ASSIGNMENT 3

1. Discuss the relationship between nutritional status and immunity

* Nutritional status is a requirement of health of a person convinced by the diet, the levels of nutrients containing in the body and normal metabolic integrity. Normal nutritional status is managed by balance food consumption and normal utilization of nutrients.
* Immunity is the capability of [multicellular organisms](https://en.m.wikipedia.org/wiki/Multicellular_organisms) to resist harmful [microorganisms](https://en.m.wikipedia.org/wiki/Microorganism) from entering it. Immunity involves both specific and nonspecific components. The nonspecific components act as barriers or eliminators of a wide range of pathogens irrespective of their antigenic make-up.
* Alternatively, immunity is the ability of an organism to resist a particular infection or toxin by the action of specific antibodies or sensitized white blood cells.
* The simplest and most direct relationship between nutritional status and immunity is that of protein. Without sufficient protein, the immune response is compromised and the potential for infection and inflammation increases. The immune system relies on protein-based protectors such as antibodies, lymphocytes (such as T-cells), leukocytes and a host of helper cells and compounds. However, carbohydrates and lipids also have their places.
* **Protein** is part of the body's defense mechanism. When one eats a variety of protein foods including seafood, lean meat, poultry, eggs, beans and peas, soy products and unsalted nuts and seeds, the body’s immune system become stronger.
* **When Vitamin A** is consumed, it helps regulate the immune system and protects from infections by keeping skin and tissues in the mouth, stomach, intestines and respiratory system healthy. This immune-boosting vitamin can be got from foods such as sweet potatoes, carrots, spinach, red bell peppers, apricots, eggs or foods labeled "vitamin A fortified," such as milk or cereal.
* **Vitamin C** protects the body from infection by stimulating the formation of antibodies and boosting immunity. If this vitamin is included in the diet, it boost the immune system of an individual.
* **Vitamin E** works as an antioxidant neutralizes free radicals and may improve immune function. If vitamin E is included in diet with fortified cereals, sunflower seeds, almonds, vegetable oils (such as sunflower or safflower oil), hazelnuts and peanut butter the immune system becomes more stronger.
* **Zinc** helps the immune system work properly and may help wounds heal. Zinc can be found in lean meat, poultry, seafood, milk, whole grain products, beans, seeds and nuts.

1. Using illustrations, show describe the malnutrition-infection cycle

Malnutrition is a condition that results from eating a [diet](https://en.wikipedia.org/wiki/Diet_(nutrition)) in which one or more [nutrients](https://en.wikipedia.org/wiki/Nutrient) are either not enough or are too much such that the diet causes health problems.

Not enough nutrients is called undernutrition or undernourishment while too much is called [over nutrition](https://en.wikipedia.org/wiki/Overnutrition). Malnutrition is often used to specifically refer to undernutrition where an individual is not getting enough calories, protein, or [micronutrients](https://en.wikipedia.org/wiki/Micronutrients).

The below illustration describes the malnutrition-infection cycle.

Inadequate dietary intake

* Weight Loss
* Growth faltering
* Immunity lowered
* Mucosal damage
* Appetite loss
* Nutrient loss
* Mal-absorption
* Altered metabolism
* Disease Incidence
* Severity
* Longer duration
* Depletion of nutrition stores

1. Suggest some suitable meals for burn patients - children and adults.

* Dairy products (milk, cheese, milkshakes, ice cream)
* Meats and fish
* Eggs
* Nuts and nut or seed butters (almond, peanut, walnut, pecan, cashew, sesame, sunflower, etc.)
* Beans and legumes (kidney, white, garbanzo, navy, black, soy and pinto beans; lentils, peas, hummus, etc.)

1. Discuss the nutritional management of fevers

* Fever is an elevation in body temperature above the normal which may occur due to exogenous (Bacteria, Fungi and Virus) infection and endogenous factors which include (Antigen-antibody reaction, malignancy and graft rejections)
* The below are the foods required when someone has fever,
* Chicken Soup

It is an easy-to-eat source of vitamins, minerals, calories and [protein](https://www.healthline.com/nutrition/how-much-protein-per-day/), which are nutrients the body needs in larger quantities while one is sick chicken soup is also an excellent source of fluids and electrolytes, both of which are necessary for hydration if one is making frequent trips to the bathroom.

* Broths

Similar to chicken soup, broths are excellent sources of hydration while you're sick.

They are full of flavor and can contain calories, vitamins and minerals such as [magnesium](https://www.healthline.com/nutrition/10-proven-magnesium-benefits/), calcium, [folate](https://www.healthline.com/nutrition/folic-acid-vs-folate/) and phosphorous

* Garlic

Garlic can fight bacteria, viruses and stimulate the immune system. It helps you avoid illness and recover faster when you get sick.

* Coconut Water

Staying well hydrated is one of the most important things you can do when sick.

Hydration is especially important when you have a fever, sweat a lot or have vomiting or diarrhea, which can cause you to lose a lot of water and electrolytes. [Coconut water](https://www.healthline.com/nutrition/8-coconut-water-benefits/) is the perfect beverage to sip on when you're sick.

Besides being sweet and flavorful, it contains glucose and the electrolytes needed for re-hydration.

* Hot Tea

Tea is a good source of fluids and acts as a natural decongestant when hot. Black tea can decrease the growth of bacteria in the throat, and echinacea tea may shorten the length of the cold or flu.

* Honey

Honey has potent antibacterial effects, likely because of its high content of antimicrobial compounds. Honey has antibacterial effects and stimulates the immune system. It can also help relieve coughing in children over 12 months of age.

* [Ginger](https://www.healthline.com/nutrition/11-proven-benefits-of-ginger/).

Ginger is very effective at relieving nausea. It also has anti-inflammatory and antioxidant effects.

1. Discuss the dietary management of the following liver diseases
2. Hepatitis

* Hepatitis is an infectious disease where there is inflammation and degeneration of the liver cells. It can be caused by a virus. There are mainly two types of Hepatitis; Hepatitis A which is mild and rarely progresses to a chronic state and Hepatitis B which is more sever and can lead to serious hepatic damage.
* Type A is infective since the virus is generally transmitted through contaminated food and water. Type B is transmitted only through blood transfusion or products contaminated with the virus or through poorly sterilized needles. Patients suffering from Hepatitis experience nausea, fatigue, vomiting, diarrhea, fever, weight loss and abdominal pain.
* The objectives of dietary management are to reduce or relief symptoms, regenerate liver cells and to prevent further liver damage. The diet for the patient suffering from Hepatitis should be high in energy. Protein requirements are dependent on the extent of liver damage as a damaged liver may not be able to tolerate a high protein since the conversion of ammonia to urea gets affected. Fat intake should be decreased. Absorption of fat soluble vitamins (Vitamin A, D, E and is decreased because of the impaired absorption of fat. Increased intake of water soluble vitamins (Vitamin B complex ad C) is recommended for the metabolism of carbohydrates and proteins and for tissue healing. There should be no restrictions on minerals. A soft diet is recommended. Foods allowed may include but not limited to glucose, sugar, honey, milk & milk products, eggs, fruit juices. Foods not allowed include; fried foods, fatty foods, nuts, oilseeds, strongly flavored vegetables and meats and alcohol.

1. Liver Cirrhosis

* Liver Cirrhosis is a liver disease whereby a fibrous connective tissue replaces the functioning hepatic cells.

The normal liver cells are destroyed. Prolonged alcohol consumption is believed to be the cause of liver cirrhosis. This is because during the metabolism of alcohol some byproducts interfere with the functions of the liver and directly damages the liver cells. Patients suffering from liver cirrhosis will in the early stages of the disease experience gastro-intestinal disturbances, nausea and anorexia. These symptoms become severe as the disease progresses, also accompanied by jaundice (yellowing of the body and urine) and gastrointestinal bleeding. Anemia is also common among such patients.

The objectives of diet therapy are to correct fluid and electrolyte imbalances, promote regeneration of liver cells and to correct nutritional deficiencies. A high protein high-energy diet recommended.

1. Liver Failure
2. a. Explain the differences between Type 1 and Type 2 diabetes mellitus

Diabetes mellitus is a chronic metabolic disorder. Type 1 and Type 2 diabetes differences include;

1. Type 1. This type of diabetes used to be referred to as Insulin Dependent Diabetes Mellitus (IDDM), juvenile diabetes or Autoimmune Diabetes. This is a type of diabetes that is common among children and is as a result of failure of the pancreas to produce insulin. While Type 2. Is referred to as Non-Insulin Dependent Diabetes Mellitus (NIDDM) or adult onset diabetes. This type results from either failure of the pancreas to produce adequate insulin or failure of body cells to utilize insulin or both.
2. Discuss the dietary recommendations for patients with diabetes mellitus

* Nutrition and physical activity are important parts of a healthy lifestyle when you have diabetes. Along with other benefits, following a healthy meal plan and being active can help you keep your [blood glucose level](https://www.niddk.nih.gov/Dictionary/B/blood-glucose-level), also called blood sugar.
* The key to eating with diabetes is to eat a variety of healthy foods from all food groups, in the amounts your meal plan outlines.

The food groups are

* **vegetables**
* no starchy: includes broccoli, carrots, greens, peppers, and tomatoes
* starchy: includes potatoes, corn, and green peas
* **fruits**—includes oranges, melon, berries, apples, bananas, and grapes
* **grains**—at least half of your grains for the day should be [whole grains](https://www.niddk.nih.gov/Dictionary/W/whole-grains)
* includes wheat, rice, oats, cornmeal, barley, and quinoa
* examples: bread, pasta, cereal, and tortillas
* **protein**
* lean meat
* chicken or turkey without the skin
* fish
* eggs
* nuts and peanuts
* dried beans and certain peas, such as chickpeas and split peas
* meat substitutes, such as tofu
* **dairy—nonfat or low fat**
  + - milk or lactose-free milk if you have [lactose intolerance](https://www.niddk.nih.gov/health-information/digestive-diseases/lactose-intolerance)
    - yogurt
    - cheese
* oils that are liquid at room temperature, such as canola and olive oil
* nuts and seeds
* heart-healthy fish such as salmon, tuna, and mackerel
* avocado

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