# 12 Anaerobic respiration – Part 2

Name: _____ Class: _____ Date: _____

## Vocabulary

*Write each word three times.*

| **English** | **Write it 3 times** (English) | | |
|---|---|---|---|
| Anaerobic respiration | | | |
| yeast | | | |
| alcohol | | | |
| muscles | | | |
| lactic acid | | | |
| oxygen debt | | | |
| liver | | | |

## Recall

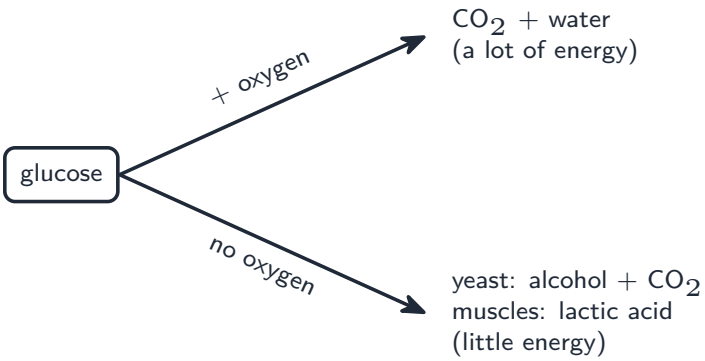
When there is plenty of oxygen, cells respire aerobically. When there is not enough, they can still get some energy without oxygen.

## New ideas

Read these first, then do the Practice.

### ■ 1 Aerobic vs anaerobic

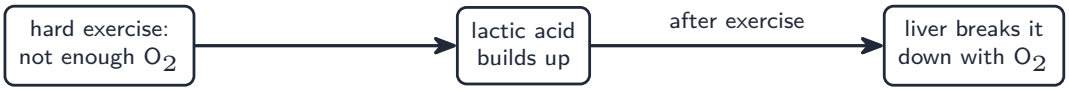
**Anaerobic respiration** releases energy from glucose **without** oxygen. It gives **much less** energy:




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

### 2 Oxygen debt

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




Afterwards, you keep breathing hard so the **liver** 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 respires 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]