the nutrition plays a vital role for the health of child. Balanced diet is essential for good health of children. For early one year, the breastfeeding is the main balance diet for infants. After that macro nutrients i.e carbohydrate, protein and fat is necessary for good physical development of child. Child get energy from carbohydrates and fats. Proteins are also necessary for physical development. Without taking adequate diet of protein, we cannot expect healthy body of baby. Micronutrient just like vitamins, iodine and calcium iron also play a very big role for health of child. Without these micronutrient, child's intellectual is not possible in a good way.

Therefore, good physical, intellectual, emotional and physiological development. It is necessary to give child a balanced diet i.e nutritional diet. Without nutritional diet, we cannot expect a good health of child.

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