

Exercise walk-through

Absorption ■ 7.5

eXercise

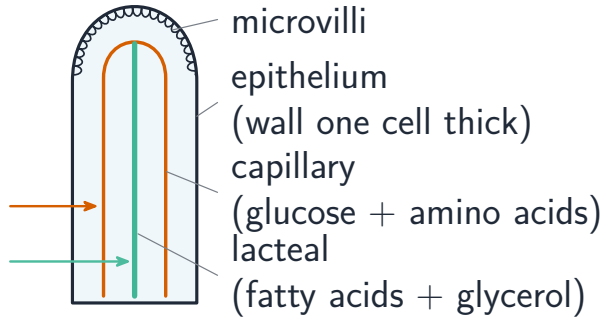
You must be able to

- state where digested food and water are absorbed
- describe how a villus is adapted for fast absorption
- name what the capillaries and lacteal absorb

Method — The villus

- absorbed in the **small intestine**; most water there, the rest in the colon.
- **capillaries**: take up glucose and amino acids; **lacteal**: takes up fatty acids and glycerol.

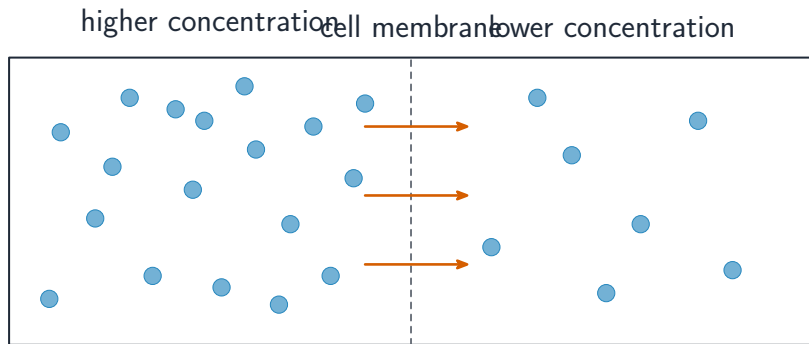
Method — The villus



a villus (huge surface area for absorption)

A single villus: thin wall, capillaries, central lacteal

Method — The villus



net movement of particles down the concentration gradient

Absorption at the villus is by diffusion and active transport

Practice 2.1 ■ 1 mark

Name the organ where most digested food is absorbed.

Solution 2.1

Method: The villus

Worked steps

the small intestine **B1**.

Practice 2.2 ■ 1 mark

State what the lacteal absorbs.

Solution 2.2

Worked steps

fatty acids and glycerol **B1**.

Exam-style 3.1 ■ 1 mark

The small intestine is lined with villi mainly to:

- A** make enzymes
- B** increase the surface area for absorption
- C** kill microorganisms
- D** store food

Solution 3.1

Method: The villus

- A make enzymes
- B increase the surface area for absorption 
- C kill microorganisms
- D store food

Worked steps

- B. Villi increase the surface area for absorption.

Exam-style 3.2 ■ 1 mark

A villus has a thin wall and a good blood supply.

- (a) Explain how a thin wall helps absorption.
- (b) Explain how the capillary network helps absorption.

Solution 3.2

Method: The villus

Worked steps

- (a) molecules have only a short distance to diffuse across **B1**.
- (b) the capillaries carry away the absorbed glucose/amino acids **M1**; this keeps a steep concentration gradient for fast absorption **A1**.

Exam-style 3.3 ■ 2 marks

State two features of the small intestine that increase the surface area for absorption.

Solution 3.3

Method: The villus

Worked steps

the many villi **M1**; and the microvilli on each villus **A1**.