

## M-Care Digestive System Fly-through Script

1. Welcome to the human digestive system.
2. A series of organs otherwise known as the gastrointestinal tract.
3. It takes about twenty-four hours for the food you eat to travel around nine metres through your body.
4. Get ready as we follow its path and find out exactly what happens along the way.

### Slide 1 - overview

5. This diagram maps the route that your food takes through the digestive system, showing the organs that are involved along the way.
6. We begin in the mouth where your teeth chew the food you eat, breaking it down into smaller pieces.
7. The tongue moves the food around your mouth and pushes the chewed pieces to the back of your throat.

### Slide 2 - mouth

8. Glands in the mouth (marked in yellow on this diagram) produce saliva which moistens the food making it easier to swallow.
9. Saliva contains chemicals called enzymes which start to break down the food.
10. Salivary glands can excrete up to six cups of saliva every day and even the smell of food can trigger its production.
11. Your tongue pushes the chewed food to your pharynx, or throat.
12. The pharynx is also part of the cardiovascular system because it carries air as well as food.
13. You can follow the journey of air around the body in our cardiovascular fly-through.
14. When you swallow, a trapdoor-like flap of tissue in the throat, called the epiglottis, prevents food and drink from entering your windpipe – or trachea – which would make you choke. Instead, they are diverted into your oesophagus and the digestive system.
15. We now continue down the oesophagus – or gullet – the tube in which the food travels to the stomach.
16. Peristalsis is a squeezing action of muscles along the length of the oesophagus which propels food along it.
17. It happens throughout the digestive system ensuring food continues its journey.
18. A slimy mucus made in the oesophagus also helps the food along the way.
19. Peristalsis is such a powerful action that food would make it to the stomach even if you stood on your head while you were eating.
20. Food passes through the cardiac sphincter, another trapdoor-like flap of tissue, which closes behind the food preventing it, and harsh stomach acids, from passing back into the oesophagus.

### Slide 3 – stomach

21. The stomach is a stretchy muscular bag which expands from the size of a tennis ball when empty to as big as a football when full.
22. The stomach is divided into three parts:
  - the fundus at the top;
  - the body, which is in the middle;
  - and the pylorus at the bottom.

23. The stomach lining releases digestive juices and acid that further break down the food and kills any harmful bacteria that may arrive with it.
24. Muscles in the wall of the stomach move the food around with the digestive juices until it breaks down to a pulp called chyme.
25. Here we fly through the acid in your stomach.
26. It is strong enough to dissolve metal.
27. The stomach is lined with mucus and replaces its cells every few days to protect it from the acid.
28. We leave the stomach through the pyloric sphincter and enter the small intestine, a three centimetre wide tube that's six and a half metres long.

#### **Slide 4 - small intestine**

29. The small intestine is formed of three parts:
  - the first part is the duodenum;
  - then the jejunum;
  - and finally, the longest part is the ileum.
30. To our left is a duct leading in from the pancreas, one of several important organs that support the digestive system.
31. The pancreas sits behind the stomach and makes enzymes which help to digest the food in the small intestine.
32. It also makes insulin which regulates blood sugar levels.

#### **Slide 5 - pancreas, liver, gallbladder**

33. The liver also creates a digestive liquid called bile which is stored in the gallbladder until it is needed.
34. Bile is a greeny-yellow substance, and it helps break down fats and oil so it can be absorbed into your blood.
35. Before you eat, the gallbladder is plump, about the size of a small pear.
36. After you have eaten, and all the bile stored in it has been used, it is flat like a deflated balloon.
37. The liver has other important functions including cleaning your blood and storing glycogen which is used as a backup fuel if you need a quick energy boost.
38. As we resume our journey you will notice the surface of the small intestine's walls are folded and covered in millions of tiny projections, these are called villi.
39. In turn the villi are covered in more tiny projections called microvilli.
40. The purpose of villi and microvilli is to increase the surface area of the small intestine to aid the absorption of the broken down food which is now just a collection of simple molecules.

#### **Slide 6 - villi**

41. This diagram shows how nutrients are absorbed by the microvilli and transferred into the bloodstream through the walls of blood capillaries to be transported around the body.
42. We resume our journey through the small intestine, by this stage most of the nutrients from our food will have been digested.
43. Carbohydrates are digested into sugars; and proteins are digested into amino acids.
44. Fats and oils – otherwise known as lipids – are digested into fatty acids and glycerol.
45. These particles are all absorbed through the villi into the bloodstream where they are transported to the liver along with minerals, vitamins and water which are small enough to be absorbed without being digested.

46. From there they are delivered, into the blood, and taken to wherever they are needed around the body.
47. We now enter the large intestine where anything that hasn't been absorbed goes next.
48. The large intestine is about six centimetres wide but only about one and a half metres long.
49. The large intestine's job is to soak up water, salts and minerals from the indigestible leftovers.

### **Slide 7 - Large intestine**

50. The first part of the large intestine is called the cecum and it is here where you will find the appendix
51. It was once thought the appendix served no purpose but now it is believed it stores good bacteria which helps the digestive system recover when you've been ill.
52. The cecum leads to the three main parts of the large intestine:
  - the ascending colon;
  - the transverse colon;
  - and the descending colon.
53. What remains of the waste moves to the rectum where it is stored as faeces – or poo.
54. Finally, the faeces travels along the anal canal and exits the body through the anus.

### **Conclusion**

55. And that's it. We've travelled from top to tail through the human digestive system and discovered how your body uses the food and drink you ingest.
56. If you're interested in finding out more about how the human body works you should try the Cardiovascular System Fly-through or the Musculoskeletal System fly-through experience.

PLOP!

FLUSH!