

Assignment

Table of Contents

Task 1 (A).....	3
References	6
Task 1(B).....	7
References	11
Task 1(C).....	13
References	16
Task 2.....	17
References	20

Task 1 (A)

Letter to Mrs Smith

To,

Mrs Smith

Date: 18th June, 2021

Subject: Importance of good nutrition for optimum health

Dear Mam,

It very important for you to understand the importance of good nutrition and take a proper diet.

Therefore, this letter will let you know the importance of good nutrition for optimum health including various functions of main nutrients groups. Also, you are battling with you weight with 74 kg at the age of 21 years and therefore, it is very much essential to take regular supplements of vitamin and minerals and minerals and also intake suitable amount of water to maintain weight gain. According to your case, it can be understood that getting involved in job has resulted to gain in weight and according to the age, it is very necessary to lose your weight.

Nutrition plays a vital role in maintaining a healthy lifestyle and its benefits not only help to maintain body weight but also go beyond it (Health, 2021). You need to take good nutrition as it will help to reduce the risk associated with diseases such as diabetes, cancer, osteoporosis and many more. Proper intake of nutrition also help to reduce high blood pressure, high cholesterol, improve health and well-being, provide ability to fight with illness, and increase the level of energy in the body. Basically, you need to add good nutrition sources in your diet such as

nutrient, minerals, and vitamins. Therefore, the diet plan will comprise of nutrient-dense foods that comprises of the very low level of calories. I would suggest you to add plenty of fruits in your diet as the natural fiber in fruits are highly beneficial. You must eat plenty of vegetables and whole grains everyday and breads, cereals, and pastas must be made from whole grains. You must always choose fat free milk as they provide calcium and Vitamin D that helps to make bones strong (Otsuka, 2020). Lean meats can be a good source of protein or it can also be replaced by fish, beans or tofu.

The above food suggestions are important for you as our body is built of what we eat and drink. Basically, nutrients are categorized as vitamins, proteins, fats, minerals, and carbohydrates. However, the major categories on which you need to focus are proteins, fats and vitamins (Tufts, 2021). Protein act as a building block for the body as it makes up internal organs of the body, blood and many more. Protein rich foods include meat, fish, eggs, dairy products, and soy beans that help to keep the body in a healthy state. Proteins are made up from 20 kinds of amino acids that are essential for the body and supplemented from meals. Fats/ carbohydrates act as a body's energy source and stored in liver and muscles as glycogen (MayoClinic, 2017). Carbohydrates include sugar that are main source of energy for brain and the dietary fiber act as major nutrient that helps to maximize good bacteria in the digestive system and are beneficial for the body. Vitamins/ minerals are essential as it help to keep the body in perfect working order. These components are not used as energy but rather help in building up protein and keeping the body healthy. Lack of vitamins result in various deficiency related diseases and minerals acts as necessary source as it include calcium, iron and sodium. Vitamin and mineral rich food include fruits, vegetables, and dairy products.

Basically, you need to take supplements of vitamins and minerals as they are essential nutrients that perform hundred of roles in the body (Helpguide, 2019). They will help to boost immune system, shore up bones and heal wounds. They also play a major role in converting food into energy and repairing cellular damages.

Furthermore, I would suggest drinking a suitable amount of water for managing weight. Based on the studies, approximately 2 to 3 liters of water are sufficient to assist weight loss, basically when consumed before the meal (Gunnars, 2018). This will help to manage appetite and maintain the weight of the body. Consumption of water also helps to prevent health issues such as constipation, urinary tract infections, kidney stones and skin hydration. So, the above information will help in maintaining body weight and staying healthy.

Thank You

Luis Carol

References

Gunnars, K. (2018). *How Much Water Should You Drink Per Day?* [online] Healthline. Available at: <https://www.healthline.com/nutrition/how-much-water-should-you-drink-per-day>.

Health, A. (2021). *What is good nutrition and why is it important?* [online] www.activehealth.sg. Available at: <https://www.activehealth.sg/read/nutrition/what-is-good-nutrition-and-why-is-it-important>.

Helpguide (2019). *HelpGuide.org*. [online] HelpGuide.org. Available at: <https://www.helpguide.org/harvard/vitamins-and-minerals.htm>.

MayoClinic (2017). *Water: How much should you drink every day?* [online] Mayo Clinic. Available at: <https://www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/in-depth/water/art-20044256>.

Otsuka (2020). *The role of nutrients and nutrient consumption*. [online] Otsuka Pharmaceutical Co., Ltd. Available at: <https://www.otsuka.co.jp/en/nutraceutical/about/nutrition/functions/#tab03>.

Tufts (2021). *The Importance of Good Nutrition*. [online] Tuftsmedicarepreferred.org. Available at: <https://www.tuftsmedicarepreferred.org/healthy-living/expert-knowledge/importance-good-nutrition>.

Task 1(B)

One Day Diet Plan

	Meal Plan	Nutritional Content																																																			
DAY 1	Breakfast: Banana Oatmeal	<p>Nutrition Facts</p> <p>Serving Size: <input type="text" value="1"/> bowl (about 1.5 cups) (338g)</p> <table border="1"> <thead> <tr> <th colspan="2">Amount Per Serving</th> <th>Calories from Fat 39</th> </tr> <tr> <th colspan="2">Calories 288</th> <th></th> </tr> <tr> <th colspan="2"></th> <th>% Daily Value*</th> </tr> </thead> <tbody> <tr> <td>Total Fat</td> <td>4.4g</td> <td>7%</td> </tr> <tr> <td> Saturated Fat</td> <td>1.2g</td> <td>6%</td> </tr> <tr> <td> Trans Fat</td> <td>0g</td> <td></td> </tr> <tr> <td>Cholesterol</td> <td>2.5mg</td> <td>1%</td> </tr> <tr> <td>Sodium</td> <td>30mg</td> <td>1%</td> </tr> <tr> <td>Potassium</td> <td>446mg</td> <td>13%</td> </tr> <tr> <td>Total Carbohydrates</td> <td>57g</td> <td>19%</td> </tr> <tr> <td> Dietary Fiber</td> <td>5.9g</td> <td>24%</td> </tr> <tr> <td> Sugars</td> <td>21g</td> <td></td> </tr> <tr> <td>Protein</td> <td>7.7g</td> <td></td> </tr> <tr> <td>Vitamin A</td> <td></td> <td>2%</td> </tr> <tr> <td>Vitamin C</td> <td></td> <td>9%</td> </tr> <tr> <td>Calcium</td> <td></td> <td>8%</td> </tr> <tr> <td>Iron</td> <td></td> <td>13%</td> </tr> </tbody> </table> <p>* Percent Daily Values are based on a 2000 calorie diet.</p>	Amount Per Serving		Calories from Fat 39	Calories 288					% Daily Value*	Total Fat	4.4g	7%	Saturated Fat	1.2g	6%	Trans Fat	0g		Cholesterol	2.5mg	1%	Sodium	30mg	1%	Potassium	446mg	13%	Total Carbohydrates	57g	19%	Dietary Fiber	5.9g	24%	Sugars	21g		Protein	7.7g		Vitamin A		2%	Vitamin C		9%	Calcium		8%	Iron		13%
	Amount Per Serving		Calories from Fat 39																																																		
Calories 288																																																					
		% Daily Value*																																																			
Total Fat	4.4g	7%																																																			
Saturated Fat	1.2g	6%																																																			
Trans Fat	0g																																																				
Cholesterol	2.5mg	1%																																																			
Sodium	30mg	1%																																																			
Potassium	446mg	13%																																																			
Total Carbohydrates	57g	19%																																																			
Dietary Fiber	5.9g	24%																																																			
Sugars	21g																																																				
Protein	7.7g																																																				
Vitamin A		2%																																																			
Vitamin C		9%																																																			
Calcium		8%																																																			
Iron		13%																																																			
	Mid Meal : Apple	<p>Nutrition Facts</p> <p>Serving Size 1 large apple (242g / 8 oz.)</p> <table border="1"> <thead> <tr> <th colspan="2">Amount Per Serving</th> <th>Calories from Fat 0</th> </tr> <tr> <th colspan="2">Calories 130</th> <th></th> </tr> <tr> <th colspan="2"></th> <th>% Daily Value**</th> </tr> </thead> <tbody> <tr> <td>Total Fat</td> <td>0g</td> <td>0%</td> </tr> <tr> <td> Saturated Fat</td> <td>0g</td> <td>0%</td> </tr> <tr> <td> Trans Fat</td> <td>0g</td> <td>0%</td> </tr> <tr> <td>Cholesterol</td> <td>0mg</td> <td>0%</td> </tr> <tr> <td>Sodium</td> <td>0mg</td> <td>0%</td> </tr> <tr> <td>Potassium</td> <td>260mg</td> <td>7%</td> </tr> <tr> <td>Total Carbohydrate</td> <td>34g</td> <td>11%</td> </tr> <tr> <td> Dietary Fiber</td> <td>5g</td> <td>20%</td> </tr> <tr> <td> Sugars</td> <td>25g</td> <td></td> </tr> <tr> <td>Protein</td> <td>1g</td> <td></td> </tr> <tr> <td>Vitamin A</td> <td>2%</td> <td>• Vitamin C 8%</td> </tr> <tr> <td>Calcium</td> <td>2%</td> <td>• Iron 2%</td> </tr> </tbody> </table> <p>* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:</p> <p>Calories per gram: Fat 9 • Carbohydrate 4 • Protein 4</p>	Amount Per Serving		Calories from Fat 0	Calories 130					% Daily Value**	Total Fat	0g	0%	Saturated Fat	0g	0%	Trans Fat	0g	0%	Cholesterol	0mg	0%	Sodium	0mg	0%	Potassium	260mg	7%	Total Carbohydrate	34g	11%	Dietary Fiber	5g	20%	Sugars	25g		Protein	1g		Vitamin A	2%	• Vitamin C 8%	Calcium	2%	• Iron 2%						
Amount Per Serving		Calories from Fat 0																																																			
Calories 130																																																					
		% Daily Value**																																																			
Total Fat	0g	0%																																																			
Saturated Fat	0g	0%																																																			
Trans Fat	0g	0%																																																			
Cholesterol	0mg	0%																																																			
Sodium	0mg	0%																																																			
Potassium	260mg	7%																																																			
Total Carbohydrate	34g	11%																																																			
Dietary Fiber	5g	20%																																																			
Sugars	25g																																																				
Protein	1g																																																				
Vitamin A	2%	• Vitamin C 8%																																																			
Calcium	2%	• Iron 2%																																																			

Lunch: Green Salad and Grilled Chicken

Nutrition Facts

Serving Size 3oz (84g)

Amount Per Serving

Calories 110 Calories from Fat 20

% Daily Value*

Total Fat 2g	3%
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 50mg	17%
Sodium 490mg	20%
Total Carbohydrate 3g	1%
Dietary Fiber 0g	0%
Sugars 1g	
Protein 18g	36%

Vitamin A 0%	•	Vitamin C 2%
Calcium 0%	•	Iron 2%

Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

DAY 1

Snacks : Foxnuts

Nutrition Facts

Serving Size

Amount Per Serving

Calories 162

% Daily Value*

Total Fat 11g	17%
Saturated Fat 1.6g	8%
<i>Trans</i> Fat 0g	
Polyunsaturated Fat 2g	
Monounsaturated Fat 4.2g	
Cholesterol 0.7mg	0%
Potassium 7mg	0%
Sodium 36mg	2%
Total Carbohydrate 13g	4%
Dietary Fiber 2.2g	9%
Sugars 1g	
Protein 5.5g	11%

Vitamin A 16%	•	Vitamin C 3%
Calcium 5%	•	Iron 9%
Vitamin E 11%	•	Vitamin K 5%
Thiamin 6%	•	Riboflavin 6%
Niacin 6%	•	Vitamin B6 4%
Folate 5%	•	Pantothenic Acid 4%
Phosphorus 13%	•	Magnesium 11%
Zinc 7%	•	Selenium 2%
Copper 8%	•	Manganese 15%

*Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs.

	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2400mg	2400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

	Dinner : Grilled Fish and Broccoli Salad	<table border="1"> <thead> <tr> <th colspan="2">Nutrition Facts</th> </tr> </thead> <tbody> <tr> <td colspan="2">Serving Size 1 piece (168g)</td> </tr> <tr> <td colspan="2">Servings Per Container 2</td> </tr> <tr> <td colspan="2">Packed by weight. Number of pieces may vary.</td> </tr> <tr> <th colspan="2">Amount Per Serving</th> </tr> <tr> <td>Calories 185</td> <td>Calories from Fat 45</td> </tr> <tr> <td colspan="2" style="text-align: right;">% Daily Values*</td> </tr> <tr> <td>Total Fat 5g</td> <td>8%</td> </tr> <tr> <td> Saturated Fat 2g</td> <td>10%</td> </tr> <tr> <td> Trans Fat 0g</td> <td></td> </tr> <tr> <td>Cholesterol 35mg</td> <td>12%</td> </tr> <tr> <td>Sodium 49mg</td> <td>2%</td> </tr> <tr> <td>Total Carbohydrate 0g</td> <td>0%</td> </tr> <tr> <td> Dietary Fiber 0g</td> <td>0%</td> </tr> <tr> <td> Sugars 0g</td> <td></td> </tr> <tr> <td>Protein 34g</td> <td></td> </tr> <tr> <td>Calcium 2%</td> <td>Iron 2%</td> </tr> <tr> <td colspan="2">Not a significant source of Vitamin A or Vitamin C.</td> </tr> <tr> <td colspan="2">*Percent Daily Values are based on a 2,000 calorie diet.</td> </tr> </tbody> </table>	Nutrition Facts		Serving Size 1 piece (168g)		Servings Per Container 2		Packed by weight. Number of pieces may vary.		Amount Per Serving		Calories 185	Calories from Fat 45	% Daily Values*		Total Fat 5g	8%	Saturated Fat 2g	10%	Trans Fat 0g		Cholesterol 35mg	12%	Sodium 49mg	2%	Total Carbohydrate 0g	0%	Dietary Fiber 0g	0%	Sugars 0g		Protein 34g		Calcium 2%	Iron 2%	Not a significant source of Vitamin A or Vitamin C.		*Percent Daily Values are based on a 2,000 calorie diet.	
Nutrition Facts																																								
Serving Size 1 piece (168g)																																								
Servings Per Container 2																																								
Packed by weight. Number of pieces may vary.																																								
Amount Per Serving																																								
Calories 185	Calories from Fat 45																																							
% Daily Values*																																								
Total Fat 5g	8%																																							
Saturated Fat 2g	10%																																							
Trans Fat 0g																																								
Cholesterol 35mg	12%																																							
Sodium 49mg	2%																																							
Total Carbohydrate 0g	0%																																							
Dietary Fiber 0g	0%																																							
Sugars 0g																																								
Protein 34g																																								
Calcium 2%	Iron 2%																																							
Not a significant source of Vitamin A or Vitamin C.																																								
*Percent Daily Values are based on a 2,000 calorie diet.																																								

Use of Carbohydrates: Carbohydrates are very essential source of energy and comprises of half of your daily calorie requirement. It is very essential to select the right type of carbohydrate. Simple carbs such as biscuits, bread contain too much sugar and are harmful source of carbohydrate (O'Reilly, 2021). On the other hand, it is very essential to consume complex carbs comprising of high fiber and nutrients. These carbs play an essential role in keeping you fuller for longer time. Carbohydrates provide the daily energy for performing the day to day activities. It is considered to be one of the source of fuel for carrying out the different functions within our body. A good balance of complex carbs helps to lower the risk of heart related diseases and helps to cure diabetes (Patil, 2020).

Use of Lipids: Lipids comprise of one of the major part of food and is one of the most essential component of cells. It plays an essential role in maintaining the health of an organism. One of the most vital function of lipids is to building blocks of cellular membranes (Simbar, *et al* 2020). It

also improves the process of storage of energy, insulation, protection and cellular communication. It is observed that the quality of a food is determined by the quality of the lipids.

Use of Proteins:It is very essential for the body of an individual to fulfill the daily protein requirement(Yanqiu Chen, 2020). Protein plays an essential role in building the body and repairing muscles, skin, cartilage, tissues and helps in pumping blood. Moreover, a high-protein diet plays an essential role in losing weight. It plays a vital role in building muscles which helps to burn more amount of calories than fat. There are different sources of foods which should we consume such as eggs, leafy greens, dals etc. These ingredients help in fulfillment of the protein requirement within the individual(O'Reilly, 2021). A daily intake of calorie should be measured and consumption of protein should be taken as per the requirement of the body. Protein plays an essential role in the process of building muscles and repairing the tissues within the body. It also plays an essential role in the process of carrying oxygen throughout the body.

Use of Vitamins and Minerals:There are certain vitamins such as vitamin A, vitamin D, B12, iron and calcium which plays an essential role in improving the metabolism rate of our body(Patil, 2020). It is very essential for an individual to consume the daily vitamins and minerals requirement for performing the nerve and muscle functions. Vitamins and minerals plays an essential role in cell production and maintenance of the bones. For the purpose of fulfilling the daily vitamins and minerals requirement It is seen that experts recommend consuming hundred grams of fruit and hundred grams of grains every day(Simbar, *et al* 2020).

Use of water:Water is one of the most essential nutrient for ourselves.It helps in building muscle cells and keeps a body hydrated. There are certain functions within a body such as perspiration, defecation and urination which are to be performed. Water plays an essential role in excreting the waste out of a body(O'Reilly, 2021). Moreover, the filtration process in the kidneys can be

conducted effectively through the consumption of water. Water plays an essential role in lubricating joints, regulate body temperature comma provides protection to body tissues and organs etc. Hence it is very essential for the individual to consume 3-4 liters of water to keep their body hydrated(Yanqiu Chen, 2020). Water plays a vital role in the urination process, discharging of sweat and bowel movement. Hence for the purpose of replenishment of the lost fluid water plays a very essential role. Water helps in the regulation of the body temperature. It helps in moistening the nose, mouth and eyes. It also plays a vital role in the process of carrying nutrients to the cells.

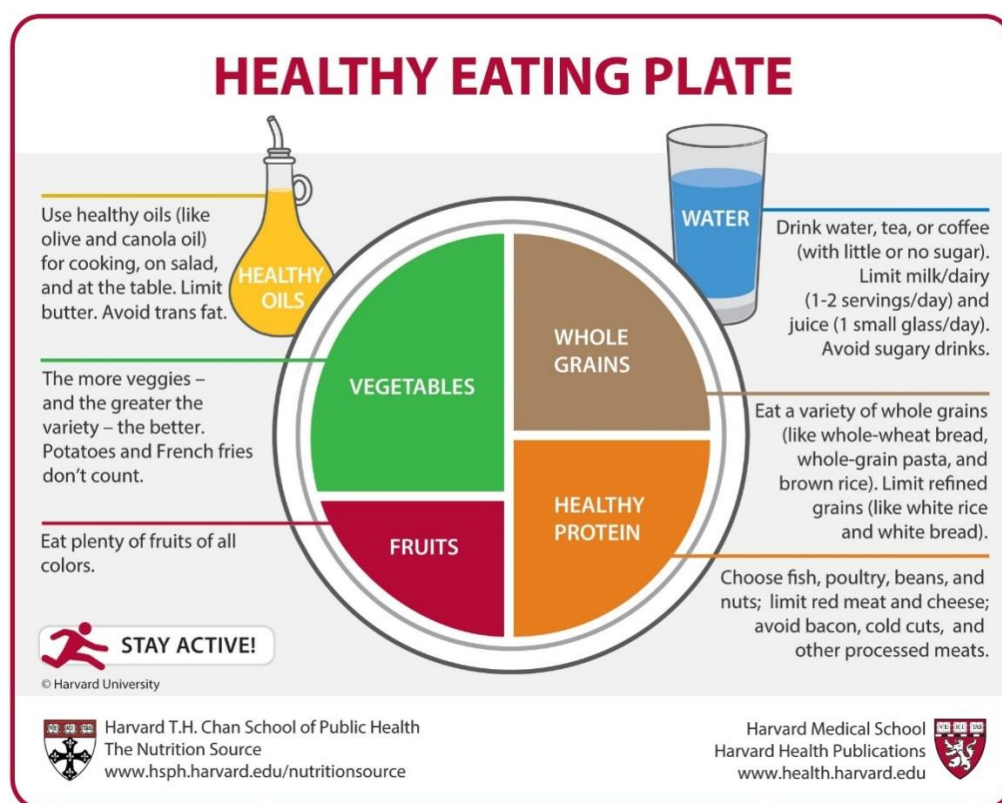


Figure 1: Food Plate Chart

References

O'Reilly, H., Panizza, C.E., Lim, U., Yonemori, K.M., Wilkens, L.R., Shvetsov, Y.B., Harvie, M.N., Shepherd, J., Zhu, F.M., Le Marchand, L. and Boushey, C.J., 2021. Utility of self-rated

adherence for monitoring dietary and physical activity compliance and assessment of participant feedback of the Healthy Diet and Lifestyle Study pilot. *Pilot and feasibility studies*, 7(1), pp.1-10.

Patil, B., Murkute, P., Chamele, N., Parsewar, K. and Muthuswami, M.I., Application To Provide Customized Diet Plan And Ingredient Portion Of The Same. *Information Systems*, 11(6), pp.2910-2925.

Simbar, M., Nazarpour, S., Arabi, Z., Keshavarz, Z. and Baghestani, A.R., 2020. Skills-Based Education for Promoting Healthy Diet Among Female Adolescents: A Randomized Controlled Trial Study. *Child and Adolescent Social Work Journal*, pp.1-9.

Yanqiu Chen, M.D., Min Zong, M.D., Shijie Li, M.D., Lixin Tang, M.D., Ying Feng, M.D., Tang, L. and Feng, Y., Nutritional diet plan for patients with dysphagia.

Task 1(C)

Point of Difference	Rickets	Tetany	Osteoporosis
1. Deficiency	Rickets occur as a result of deficiency in vitamin D(Crowe, <i>et al</i> 2021).	Tetany occurs as a result of deficiency of calcium (Urbanek, <i>et al</i> 2021).	Osteoporosis it is mainly caused as result of deficiency in calcium (Sinaki, 2021).
2. Meaning	Rickets instantly a condition which results in softening of bones in children's. It is relative the common in Africa, middle East and Asian countries(Crowe, <i>et al</i> 2021).	Tetany is a disorder of neuronal excitability which is mainly associated with hypocalcemia. This media arises as a result of low calcium level. It can also cause as a result of decrease in the potassium level and magnesium deficiency (Urbanek, <i>et al</i> 2021).	Osteoporosis leads to weakening of bones. It is seen that a mild stress which may lead to bending of the bone leading to a fracture (Sinaki, 2021). Osteoporosis related fractures mainly occur in spine, hip and wrist.
3. Symptoms	The symptoms of rickets are stunted growth, trouble sleeping, bone pain, bowed legs large forehead(Crowe, <i>et al</i> 2021). Some of the complications may include	Some of the symptoms of tetany include muscle pain, numbness, shortness of breath, abdominal pain, unusual sensation in hands, cramping coma persistent	Some of the symptoms of osteoporosis includes loss of height, stooped posture, increase in back pain, unexpected breaking of bones etc. With the help of

	abnormally curved spine, bone fracture, muscle spasm etc. After detecting all the symptoms one can get to know whether he or she is diagnosed with rickets or not.	diarrhea etc. All the symptoms play an essential role in determining whether there is a deficiency in calcium which can lead to tetany (Urbanek, <i>et al</i> 2021).	these symptoms one can determine the deficiency in calcium (Sinaki, 2021).
4. Treatment	Some of the treatments include eating more foods which are rich in vitamin D and calcium. This deficiency can be recovered by taking daily requirement of vitamin D supplements and calcium. Moreover, it is essential to follow the medicines as prescribed by the doctors. Certain blood test and x-ray are performed in order to determine the level of deficiency of rickets(Crowe, <i>et al</i> 2021).	Certain treatments are being provided which includes taking supplements which are rich in magnesium and calcium (Urbanek, <i>et al</i> 2021). One of the most common approach for treatment of tetany is to inject calcium directly into the bloodstream. Moreover, the certain medicines which are prescribed by the doctors to remove the deficiency (Urbanek, <i>et al</i> 2021).	One of the most essential treatment which are the first choice for treating osteoporosis is bisphosphonates (Sinaki, 2021). It is essential to take a weekly pill of alendronate for curing the deficiency of osteoporosis. However, there are certain natural treatments which include red clover, Soy, melatonin, tai chi etc.

5. Way of diagnosing	For conforming a diagnosis of rickets, a blood test is conducted. Additionally and an x-ray is conducted for the determination of the bone density scan(Crowe, <i>et al</i> 2021).	It is diagnosed by determining lower level in the calcium within the body. Certain other ways include determining the level of Vitamin D ,phosphorous ,PTH and magnesium (Urbanek, <i>et al</i> 2021).	By assessing the risk of fracture and by checking the scanning report of bone density, a doctor can diagnosis osteoporosis (Sinaki, 2021). It can be known from dual-energy x-ray absorptiometry.
----------------------	--	--	---

References

- Crowe, F.L., Mughal, M.Z., Maroof, Z., Berry, J., Kaleem, M., Abburu, S., Walraven, G., Masher, M.I., Chandramohan, D. and Manaseki-Holland, S., 2021. Vitamin D for growth and rickets in stunted children: A randomized trial. *Pediatrics*, 147(1).
- Sinaki, M., 2021. Osteoporosis. In *Braddom's Physical Medicine and Rehabilitation* (pp. 690-714). Elsevier.
- Urbanek, A., Borucka, K., Ogrodowczyk-Bobik, M., Kajdaniuk, D., Janyga, S. and Marek, B., 2021. Recurrent tetany in the course of metabolic alkalosis in patient with short bowel syndrome. *EndokrynologiaPolska*.

Task 2

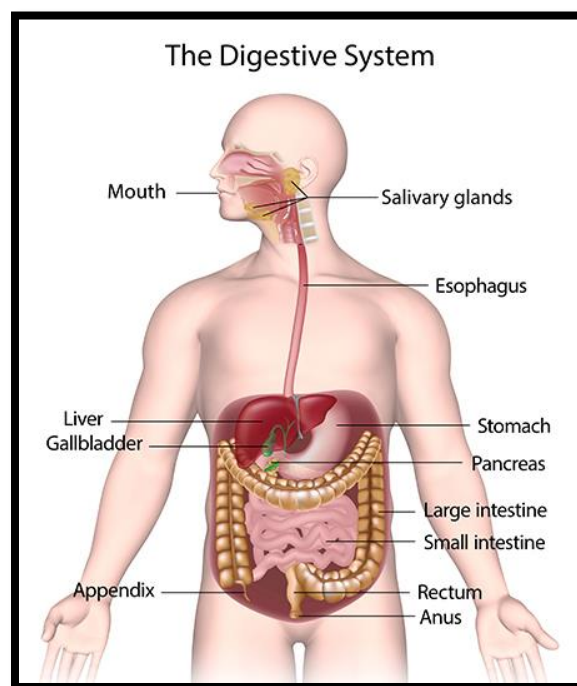
Digestive System

The digestive system is basically made up of gastrointestinal tract, liver, pancreas and gall bladder.

The digestive tract is a series of hollow organs starting from mouth to the anus. Therefore, the organs involved in the digestive system include mouth, stomach, intestine, anus and esophagus.

Digestion plays an important role as the body requires nutrients that can be gained from food and drink which ultimately helps to work properly and stay healthy (Cleveland). The digestive organs help to break down nutrients and absorb them to use in the form of energy and growth.

The part of the digestive system helps to move the food and liquid through digestive tract and once it breaks down, the body can absorb it and move to the parts wherever required. Large intestines help in absorbing water, and other wastes flushes out of the body in the form of stool. Furthermore, nerves and hormones play vital role in controlling the process of digestion. The digestive organ includes mouth, esophagus, stomach, small intestine, pancreas, liver and large intestine (MUSC).



Mouth: The mouth is the beginning point of the digestive tract. The salivary glands get active once the food enters the mouth and teeth helps to chew the food and break them into smaller pieces that are ore easily digestible. The food gets mixed with the saliva in the mouth to break down into a form that can be easily absorbed and used by the body. While swallowing, the food gets passed into the throat and enters esophagus with the help of tongue.

Esophagus: This part of the digestive organ is located near the windpipe and received the food passed from the mouth while swallowing. Furthermore, epiglottis is a small flap present over the windpipe that actually helps in preventing choking (Niddk). The muscular contractions within the esophagus are known as peristalsis that ultimately delivers the food to stomach. The lower esophageal sphincter allows the food to get in and sphincter also prevents the food to flow back to esophagus.

Stomach: The stomach acts as a container and allows the food to get mixed with enzymes. These enzymes help in breaking down the food into usable form. The stomach also comprises of cells in the linings that secretes acids and enzymes that are responsible for carrying out the process of food breakdown. After, processing the food contents in the stomach, it gets released into the small intestine.

Small Intestine: The small intestine comprises of three segments- ileum, duodenum and jejunum. It makes use of enzymes that are released from pancreas and bile from liver, in order to break down food. In this process, peristalsis helps to move the food and mix it with digestive juices. Duodenum is largely responsible for undertaking the breakdown process and other two components of small intestine are responsible for absorption of nutrients into the bloodstream (Cleveland). The contents in the small intestine begin with the semi-solid form but turns into a liquid form due to the process of digestion. This change occurs due to water, enzymes, mucus and water. Furthermore, once the

nutrients are absorbed from the food, the leftover are passed through the small intestine and finally enters the large intestine.

Pancreas: The digestive enzymes get secreted in pancreas and enter to duodenum in order to break down fats, protein and carbohydrates. It also makes insulin that metabolizes sugar.

Liver: The major function of liver is to process the nutrients that get absorbed from the small intestine. Bile that gets secreted from the liver helps in the digestion of fat and vitamins (MUSC). Liver acts as a chemical factory for the body where raw materials are absorbed from small intestine and produces chemicals required for the proper functioning of the body. It also detoxifies harmful chemicals out of the body.

Large Intestine: The large intestine helps in the processing of waste and ultimately emptying the bowels in an easier manner. It is a long muscular tube that helps to connect small intestine with the rectum. The function of large intestine is to pass the waste left over from the digestive system or stool through colon. This process is undertaken by the means of peristalsis where wastes are in liquid form and then in solid form. Once the stool gets passed through colon, it removes water and gets stored in sigmoid till it get emptied into the rectum (Niddk). The stool comprises of various bacteria that are useful in processing waste products and once the colon gets filled with feces, the process of elimination begins via rectum.

References

- Cleveland. “Digestive System | Cleveland Clinic.” *Cleveland Clinic*, 13 Sept. 2018, my.clevelandclinic.org/health/articles/7041-the-structure-and-function-of-the-digestive-system.
- MUSC. “Digestive Organs.” *Muschealth.org*, 2021, muschealth.org/medical-services/ddc/patients/digestive-organs.
- Niddk. “Your Digestive System & How It Works | NIDDK.” *National Institute of Diabetes and Digestive and Kidney Diseases*, 13 Jan. 2019, www.niddk.nih.gov/health-information/digestive-diseases/digestive-system-how-it-works.