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COURSE TITLE: NUTRITION BIOCHEMISTRY

Answer

1a. Functional food is a natural or processed food that contains no biologically active compound which when taken in defined quantitative and qualitative amount provides a clinically proven and documented health benefit and therefore is a source of prevention, management and treatment of chronic disease of modern age.

1b. Types of functional food

1) Conventioner foods: are those foods that haven’t been modified by enrichment of fortification. They are mostly natural foods.

2) Modified foods: are those foods that have been enriched, fortified with nutrients or other beneficial ingredients.

3) Medical foods: are foods formulated to be consumed and administered under supervision of a physician

4) Food with special dietary use: are foods just like medical foods but doesn’t need supervision and is available commercially for special health conditions e.g; lactose intolerant, obesity.

1c. Clinical implications of functional foods

Although Functional foods are very important clinically as they aid in GI functions and immune functions, reduces risk of chronic diet- related diseases, promote mental state and mental performance, aids in physical activity etc, some possess side effects and clinical implications particularly those with added botanicals. They include;

1) A plethora of functional bars, beverages, cereals and soups enhanced with botanicals may pose a risk to some customers.

2) The use of some herbs has also been recognised to be harmful in herb-drug interaction.

3) Presence of some ingredients, fortifications and enrichments could be harmful to some users.

4) Over taking of some functional foods too is also harmful or using the wrong functional food for a particular illness could increase the effect of the illness.

2a. Nutritional status assessment is the process of interpreting one’s nutritional status i.e anthropometric, biochemical, clinical and dietary data to determine whether the person or groups of people are well nourished or malnourished. It could be direct or indirect.

2b. Anthropometric technique of nutritional assessment

This involves measurement of body height, weight and proportions. It is used and applied to evaluate both under and over nutrition. Other measurements include; mid-arm circumference, skin fold thickness, head circumference, head/ chest ratio, hip/waist ratio.

When using anthropometric technique for children, the height and weight is measured while for Adults, the height, weight, Body mass index, waist circumference and other measurements is taken.

Advantages

1) High specificity and sensitivity

2) Measures many variable of nutritional significance

Disadvantages

1) Problem with reference standards

2) Limited nutritional diagnosis

3) Inter-observers errors in measurement.

3. Nutrition and its relation to life stages.

Nutrition is the science of food and its relationship to health. It differs through all the stages of life which include:

1) Pregnancy

2) Infancy

3) Childhood

4) Adolescence

5) Adulthood

Pregnancy

Pregnant women are advised to take folate (folic acid) which aids in rapid cell division and growth in foetus. It reduces chances of neural tube defects. Sources of folic acid: green leafy vegetables, oranges, bread and fortified breakfast cereals. It is advised that 400ug of folic acid should be taken every day until at least 12th week of pregnancy. Normal weight of a pregnant woman is good too because when pregnant, being overweight increases risk of complication and underweight makes it difficult to conceive.

Foods to avoid during pregnancy include; Too much vitamin A, Unpasteurised dairy products, shark, sword fish and marlin as they contain high levels of mercury which to harmful to the nervous system of unborn child.

Infancy

Infants at age 4-6 months are advised to take breastfeeding serious especially the Colostrum- a special form of breast milk containing less fat, more protein and has protective functions, which is given for the first three days. Breast milk provides special proteins, antibodies, white blood cells, growth factors and hormones.

Some infants at that age need to be weaned in other to grow properly. Weaning is the process of giving other food in addition to breast milk to a baby when milk no longer fulfils all baby’s needs for energy and nutrients. Foods used include; rice, pureed vegetables, fruits, mashed potatoes.

Infants receiving breast milk as main drink are also given supplements: Vitamin A, C and D.

Childhood

For those under this life stage:

* food intake should be small and frequent
* Healthy weight is encouraged
* Good supply of protein, calcium, iron, Vitamin A is advised
* Dental hygiene is strongly advised; food with sugar intake should be done at meal times and not in between meals
* Nuts and deep sea fish should be avoided

Adolescence

This is a period of growth when puberty occurs.

* Demand for energy and most nutrients is high
* Boys need more proteins and energy
* More fat in girls
* Active lifestyle with healthy balanced diet is needed
* Iron is needed in girls to replace blood losses

Adulthood

For this life stage,

* Less fatty food and salt is advised.
* Healthier fats
* Enough dietary fibre
* Stay hydrated and active
* BMI should be watched regularly
* High peak bone mass in early adulthood is advised which helps adult to start from a higher point from which bone will be lost during the aging process

For older Adults,

* Plenty calcium intake is needed
* It is advised that they remain active and have adequate vitamin D
* Supplements of vitamin D are advised.