

12 Anaerobic respiration – Part 2

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)		
Anaerobic respiration	无氧呼吸	_____	_____	_____
yeast	酵母	_____	_____	_____
alcohol	酒精	_____	_____	_____
muscles	肌肉	_____	_____	_____
lactic acid	乳酸	_____	_____	_____
oxygen debt	氧债	_____	_____	_____
liver	肝脏	_____	_____	_____

Recall

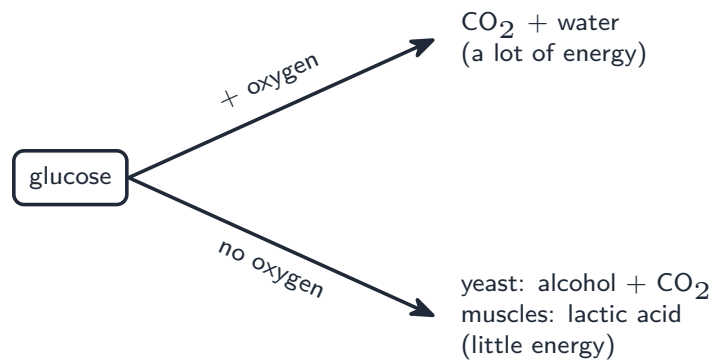
When there is plenty of oxygen, cells respire aerobically. When there is not enough, they can still get some energy without oxygen.

New ideas

Read these first, then do the Practice.

■ 1 Aerobic vs anaerobic

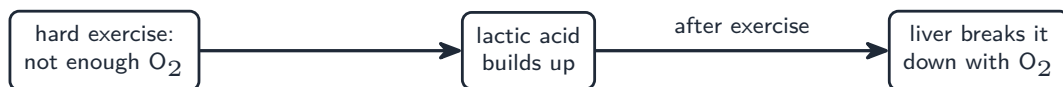
Anaerobic respiration 无氧呼吸 releases energy from glucose **without** oxygen. It gives **much less** energy:



- in **yeast** 酵母: glucose → **alcohol** 酒精 + carbon dioxide (used to make bread and drinks);
- in **muscles** 肌肉: glucose → **lactic acid** 乳酸.

■ 2 Oxygen debt

During hard exercise, muscles cannot get enough oxygen, so they make lactic acid — this builds an **oxygen debt** 氧债:



Afterwards, you keep breathing hard so the **liver** 肝脏 can break the lactic acid down.

Watch out: **anaerobic** respiration releases **much less** energy than aerobic (it only partly breaks down the glucose). In muscles it makes **lactic acid**; in yeast it makes **alcohol + carbon dioxide** — know which is which.

Practice

Try these in order.

12.6 How is anaerobic respiration different from aerobic respiration? [2]

12.7 What does yeast make when it respire without oxygen? [1]

12.8 What does anaerobic respiration make in your muscles? [1]

12.9 What is the *oxygen debt*? [1]

12.10 Which organ breaks down the lactic acid afterwards? [1]

12.11 Challenge. After a sprint, an athlete keeps breathing hard for several minutes. Explain why, using the idea of oxygen debt. [2]