

**Ohisa William Muras Odiongo**

**County Health Officer**

**CHD- Lopa**

**South Sudan**

**No: AIPMS/218/007/2018**

**RE: DIPLOMA IN HUMAN NUTRITION**

ASSIGNMENTS 2 Sept 30, 2018

1. Describe functions of each region of the gastro intestine tract.

* Mouth- it contain the oral cavity whereby is the primary source through which food and liquid enters the digestive system. It contains the following parts: lip, cheek, plate, vestibule and the tongue. It acts as the entry point and food is broken and mix with saliva in the mouth before swallowing.
* Pharynx – is the part of throat situated behind the mouth and nasal cavity, from the mouth food passed in to oropharynx. Oropharynx continue from the mouth to esophagus and it functions is to connect the swallowed bolus and it followed the right channel through digestive system and also is part of respiratory system which very important in vocalization.
* Esophagus – is an organ which continues from pharynx and it through which food substances passed from the pharynx to the stomach. The esophagus has two valves of pharyngeal muscles when it’s contracts, it prevent in and out movement of food. The entry to Esophagus only opens when swallowing or vomiting.
* Stomach – the stomach is a muscular, hallow organ of the alimentary canal and is a very important organ of digestive system tract system. The primary function of stomach is, it act as storage tank. Stomach produces pepsin and hydrochloric acid which kills and inhibit bacteria. It has two sphincters muscles i.e. esophagus and pyloric sphincter muscles which help to keep the contents of stomach intact.
* Small Intestine (Ileum) - is a muscular tube extending from the pyloric sphincter muscles to the large Intestine. It is the largest section of alimentary tube with a size of 2.5 to 7m. The wall of intestine has microvillus which has a tiny projection of plasma membrane of mucosa cells, the plasma membrane bear enzymes which complete the digestion and absorption of proteins and carbohydrate in the small intestine.
* Large Intestine(Caecum and colon) – it is the larger tube in diameter than the small Intestines, it has a size of 1.5m long and its primary function is to dry out indigestible food residues by absorbing water and to eliminates these residues from the body as feces.
* Rectum – it is a long straight tube extended from large intestine to the Anus, it’s about 12cm long. It main functions is to store waste products waiting expulsion from the Anus to the exterior.
* Anus – it is the external opening of the rectum, it closure is controlled by sphincter muscles. The primary function of Anus is to expelled feces from the body during the defecation process.

1. Explain the digestion and absorption of lipids, the role of bile salts and the formation of chylomicrons.
2. Lipids are the fatty acids found in animals and plants products and it remains undigested although some may be digested from the mouth but some until when it reach the small intestine. Before digestion is taking place, it has to be emulsified to very small droplets by bile which are produce in the liver which contains bile salts that emulsified lipid and digestion will take place.
3. Absorption- as the emulsification take place, by hydrolysis of lipid to monoacyl – and diacylglcerols and free fatty acids by bile salts which are produce in the liver help to breakdown the lipids in to small droplets. Lipids are absorpt in the small intestine with help of microvilli that take the liquid part through the walls of lumen in to bloodstream.
4. The role of bile salts: bile salts are produce in the liver, they are catalys that breakdown large fat globules in to small amount during digestion and absorption of lipids.
5. Formation of chylomicrons; the final emulsified lipids micelles containing free fatty acids with small amount of triacylycerols, monoacyglycerol, phospholipid are absorpt in the intestinal wall. Where fatty acids are re-esterified to form triacylglycerols with proteins synthesized in the mucosal cells to form chylomicrons.
6. Describe the absorption of minerals, especially iron.

* Irons are well absorption in the mucosal cells by carrier mediate which passive diffusion to accumulate in the cells by proteins ferrtin. The ferritin in the mucosal cell is saturated with irons where it will be taken up gut lumen.

1. Describe and explain the classification of amino acids according to their chemical and nutritional properties.

There are 20 Amino Acids in total, and all are important and very crucial for life as they contain Peptides and proteins. It is known to be the building Block for all living things.

Amino Acid is classified in to three group that’s:

* Essential
* Non Essential
* Conditional Essential

1. Essential Amino Acid – they are essential amino acid (or indispensable) and they can’t be produce by the body. Essential alone cannot be of much importance, since it requires the help of all the other 20 amino acid which together are necessary for human health.
2. Non Essential amino Acid – non essential amino acid are produce by human body either from essential amino acid or from normal proteins breakdown.
3. Conditional Essential – are amino acid which human body doesn’t always need to properly function. Therefore, dietary sources of it are not always essential.