

Name _____

Fast Food



Use the cotton balls & alcohol to clean the stethoscope earpieces between each use.

Question: How fast does water travel from your mouth to your stomach?

Prediction: I think

Materials:

Stethoscope	Stopwatch	Tape measure
Paper cup	Cotton balls	Rubbing alcohol
Water	Calculator	

Procedure:

1. Hold the flat end of the stethoscope on your abdomen just below and a little to the left of your sternum. When the stethoscope is in this position, you can hear the sounds made by the muscle at the top of your stomach. This muscle acts like a valve to let food into the stomach. The name of this muscle is the **gastro-esophageal sphincter**.
2. Take a large sip of water.
3. Swallow the water and listen for a gurgling sound with the stethoscope. This is the sound of the water moving through the sphincter.
4. Practice 2 -3 times so that you are comfortable hearing the sounds. You may have to adjust the position of the stethoscope slightly.
5. Use the tape measure to find the length in cm of your esophagus from your mouth to the top of your stomach (the bottom of your sternum). Record this distance in the data table.
6. Stand up.
7. Fill the paper cup with water.
8. Decide on a signal for starting & stopping with your partner.

9. Have your partner ready the stopwatch.
10. Hold the stethoscope in the proper position to hear the movement of the water.
11. Sip all of the water, but DO NOT SWALLOW it yet.
12. Give your partner the signal to begin timing, and swallow the water.
13. As soon as you hear the sound of the water moving through your sphincter, give your partner the signal to stop timing.
14. Record the number of seconds from swallow to sound.
15. Repeat for a total of 5 trials. Average the data from the 5 trials.
16. Calculate the speed the water moved by using the formula **distance ÷ time**.
17. Sit on a stool; bend over with your head between your knees.
18. Repeat the experiment.
19. Switch jobs with your partner. Remember to clean the earpieces of the stethoscope.

Data:

Speed of Water Through the Esophagus			
	Time in Seconds		Distance in cm
Trial	Standing Up	Bending Over	
1			
2			
3			
4			
5			
Average			

The speed of water movement standing up: _____

The speed of water movement bending over: _____

REMEMBER: Speed = Distance ÷ Time

Make a graph to **compare** the two speeds. **Remember to title & label the graph.**

2. Does gravity have anything to do with swallowing? Explain your answer.

3. Write a short paragraph explaining how swallowing occurs. Make sure to mention **peristalsis**.

