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MEDICAL LABORATORY SCIENCE

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. A functional food is a food claimed to have an additional function by adding new

ingredients or more of existing ingredients.

2. Conventional food: these are the most basic functional food because they haven't been modified by enrichment or fortifications.
   B. Modified food: Food that has been enriched,fortified or enhanced which nutrients of other beneficial ingredients.
   C. Medical food: Medical food is defined as food formulated to be consumed or administered enterally under the supervision of a physician. D. 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.

3. May prevent nutrient deficiencies.
   May protect against disease. May promote proper growth and development.
   Functional foods can be used to boost your intake of important nutrients, fill any gaps in your diet, and support overall health.
4. **Nutritional assessment** is the interpretation of anthropometric, biochemical (laboratory), clinical and dietary data to determine whether a person or groups of people are well nourished or

malnourished (over-nourished or under-nourished).

5. Anthropometric involves measurement of body weight, height and proportion. 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.

6. We need essential amino acids, carbohydrate, essential fatty acids, and 28 vitamins and minerals to sustain life and health.

However, nutritional needs vary from one life stage to another. During intrauterine development, infancy, and childhood, for example, recommended intakes of macronutrients and most micronutrients are higher relative to body size, compared with those during adulthood. In elderly persons, some nutrient needs (e.g., vitamin D) increase, while others (e.g., energy and iron) are reduced.

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 (B1, B2, B3, B5, B6, B12, 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; B1, B2, B3, and choline; magnesium, zinc, chromium, manganese **Increased requirements for females, compared with males:** iron
Middle age (ages 51-70)*	**Increased requirements:** vitamin B6, vitamin D