Early Childhood Nutrition and Education

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Introduction

Early Childhood

Early childhood typically ranges from **infancy to the age of 6 years old**. During this period, development is significant, as many of life's milestones happen during this time period such as first words, learning to crawl, and learning to walk.

Nutrition

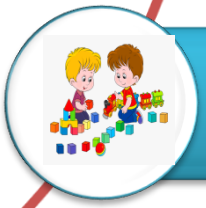
- ✓ Nutrition is a method in which the food is consumed by the organisms and utilizing the nutrients from the food.
- ✓ Nutrition is the process of taking in food and converting it into energy and other vital nutrients required for life.

Objectives

To develop in the child a good physique, adequate muscular co ordination and basic motor skills.

Ensure child is valued , respected , feels safe and secure and develops a positive self Concept.

Promote effective communication and integration of the senses.



Enable a sound foundation for physical and motor development of each child as per each child potential.

Nutrient Requirements during the Early Childhood

Age Group (Childrens)	Body Weight (Kg)	Energy (Kcal/d)	Fats/Oils (Visible) (g/d)	Protein (g/d)	Calcium (mg/d)	Magnesium (mg/d)	Iron (mg/d)	Iodine (µg/d)
1-3	11.7	1010	25	9.2	400	111	6	65
4-6	18.3	1360	25	12.8	450	131	8	80

Age Group (Childrens)	Zinc (mg/d)	Thiamine (mg/d)	Riboflavin (mg/d)	Niacin (mg/d)	Vit B6 (µg/d)	Folate (µg/d)	Vitamin B12 (µg/d)	Vit C (µg/d)	Vit A (µg/d)	Vit D (µg/d)
1-3	2.5	0.6	0.8	6	0.8	90	1	22	180	400
4-6	3.7	0.8	1.1	8	1.0	111	1	27	240	400

Food Allowances for Early Childhood

Food groups	quantity (g) 1 - 3 years	quantity (g) 4 - 6 years
Cereals and Millets	120	210
Pulses	30	45
Milk (ml)	500	500
Roots and tubers	50	100
Green leafy vegetables	50	50
Other vegetables	50	50
Fruits	100	100
Sugar	30	30
Fats / oils (visible)	25	25

Energy

- Children need energy for growth, development and activity. Intake should be tailored to each child to ensure optimal growth and development to avoid overweight and obesity.

- Energy is provided by carbohydrates (starchy food and sugars), protein and fat in the diet. A healthy energy balance is achieved by 3 balanced meals a day each containing some starchy carbohydrate food and 2-3 nutritious snacks

Protein

Adequate protein intake is essential for growth, development and repair of body tissues in children. At least 2 servings of a variety of protein rich foods should be provided per day. Vegetarian or vegan children will need up to 4 servings per day.

Fat

Fat is an essential contributor to overall energy intake.,

IRON

Iron is an essential component of haemoglobin, found in red blood cells. Iron is absorbed more efficiently in the **presence of vitamin C rich foods and drinks.**

Vitamin C rich foods such as citrus fruits, Guava ,grapefruit, berries, Cauliflower, tomatoes, lemon, Orange, mangoes, and vitamin C fortified drinks should be offered at the same time as iron rich foods at mealtimes.

Vitamin A

Vitamin A plays a vital role in maintaining a healthy immune system, fighting infection and for good vision. Good sources of vitamin A -papaya, spinach, sweet potatoes eggs, oily fish, fortified breakfast cereals and margarines and yellow or orange based fruits and vegetables (carrots, peppers, papaya, tomatoes and apricots).

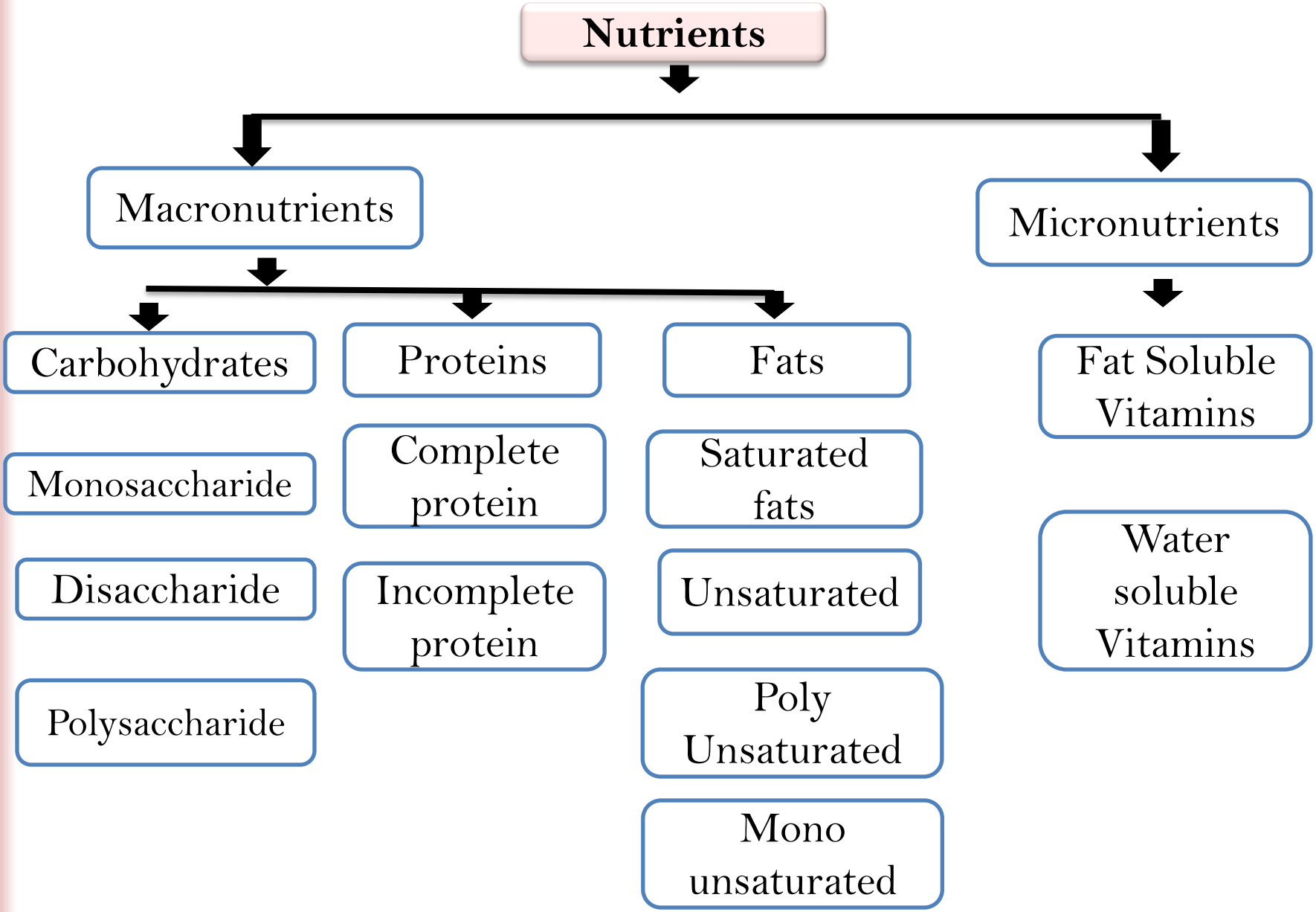
Fibre

Dietary fibre helps to keep the digestive system healthy and prevent constipation as well as other health problems.

Need of Nutrition in Early Childhood

- A nutritionally adequate diet is essential for optimal growth and development.
- Reduce the risk of diet related chronic diseases.
- Common infections and malnutrition contribute significantly to child morbidity and mortality
- To maintain good nutritional Status

Classification of Nutrients



Deficiency of nutrients and Physical Development

Micronutrient Deficiency	Effects
Vitamin D and Calcium	Deficiency affects bone and development
Potassium , Zinc , magnesium and copper	Deficiency disturbs the growth hormones and affect growth
Vitamin E	Deficiency affects muscle development
Iodine	Poor Somatic and central nervous system growth, inactivity ,lethargy , poor concentration , impaired cognition and incoordination

Deficiency of Nutrients and Mental Development

Micronutrient	Deficiency manifestations
Vitamin B1	Reduction of the brain content of neurotransmitters glutamate and aspartate
Vitamin B2	Impaired performance on psychomotor tests , neuromotor incoordination and personality changes.
Vitamin B3	Loss of memory, nervousness
Vitamin B6	Depression, irritablity , loss of memory , irritablity to concentrate , peripheral neuritis
Vitamin B12	Loss of memory , disorientation and emotonial instability

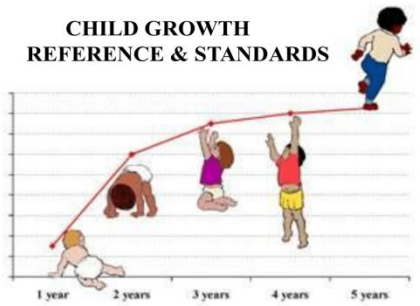
Deficiency of Nutrients and Mental Development

Micronutrients	Deficiency manifestations
Iron	restlessness, lack of vigor and enthusiam ,lower scores on motor development and congnitive tests and poor school grades
zinc	Lethargy, decreased visual memory , impaired cognitive development and neuropsychological problems
Folic acid	Memory Loss , forgetfulness , depression , irritablity, introversion , altered behaviour
Vitamin A	Impairs immuno competence , increase the risk of infection
Vitamin C	Fatigue, depression, rash, internal bleeding, impaired wound healing, gingivitis

Role of nutrients in Growth & Development for Early Childhood

Growth refers to a measurable increase in size, height and weight, development refers to the acquiring of attitude, behaviours, and social skills. Growth and development are complex processes that require the right balance of nutrients.

During this time, boys and girls will grow an average height of 30cm, and gain 34kg of weight, preparing to transition into pre-pubescents, pubescents and young adults. It is important that children receive the right nutrition over this time to fuel their growth and development.



Calcium, magnesium and protein are important for childhood growth and development.

Calcium

During peak time of physical change, calcium is required to ensure bones mineralise or grow as expect them to, and that peak bone density (the optimal thickness and therefore strength of bones) is achieved.

Magnesium

50% of the body's magnesium is found in the bones. Magnesium plays an important role in **growth, development and energy production** in children. It's essential for muscle strength, protein synthesis, enzymatic activity, cell growth, and regeneration.

Protein

Dietary protein plays in the remodelling and growth of the tissues used in muscles and bones, adequate dietary protein for children is essential.

Factors Affecting the growth

- Genetics
- Environmental Factors
- Endocrine
- Nutrients and food
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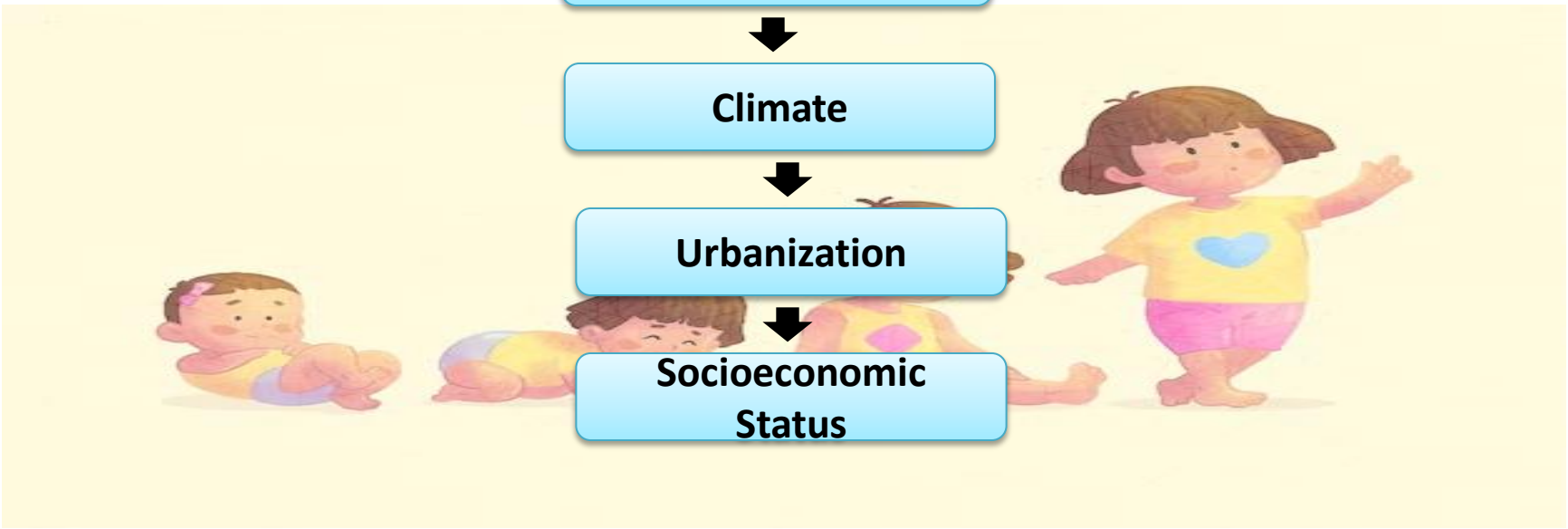
- Climate
- Urbanization
- Socioeconomic Status



Conclusion

- ✓ Nutrition for School aged Children should promote growth and meet energy and nutrient needs without promoting too much weight gain.
- ✓ During this period, the children will experience increased opportunities to make choices about their food intakes.
- ✓ Parents can help their children make positive food choices by planning family mealtimes , keeping a variety of foods on hands and setting positive examples.
- ✓ Habits formed in childhood are likely to carry into adult years.

thank you!