

7.5 Absorption

Name: _____ Class: _____ Date: _____

Total: 8 marks

KEY WORDS villi 绒毛 • lacteal 乳糜管 • microvilli 微绒毛 • absorption 吸收
• capillaries 毛细血管

Objective

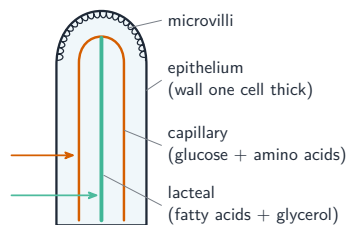
Build the skills to answer exam questions on **absorption** 吸收 — where nutrients are absorbed and how the **villi** 绒毛 are adapted.

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

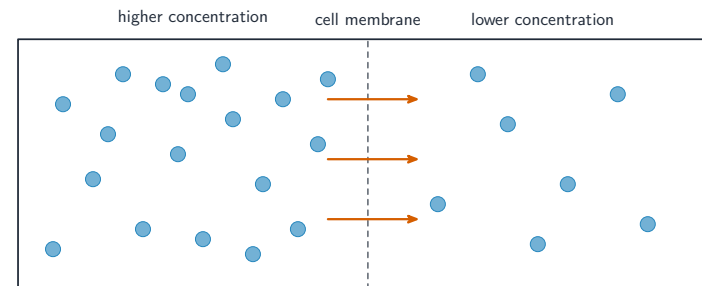
1 Worked examples

■ The villus



a villus (huge surface area for absorption)

Villi (and microvilli) give a large surface area; a thin wall gives a short distance



net movement of particles down the concentration gradient

Absorption at the villus is by diffusion and active transport

- 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.

2 Practice

2.1 Name the organ where most digested food is absorbed. [1]

2.2 State what the lacteal absorbs. [1]

3 Exam-style questions

3.1 The small intestine is lined with villi mainly to: [1]

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

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

(a) Explain how a thin wall helps absorption. [1]

(b) Explain how the capillary network helps absorption. [2]

3.3 State two features of the small intestine that increase the surface area for absorption.[2]

Solutions

2.1 the small intestine.

2.2 fatty acids and glycerol.

3.1 B. Villi increase the surface area for absorption.

3.2 (a) molecules have only a short distance to diffuse across.

(b) the capillaries carry away the absorbed glucose/amino acids; this keeps a steep concentration gradient for fast absorption.

3.3 the many villi; and the microvilli on each villus.