



# HME103-Principles of Nutrition

Nutrition by developmental stages (children)

Lesson Code: HME103-Principles of Nutrition

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# Nutrition During Childhood

Children between the ages of one and three begin to explore life independently.

This age range is a period in which children learn knowledge, skills, and attitudes about eating behaviors and practices that can form the basis of nutritional patterns that improve lifelong health.



## NUTRIENT REQUIREMENTS IN CHILDREN 1-3 YEARS OLD

- The average energy requirement is **1250 kcal/day**.
- **50-60% of energy should come from carbohydrates.**
- **Protein requirement is 15-18 g/day.**
- **Fat requirement is 25-30% of energy**

# Nutrition During Childhood

• **Four basic food groups** must be included in the daily diet of a child between the ages of one and three. On average, the grain group should have 4 portions per day, the vegetable and fruit group should have 2-4 portions, the milk and dairy products should have 3 portions, the meat group should have 2 small portions, and the confectionery and fat group should be rare.

• **Water and Drinks:** From the age of one, water and cow's milk should be the main drinks. The average liquid requirement in children aged 1-3 is around 100-120 ml per kg per day. At this age, drinks should be offered in cups rather than bottles. The risk of tooth decay and ear infections increases in babies who use the bottle for too long.

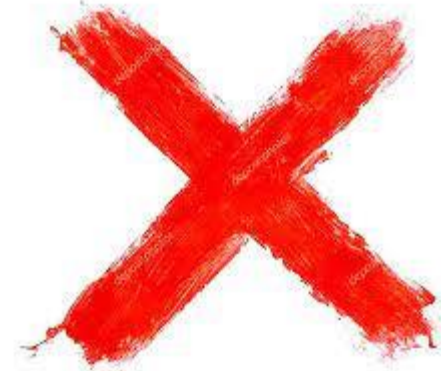
• **Milk:** Consumption of cow's milk from the age of one; should be limited to approximately 500-600 ml due to high protein, low iron content and risk of reducing diversity in the diet.



# Nutrition During Childhood

## Foods and Drinks Unsuitable for Children:

- Tea,
- coffee,
- fizzy drinks,
- Non-alcoholic beverages containing high amounts of sugar,
- Energy drinks,
- Junk food snacks,
- Whole hazelnuts and nuts etc...



## NUTRITION-RELATED PROBLEMS IN CHILDREN 1-3 YEARS OLD

- **Food Denial:** It is common among small children and it often worries parents.

It is usually a stage of normal development but can be aggravated by parental reaction.

If the child refuses to eat meat and has a low protein intake, minced meat, cold meat, or strips of cut meat should be served. Otherwise, eggs, legumes, fish or dairy foods should be tried.

- **Self-decision :** It is important for children aged 1-3, so it may be wise to make the child choose between two foods.  
If the child chooses not to eat, no other snack or meal should be prepared for them.



## • Iron deficiency:

If the child has iron deficiency, the main treatment for iron deficiency is to include foods and drinks containing vitamin C along with animal iron sources (such as red meat, chicken and fish). Consumption of foods that may inhibit iron absorption should be avoided (such as tea, coffee or fiber).

According to the Nutrition Guide Specific to Türkiye, the safe intake level for iron is 7 mg/day for children aged 1-3 years.



## • Calcium Deficiency:

During this period, children need foods containing large amounts of calcium due to the constant growth of their bones. Offering calcium-rich dairy products will likely provide adequate calcium.

According to the Türkiye-Specific Nutrition Guide for children aged 1-3, 800 mg per day is the safe intake level.

- **Constipation:**

Constipation is decreased stool frequency. Constipation is often accompanied by pain after defecation. Children may also experience abdominal pain and bloating.

In this case, it is recommended that;

- More whole grain or bran bread, rice and cereals, fresh fruits, dried fruits and vegetables should be included in the diet.
- water should be the main drink
- The child should be encouraged to exercise or be active every day,
- A regular toilet routine should be established. Going to the toilet at regular intervals prevents constipation.



- **Food Allergy:**

The incidence of food allergy in children under five years of age is 4% to 8%. Approximately 90% of food allergy reactions are caused by allergens such as eggs, milk, peanuts, sesame, fish, shellfish, wheat and soy.

- **Food Intolerance:**

It is defined as a reaction of the digestive system to a substance contained in a consumed food (such as lactose intolerance).



**Food intolerance and food allergy are often confused due to their similarity.**

If the child has a food intolerance, he can consume a certain amount of the suspected food without any problems, and possible symptoms can be prevented. However, in food allergy, serious problems may occur even if small amounts of the allergic food are consumed.

Food allergy occurs as a result of our immune system's abnormal response to food proteins. However, characteristics related to the content of food or the enzymatic functions of our digestive system play a role in the development of food intolerance. Our body's immune system has no role in the development of food intolerance.



## NUTRITION-RELATED PROBLEMS IN CHILDREN 1-3 YEARS OLD



### Tooth Decay:

Children's tooth enamel is softer than adults', so the decay process occurs faster and easier.

Saliva has an important role in washing away harmful plaque acids.

When a child sleeps with a bottle or pacifier, less saliva is produced during sleep, leading to possible damage to the enamel.



The energy and nutritional needs of children aged 3-6 are not as high as in infancy.

However, since body development continues in these age groups, proper nutrition is still very important.

Bu dönemde alınan günlük enerjinin %45-50'sinin karbonhidrattan, %15-20'sinin proteinden, %35'inin de yağlardan gelmesi önerilir.



Çikolata, şeker, kola, cips gibi besinler tavsiye edilmez. Bu besinlerin sağlığı ve gelişimi hakkında negatif etkiler oluşturabileceği çocuğa anlatılarak ikna edilmelidir.

## Foods that 3-6 year old children should eat to meet their daily nutritional needs:

- 2 glasses of milk, 1 bowl of yoghurt or cheese
- 1 portion of white or red meat or eggs
- 1 portion of vegetable
- Foods rich in vitamin C (spinach, egg yolk, carrots, peppers, zucchini, yellow and green vegetables) and
- 4 portions of grains (corn, rice, barley, bran, pasta) should be given daily and at least 3 or 4 times a week



School age; It covers children between the ages of 6 - 12.  
16.5% of Türkiye's population.

## School Age Period;

- It is an important period in which children's eating habits develop,
- they start eating with friends outside the home,
- their physical, cognitive and social growth and development accelerate,
- their responsibilities increase, and
- the foundations of a healthy life are laid in adulthood.



## School Age Period;

It is a period of;

- Growth and development are rapid,
- The nutrient requirement is high,
- The speed of emotional development increases,
- life-long behaviors begin to be acquired

This period is the year in which the individual grows and develops physically, acquires an identity, and acquires academic and professional knowledge.



## NUTRITION IN SCHOOL CHILDREN

When we look at the mass nutrition services for school children today, **it has been determined that school canteens and cafeteria services** offered to students play an important role in the nutrition of students.



## NUTRITION IN SCHOOL CHILDREN

- The fastest growth begins at the age of 10-12 in girls and at the age of 11-14 in boys.
- A significant amount of energy is needed during the growth process. More protein, vitamins and minerals need to be taken.
- Children need a rich nutritional program for healthy growth and development.
- Their energy expenditure per unit of body size is considerably higher than that of adults.
- While the daily energy requirements of adults who do not do sports are 35-40 calories per kg of weight, this reaches 80 calories per kg of weight in children..



## Major Nutrition Problems Seen in School-Age Children :

- Underweight or obesity,
- Anemia (Anemia),
- vitamin deficiency,
- Iodine deficiency,
- tooth decay,
- Obesity,
- metabolic syndrome



## Causes of excess weight in children :

- Overnutrition
- Malnutrition
- One-way nutrition



Studies conducted by the World Health Organization have observed that obesity among school children has **tripled in the last 30 years**.

Among the reasons for this increase is considered to be;

- lack of physical activity,
- large portions,
- increased consumption of carbonated drinks,
- School menus include less vegetables and fruits and more rice, pasta, potatoes and desserts.
- Snacks should consist of foods rich in fat and sugar, such as buns, pastries, cakes, chocolate bread, fruit juices,
- Selling and consuming similar foods in canteens,
- The spread of 'fast-food' types of nutrition.



❖ Research shows that most school-age children go to school without having breakfast. At the beginning of a new day, breakfast is of vital importance for the body to regain its working power after being hungry all night.

When breakfast is not eaten after a long period of hunger, the child becomes weak, dizzy, and mental activities, especially attention, working and learning ability, are greatly affected due to insufficient nutrition. As a result, the child's academic success is affected, and success in school courses decreases. Carbohydrates and protein taken at breakfast positively affect brain functions (Soykan, Ş., 2017)



## Recommended Nutrient Amounts for School Children to Take During the Day

Food Groups	Amount (Portiyon)/Day
Milk, cheese and yoghurt (necessary protein, calcium and vitamin D)	2-3 portion
Meat, chicken, fish, eggs and beans (provide necessary protein, iron, B vitamins and some minerals)	2-3 portion
Bread, cereal and pasta (contains vitamin B, iron, minerals and fiber)	5-6 portion
Vegetables (contain vitamin A, vitamin C, complex carbohydrates and fiber)	3-4 portion
Fruits (contains necessary vitamins A, C, potassium and other minerals. It also contains carbohydrates and fiber)	2-3 portion

## Recommended Daily Energy Intake for School Age Children

	7-9 years	10-13 years	
	Girl/Boy	Girl	Boy
Energy Kkal/day	1742	1742	2445