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**Question**:

Miss Egbe Amanda attended a party organized by Mr Solomon during the party she was served fried rice, salad, fried chicken and water.

* Enumerate in details the digestive process of the above food she ate during the party.

**Digestion process**

This is the process of digestion of different classes of food including these six activities: ingestion, propulsion, mechanical or physical digestion, chemical digestion, absorption, and defecation.

**Division into their classes of food;**

* Fried rice – Carbohydrates
* Salad – Vitamins/Carbohydrates
* Fried Chicken – Protein/Fat and oil
* Water – Water

**Digestive process of Fried rice (carbohydrates)**

**From mouth to stomach**

The mechanical and chemical digestion of carbohydrates begins in the **mouth**. Chewing, also known as **mastication**, crumbles the carbohydrate foods into smaller and smaller pieces.

The salivary glands in the oral cavity secrete saliva that coats the food particles. Saliva contains the enzyme, **salivary** **amylase**.. The salivary amylase breaks down **amylose** and **amylopectin** into smaller chains of **glucose**, called **dextrin** and **maltose**.

Only about five percent of starches are broken down in the mouth.

When carbohydrates reach the stomach no further chemical breakdown occurs because the **amylase enzyme** does not function in the acidic conditions of the stomach

But mechanical breakdown is ongoing the strong peristaltic contractions of the stomach mix the carbohydrates into the more uniform mixture of **chyme**.

**From the Stomach to the Small Intestine**

The **chyme** is gradually expelled into the upper part of the small intestine. Upon entry of the chyme into the small intestine, the **pancreas** releases **pancreatic juice** through a duct. This pancreatic juice contains the enzyme, **pancreatic amylase,** which starts again the breakdown of **dextrin** into shorter and shorter carbohydrate chains

Additionally, enzymes are secreted by the intestinal cells that line the **villi**. These enzymes, known collectively as disaccharides, are sucrase, maltase, and lactase. Sucrase breaks sucrose into glucose and fructose molecules. Maltase breaks the bond between the two glucose units of maltose, and lactase breaks the bond between galactose and glucose. Once carbohydrates are chemically broken down into single sugar units they are then transported into the inside of **intestinal cells.**

**Absorption: Going to the Blood Stream**

The cells in the small intestine have membranes that contain many transport proteins in order to get the **monosaccharides** and other nutrients into the blood where they can be distributed to the rest of the body.

The first organ to receive glucose, fructose, and galactose is the **liver**. The liver takes them up and converts galactose to glucose, breaks fructose into even smaller carbon-containing units, and either stores glucose as glycogen or exports it back to the **blood**.

**Maintaining Blood Glucose Levels: The Pancreas and Liver**

Glucose levels in the blood are tightly controlled, as having either too much or too little glucose in the blood can have health consequences. Glucose regulates its levels in the blood via a process called negative feedback

The **glucose thermostat** is located within the cells of the pancreas. After eating a meal containing carbohydrates glucose levels rise in the blood.

Insulin-secreting cells in the pancreas sense the increase in blood glucose and release the hormonal message, insulin, into the blood. Insulin sends a signal to the body’s cells to remove glucose from the blood by transporting to the insides of cells and to use it to make energy or for building macromolecules.

**Leftover Carbohydrates: The Large Intestine**

Almost all of the carbohydrates, except for dietary fiber and resistant starches, are efficiently digested and absorbed into the body. Some of the remaining indigestible carbohydrates are broken down by enzymes released by bacteria in the large intestine.

The products of bacterial digestion of these slow-releasing carbohydrates are **short-chain fatty acids** and some gases. The short-chain fatty acids are either used by the bacteria to make energy and grow, are eliminated in the feces, or are absorbed into cells of the colon, with a small amount being transported to the liver.

**Salad- Vitamins/Carbohydrates**

The salad may take about an hour to digest

Salad consists of majorly cabbage and carrot which are **fibers**. This crunchy vegetable is full of gut-friendly insoluble fiber, a type of carbohydrate that can't be broken down in the intestines.

Cooked and raw cabbage contains a type of **carbohydrates** called **oligosaccharides**, which resist breakdown by salivary and digestive enzymes. Once they reach the colon, they serve as food for theWhile this process creates gas, it's no cause for alarm and is actually very healthy.

**Carrots** are packed with fibre, which helps keep the digestive system healthy and helps balance blood sugar levels. Fibre also helps you to feel fuller for longer so you find it easier to maintain your weight. Since we do not digest it, the fiber in food passes into the intestine and absorbs water. The undigested fiber creates "**bulk**" so the muscles in the intestine can push waste out of the body. Eating enough fiber helps prevent **constipation**.

**Fried Chicken- Fat and oil /protein**

In your mouth, your teeth mechanically digest the lipids, carbohydrates, and proteins, and your salivary glands secrete **salivary amylase** which breaks carbohydrates into simple sugars.

**Fried chicken contains:**

* Lipids
* Carbohydrates
* Protein

The **liver** produces **bile** which is not an enzyme, but it aids in digestion by breaking lipids down to smaller lipids (mechanically) which allow the lipase to have more surface area to react on.

The chicken, now mashed up, goes to the stomach where **pepsin** is produced. **Pepsin** is an enzyme that changes proteins into **amino acids** in the stomach.

The gallbladder stores the bile that the liver produces

The **pancreas** produces **Lipase**(to break lipids down to fatty acids and glycerol), **Pancreatic Amylase** (to break carbohydrates into simple sugars), and **Trypsin**(to break proteins down to amino acids).

In the **small intestine,** the lipase, trypsin, and pancreatic amylase that were produced in the pancreas actually do the breaking down of your food.

**Water- Water**

Water, is a very simple molecule, so our body doesn’t have to break it down into smaller, simpler molecules. As a matter of fact, water molecules are so small that they have no problem diffusing through the **phospholipid bilayer** that forms the cell membrane of human tissues. This cell membrane (presumably) consists of small channels or pores through which water or water-soluble substances can enter, meaning that water is directly absorbed through the **epithelial cells** that cover humans’ **intestinal tract.**

In short, this means that the **small intestine** is responsible for the absorption of most of the water that we consume.

Your small intestine moves water from your bloodstream into your GI tract to help break down food. Your small intestine also absorbs water with other nutrients. In your large intestine, more water moves from your GI tract into your bloodstream.