

Fantastic voyage - iiyour namehs130, section #unit #9 assignmentkaplan university...

[Health & Medicine](#), [Body](#)



Fantastic Voyage - II

It is Day 1 and I am in a mini sub, all set to travel across the wonders of the human body, as the said body ingests junk food that we eat daily. I expect this video and my report will demonstrate the effects of such food inside our body, since on the outside we are blissfully unaware about these possibly harmful. We shall see.

Now let me get into the details. This is your name from “ Fantastic Voyage”, reporting from a mini submarine that is 8 microns long, and today I will show you the complex innards of a human being body. Subject is 55 years old, a height of 5 feet 9 inches and 155 pounds in weight. He has consumed a hamburger, French fries and a root beer. The physical components pertaining to the microstructure of these food particles have significant influence on the digestion process.

The process of digestion goes through several varied processes before finally being digested, resulting in the absorption of nutrients. These processes include activities like fragmentation of food, breaking down of enzymes and mass transfer . The digestion basically involves two types of processing - mechanical and chemical. In mechanical, the food is broken down by grinding and chewing of food by the teeth. Chemical processing is caused by digestive enzymes and bile; most of this occurs after the food enters into the stomach. Some of the saliva enzymes, called amylases, perform this action in the mouth too.

Initially, the food is broken down. This process begins at the mouth itself. I can see the food being mixed with the saliva and breaking down into smooth sticky form that the body can absorb and use. The tongue pushes the food

down the throat. I am now following the food into the throat, going into passageway called the pharynx. The pharynx seems to be about 5 inches long. Here, a flap of tissue automatically closes over the windpipe to prevent choking. This flap is called the epiglottis. The partially broken down food then travels through a food tube called the esophagus. The esophagus stretches and rhythmically flexes the muscle in order to force the food from the throat to the stomach. I feel like I am being shoved through a really long pipe, which, technically I am. At the end of this tube, I reach a muscular ring called cardiac sphincter. I pass through the ring along with the food. The ring squeezes shut behind me to prevent food from flexing upwards. On the other side of the ring lies the stomach.

The actual digestion process starts at the stomach. I feel like I am in open air now, and this is because the stomach is a large, sac-like organ. The stomach has strong muscular walls and is secreting fluids like digestive enzymes, bile and hydrochloric acid. The stomach is like a mixer and grinder. All contents of the stomach are churned and mixed thoroughly with the help of fluids. My sub is whirling around, but thankfully not being broken down into small pieces like the food particles. I can see the hydrochloric acid spraying on the surface of my sub. This goes on for a few hours. Naturally, the food particles ingested must now be in the form of liquid paste and more digestible. To understand the actual processing of the food eaten by the subject, we need to know a little about enzymes and proteins.

Enzymes, proteins and other nutrients are fuel to the body since they provide energy. These come in the food that we eat. These external enzymes help in breaking down the food in the stomach, with the help of the internal

digestive enzymes as well. Healthy food has a good percentage of enzymes in it, speeding up the digestion process. However, junk food and fast food like burger and fries are highly processed foods that do not contain active enzymes, thereby resulting in the usage of additional valuable internal digestive enzymes. This puts an additional strain on the digestive system, and slows the digestion process. This is the reason I wound up traveling around the stomach for hours together. I also noticed that while the stomach is empty, it is very small but then can food hold up to ten times its size. Now the thick liquid digestible food, called chyme, leaves the stomach. I follow the chyme through a small walnut-sized muscular tube near the stomach exit, called the pylorus. The chyme is kept there until it reaches the right consistency. After some time, the chyme, with me at the tail, is squirted down to the small intestine. I pass through a C shaped muscle tube, called the duodenum, then go for a joyride through the jejunum and finally end up in the distal ileum. All along the wall of the tube are finger like projections, called villi .

The chyme is broken down in the duodenum by enzymes released by pancreas and liver, and bile, into nutrients. In the jejunum and ileum, these nutrients are absorbed into the bloodstream through the villi. The walls of the jejunum and ileum are lined with mucous membrane. I pass through the mucous membrane coating the ileum and reach the bloodstream via the superior mesenteric vein. The superior mesenteric vein, together with the splenic vein which carries blood from the spleen, forms the common hepatic portal vein. This vein leads me to the liver. Here the liver divides into right and left branches. These branches deliver blood to the capillary system and

flows to the inferior vena cava. From the inferior vena cava, I travel through the right atrium of the heart, then the right ventricle, and then finally to the lungs via the pulmonary artery. Other nutrients are pumped back into the circulatory systems to other vital parts of the body by the heart. From the lungs, the blood travels through the pulmonary veins, the left atrium via the bicuspid valve, to the left ventricle and then through the following aortas respectively - aortic semilunar valve, ascending aorta, descending aorta, thoracic aorta, and the abdominal aorta. The blood then passes into the renal arteries and a series of other arteries before reaching the renal vein, into the kidney.

I now enter the nearest tubular unit called the nephron, via arterioles and the glomerulus. I travel around the nephron through peritubular capillaries. Now the nephron has two parts: a glomerular capsule (Bowman's capsule) and a renal tubule. The blood enters the Bowman's capsule from the glomerulus and travels along the renal tubule. Filtration of the urine takes place here. The renal tubule consists of the proximal convoluted tubule that leads to a hairpin-shaped nephron loop (loop of Henle), which either descends down to the center of the kidney (renal medulla) or ascends to the distal convoluted tubule. Re-absorption of urine takes place here. Another process, called secretion, takes place in the nephron where toxic substances to be eliminated are added to the urine in the nephron.

There exists a collecting duct that accumulates fluids from several nephrons into funnel-like renal pelvis. It then enters the ureter and the urinary bladder, before flowing out of the body through the urethra. And I'm out.

We can thus conclude that all of the body's systems work synchronously to

maintain the balance and flow of blood in the body, where each body part has a specific role. The digestive system is responsible for the digestion and absorption of the food. The circulatory system circulates the blood flow among different parts of the body. The urinary system gets rid of excessive waste from the body. Thus, the human body maintains its equilibrium through these regulatory systems.

References

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