FOOD AND NUTRITION FINAL ASSIGMENT

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1. Imagine you have identiﬁed people in your community who are suffering from vitamin A deﬁciency, iodine deﬁciency disorder and iron deﬁciency anemia. What can you do to address these problems?

A To address this problem is to make community awareness on nutritional matter and alarm situation in the community. However we should training the community leaders and different actors in the community on how they can prevent all those condition before it is become worse .there must be mass campaign against these condition to provide the micronutrient to ensure and control the prevailed of these deficiency. We can prevent spread of vitamin A deficiency, iodine deficiency disorder and iron deficiency anemia by distributed the bellow mention above

* Vitamin A
* Iodine
* Iron /folate acid

These are the most services in nutritional principles which can be used to prevent the morbidity and mortality rate among the community and the population. .therefore we might advise the community to get encourage on the better use of balance diet such as protein, carbohydrate, fat and mineral. Furthermore we should advocate the community on importance of green leaf and vegetable as essential food to prevent any deficiency with in the civil population.

1. What is the impact of malnutrition on communities? How can you help prevent some of the negative effects of malnutrition

A there are a several impact of malnutrition on communities due to some reason such as

* Cultural practice
* Traditional set up and pears influence among the communities.
* Communities belief
* Taboos
* Religion

To prevent some of negative impact is educate the community on effect of these belief and taboos therefore we can advocate the health and nutrition education and focus for the change within the community.

1. Describe and explain the digestion and absorption of carbohydrates

1 Carbohydrates are the single most abundant and economic sources of food energy in the human diet, constituting 40–80% of total energy intake in different populations. Carbohydrates are classiﬁed according to their degree of polymerization into sugars, oligosaccharides, and polysaccharides – the last consisting of starches with different degrees of resistance to digestion – and dietary ﬁ bers or nonstarter polysaccharides. Glycemic carbohydrates are digested (hydrolyzed by enzymes) to sugars (monosaccharaides) in the small bowel and absorbed and metabolized. No glycemic carbohydrates are fermented in varying degrees to short-chain fatty acids (SCFAs), carbon dioxide, hydrogen, and

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Methane in the large bowel. Absorbed SCFAs are metabolized in colonic epithelial, hepatic, and muscle cells. For optimum function of the nervous system and other cells, blood glucose concentrations are tightly controlled by a group of hormones (insulin in the absorptive phase; glucagon, epinephrine, and cortisol in the post absorptive phase), utilizing several possible metabolic pathways for glucose anabolism and catabolism. Intakes of optimum amounts of different types of carbohydrates are associated with good health through effects on energy balance, digestive functions, and blood glucose

1. What is nutrition? List the main functions of nutrients

**Nutrition:** is a complex multifaceted scientific domain indicating how substances in food provide essential nourishment for the maintenance of life.

**There are three main function of nutrients are here bellow**

1. provide energy
2. Provide energy and building and repairing a body tissue.
3. Regulate the process

5. What is the importance of calcium? Name and explain the two factors that enhance and that interfere with the absorption of iron in the body.

The important of calcium are here follow

1. process
2. Absorption
3. Excretion
4. Secretion
5. Storage in bone being involve in maintain

B Explain the two main factor

**Physiological factors** Vitamin D adequacy Vitamin D deﬁciency Increased mucosal mass Decreased mucosal mass Calcium deﬁciency Menopause Phosphorus deﬁciency Old age Pregnancy Decreased gastric acid (without a meal) Lactation Rapid intestinal transit time Disease states (e.g., hyperparathyroidism, sarcoidosis, idiopathic hypercalciuria) Disease states (e.g., malabsorption syndrome, celiac disease, Crown’s disease, chronic renal failure, diabetes, hyperparathyroidism, primary biliary

**Dietary factors** Lactose (in infants) Phytate Casein phosphopeptides (?)a Oxalate No digestible oligosaccharides Large calcium load Small calcium load High habitual calcium intake Low habitual calcium intake Ingestion without a meal Ingestion with a meal

6. Discuss two reasons why it is essential to include carbohydrates in your diet. Why is it necessary for the body to spare protein?

It is essential because the carbohydrates are energy giving food and also should facilitate the proper family health and maintenance of individual weight and regulate the body health.

1. Discuss the role of lipids in our diet and their critical functions in the body.

Lipids are organic compounds composed of a carbon skeleton with hydrogen and oxygen substitutions. The most abundant lipids are sterols or esters of fatty acids with various alcohols such as glycerol and cholesterol. Fatty acids are the densest dietary source of energy, but lipids also have important structural roles in membranes. The processes

Also have important structural roles in membranes. The processes controlling the synthesis, modiﬁcation and degradation of fatty acids contribute to the fatty acid proﬁle of membrane and storage lipids. By enhancing the taste of cooked foods, some dietary lipids are potentially signiﬁ can’t risk factors for obesity and other chronic, degenerative diseases that inﬂuence human morbidity and mortality.

Dietary lipids (fats) are emulsed lipolysis (hydrolyzed), and solubilized in the upper small gut before they are absorbed in the ileum, entering enterocytes with the help of fatty acid-binding proteins. • Lipids are precursors to hormones such as steroids and eicosanoids, and dietary lipids are carriers for fat-soluble vitamins. • Lipids are transported in the blood circulation as lipoprotein particles: the chylomicrons, very low-density, low-density, and high-density lipoproteins. • Some polyunsaturated fatty acids are vitamin like because they cannot be synthesized de novo (linoleate, α-linolenate

1. Explain the importance of fats to the bioavailability of other nutrients

Fats and oils Fats are esters of fatty acids with glycerol (Table 6.1). They usually occur as triesters or triacylglycerols (TAGs), although monoacylglycerols and diacylglycerols occur during fat digestion and are used in food processing. Most common dietary fats contain a mixture of 16- to 18-carbon saturated and unsaturated fatty acids. By convention, fats that are liquid at room temperature are called oils, a feature arising

From their lower proportion of saturated (straight chain) and higher proportion of unsaturated (bent chain) fatty acids. Unsaturated fatty acids usually have a lower melting point; this facilitates liquefaction of the fats of which they are a component. TAGs of animal origin are commonly fats, whereas those of fish or plant origin are usually oils. Animal fats and ﬁsh oils frequently contain cholesterol, whereas plant oils do not contain cholesterol but usually contain other “python” sterols. TAGs are primarily used as fuels, so dietary fats (mostly TAGs) are commonly associated with energy metabolism rather than with structural lipids found in membranes. However, membrane lipids as well as TAGs are extracted with lipid solvents used to determine the fat content of foods, tissues, or plant material. Hence, because organs such as brain are rich in membrane phospholipids, when the total lipids are extracted to determine the organ’s chemical composition, these organs are said to have a certain fat content. On a chemical basis this is true, but this description often misconstrues the nature of the lipid because the brain in particular contains virtually no TAG.

1. Discuss the role of fats as an energy source for the body.

The main sterol of importance in human nutrition is cholesterol. It has multiple roles including being: a vital component of biological membranes a precursor to bile salts used in fat digestion a precursor to steroid hormones. Sterols are secondary alcohols belonging to the polyisoprenoids or terpinoids (terpenes), which have a common precursor, isopentenyl diphosphate. Other members of the terpinoids include squalene, carotenoids, and dolichols. Bacteria appear to be the only life forms not containing cholesterol. Sterols have a common cyclopentano (a) perhydrophenanthrene skeleton with different substitutions giving ri

1. Define chylomicron. Describe the role of bile salts in the digestion of triacylglycerol’s and phospholipids.

Like other organic compounds, all lipids are composed of a carbon skeleton with hydrogen and oxygen substitutions. Nitrogen, sulfur, and phosphorus are also present in some lipids. Water insolubility is a key but not absolute characteristic distinguishing most lipids from proteins and carbohydrates. There are some exceptions to this general rule, since short- to medium-chain fatty acids, soaps, and some complex lipids are soluble in water. Hence, solubility in a “lipid solvent” such as ether, chloroform, benzene, or acetone is a common but circular definition of lipids. There are four categories of lipids, as classified by Bloor: simple, compound (complex), derived, and miscellaneous (Table 6.1). Simple lipids are esters of fatty acids with various alcohols such as glycerol or cholesterol. They include triacylglycerols (TAG = neutral fats and oils), waxes, cholesterol esters, and vitamin A and D esters. Compound lipids are esters of fatty acids in combination with both alcohols and other groups. They include phospholipids, glycolipids, cerebrosides, sulfolipids, lipoproteins, and lipopolysaccharides. Derived lipids are hydrolysis products of simple or compound lipids, including fatty acids, monoacylglycerols and diacylglycerols, straight-chain and ring-containing alcohols, sterols, and steroids. Miscellaneous lipids include some wax lipids, carotenoids, squalene, and vitamins E and

Prepare by James Lual Yar

Student of human nutrition for Diploma