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Question

Q1. What is a functional food

b. Describe the different types of functional food

c. With relevant examples, give the clinical implications of functional foods

Q2. What is nutritional status assessment.

b. Describe anthropometric techniques of nutritional assessment and its applications

Q3. Describe nutrition as it relates to life stages

Answer:

1. Functional foods can be defined as a food given as an additional function(often or related to health promotion or disease prevention) by adding new ingredients or more existing ingredients. Functional food is a natural or processed food that contains known biologically active compound which when In defined quantitative and qualitative amount provides a clinically proven documented health benefits and therefore an important source in the prevention, management and treatment of chronic diseases.

1b. Conventional food: these are the most basic functional food because they haven't been modified by enrichment or fortifications.

Modified food: Food that has been enriched,fortified or enhanced which nutrients of other beneficial ingredients.

Medical food: Medical food is defined as food formulated to be consumed or administered enterally under the supervision of a physician.

Food for special dietary use: Similar to medical food but they are available commercially and don't require the supervision of a health care provider that is a physician.

1c a). Functional foods provide important that can help protect against diseases

b). They are especially rich in antioxidants

c). Certain nutrients are essential the proper growth and development in infants and children, especially foods fortified with specific nutrients

d). Functional foods are high in some nutrients including vitamins.

2. Nutritional status of an individual is often the result of many inter related factors. It is influenced by food intake, quantity, and quality and physical health.

The word **anthropometry** comes from two words: *Anthropo* means 'human' and *metry* means 'measurement'. In your community you will be able to use anthropometric measurements to assess either growth or change in the body composition of the people you are responsible for. The different measurements taken to assess growth and body composition are presented below.

To assess growth in children you can use several different measurements including length, height, weight and head circumference.

Length

A wooden measuring board (also called sliding board) is used for measuring the length of children under two years old to the nearest millimetre (as shown in Figure 5.1). Measuring the child lying down always gives readings greater than the child's actual height by 1-2 cm.

Height

This is measured with the child or adult in a standing position (usually children who are two years old or more). The head should be in the **Frankfurt position** (a position where the line passing from the external ear hole to the lower eye lid is parallel to the floor) during measurement, and the shoulders, buttocks and the heels should touch the vertical stand. Either a stadiometer or a portable anthropometer can be used for measuring. Measurements are recorded to the nearest millimetre.

Procedure

As with measuring a child's length, to measure a child's height, you need to have another person helping you.

Weight

A weighing sling (spring balance), also called the '**Salter Scale**' is used for measuring the weight of children under two years old, to the nearest 0.1 kg. In adults and children over two years a beam balance is used and the measurement is also to the nearest 0.1 kg. In both cases a digital electronic scale can be used if you have one available. Do not forget to re-adjust the scale to zero before each weighing. You also need to check whether your scale is measuring correctly by weighing an object of known weight.

Procedures

The procedures for weighing a child under two years old using a Salter Scale.

Head circumference

The head circumference (HC) is the measurement of the head along the **supra orbital ridge** (forehead) anteriorly and **occipital prominence**(the prominent area on the back part of the head) posteriorly. It is measured to the nearest millimetre using flexible, non-stretchable measuring tape around 0.6cm wide. HC is useful in assessing chronic nutritional problems in children under two years old as the brain grows faster during the first two years of life. But after two years the growth of the brain is more sluggish and HC is not useful. In Ethiopia, HC is measured at birth for all newborn babies.

4. The key stages in life include:

Pregnancy: A varied diet which provides adequate amounts of energy and nutrients, is essential both before a woman becomes pregnant(preconception) and during pregnancy,the mothers diet can affect the health of the baby.

Infancy/Childhood :Requirements for macronutrients and micronutrients are higher on a per-kilogram basis during infancy and childhood than at any other developmental stage. These needs are influenced by the rapid cell division occurring during growth, which requires protein, energy, and nutrients involved in DNA synthesis and metabolism of protein, calories, and fat. Increased needs for these nutrients are reflected in DRIs for these age groups.**Energy.** While most adults require 25 to 30 calories per kg, a 4 kg infant requires more than 100 cals/kg (430 calories/day). Infants 4 to 6 months who weigh 6 kg require roughly 82 cals/kg (490 calories/day). Energy needs remain high through the early formative years. Children 1 to 3 years of age require approximately 83 cals/kg (990 cals/d).

Adolescence/Adulthood:higher intakes of protein and energy in the adolescent population for growth. For most micronutrients, recommendations are the same as for adults. Exceptions are made for certain minerals needed for bone growth (e.g., calcium and phosphorus). However, these recommendations are controversial, given the lack of evidence that higher intakes are an absolute requirement for bone growth. Evidence is clearer that bone calcium accretion increases as a result of exercise rather than from increases in calcium intake.

Micronutrient needs in adults 19 to 50 years of age differ slightly according to gender. Males require more of vitamins C, K, B 1, B 2, and B 3; choline; magnesium; zinc; chromium; and manganese. Menstruating females require more iron, compared with males of similar age.

Changing Nutrient Needs through the Life Cycle

Life Stage	Change in Nutrient Needs
Pregnancy*	**Increased requirements:** energy, protein, essential fatty acids, vitamin A, vitamin C, B-vitamins (B_1, B_2, B_3, B_5, B_6, B_{12}, folate, choline) & calcium, phosphorus,** magnesium, potassium, iron, zinc, copper, chromium, selenium, iodine, manganese, molybdenum
Lactation*	**Increased requirements:** vitamins A, C, E, all B-vitamins, sodium, magnesium** **Decreased requirements:** iron
Infancy, childhood*	**Increased requirements:** energy, protein, essential fatty acids
Adolescence*	**Increased requirements:** energy, protein, calcium, phosphorus, magnesium, zinc (females only)
Early adulthood (ages 19-50)	**Increased requirements for males, compared with females:** vitamins C, K; B_1, B_2, B_3, and choline; magnesium, zinc, chromium, manganese **Increased requirements for females, compared with males:** iron
Middle age (ages 51-70)*	**Increased requirements:** vitamin B_6, vitamin D
Elderly (age 70+)*	**Increased requirements:** vitamin D

Changing Nutrient Needs through the Life Cycle

Life Stage	Change in Nutrient Needs
	Decreased requirements: energy; iron (females only)