

Unit 4 Physiology of exercise

Task 1 Anatomy

a) How many parts of the systems listed below do you know?

Cardiovascular system

Respiratory system

Digestive system

Skeletal-muscular system *shoulder blade,...*

Endocrine system

Integumentary system

Nervous system

Urinary system

Reproductive system

b) Can you guess the medical terms defined below?

1. controls movement, thought, memory and feeling
2. two bones that go from the base of the neck to the shoulders
3. layer of muscle between the lungs and the stomach to control breathing
4. produces insulin, helps digestion
5. wide curved set of bones connecting legs and spine
6. nerves inside the spine connecting all parts of the body to the brain
7. tissue joining a muscle to a bone
8. any of the tubes that carry blood from all parts of the body towards the heart

c) Watch the video about how the body processes medicine.

<https://ed.ted.com/lessons/how-does-your-body-process-medicine-celine-valery>

Answer the following questions:

1. Which organs and systems of the body are involved in processing medicine?
2. How exactly do painkillers block pain?
3. How is the drug eventually eliminated?
4. What does the speed and intensity at which the drug gets into your system depend on?
5. Why is it important to get the dosage right?

Task 2 Reading

a) Before you read: BRAINSTORMING

Talk to the people sitting near you brainstorming your knowledge of human physiology and benefits of exercise. What have you already studied on the topic?

SYNONYMS AND ANTONYMS

Learning a large number of words relating to a specific topic makes reading on that topic much easier. Knowing synonyms and antonyms is one way to build a topic-based vocabulary.

A **synonym** is a word that has a *similar* meaning to another word.

An **antonym** is a word that has the *opposite* meaning to another word.

b) The following words occur in the text. Find five pairs of near synonyms in the first line and four pairs of antonyms in the second one.

- improve – maintain – enhance – aid – stretch – help – keep – affect - extend - influence*
- increase – lengthen – reduce – stretch – anaerobic - contract – shorten - aerobic*

d) SCANNING

Scanning involves looking quickly through a text to find a specific word or piece of information. There are often times when it is necessary to do this, such as when studying for a test, so it is a useful skill to practise.

Scan the text below quickly to match paragraphs with suitable headings.

Basic Physiology of Exercise

Aerobic Exercise

Benefits of Exercise

What is exercise?

Anaerobic Exercise

Heading 1:.....

1. Exercise is an activity that results in contraction of skeletal muscle. The term is usually used in reference to any activity that improves physical fitness. Although muscle contraction is the common element of all forms of exercise, many other organs and systems are affected, for example, the heart and lungs.

Heading 2:.....

2. Contraction of skeletal muscles, the muscles under conscious control, is the primary physiological event during exercise. Because skeletal muscles can actively contract, but are not designed to actively lengthen, they are arranged as opposing pairs. As one muscle shortens, another is stretched. An example of such a pair of muscles can be observed in the upper arm, where the biceps and triceps have opposite actions.

Heading 3:.....

3. This type of exercise involves heavy work by a limited number of muscles, for example during weight lifting. These types of activities are maintained only for short intervals, and the supply of oxygen is insufficient for aerobic metabolism, resulting in a substantial oxygen debt. This exercise increases strength and muscle mass, but is of limited benefit to cardiovascular health.

Heading 4:.....

4. This type of exercise uses oxygen to keep large muscle groups moving continuously at an intensity that can be maintained for at least 20 minutes. This form of exercise uses several major muscle groups throughout the body, resulting in greater demands on the cardiovascular and respiratory systems to supply oxygen to the working muscles.

Heading 5:.....

5. Regular exercise reduces the risk of death due to heart disease and stroke, aids in reducing weight, strengthens bones, and enhances immune function. The psychological benefits are also broad. One area of controversy has been how much exercise is enough to improve general health, reduce the risk of heart disease, and increase longevity. Meaningful studies on this topic are very difficult to perform because they require large populations of subjects and many years of data collection, and because poor health sometimes negatively influences physical activity. Despite these difficulties, it is clear that regular exercise, along with a generally healthy lifestyle, is beneficial.

(adapted from: Seal, B. *Academic Encounters*. Cambridge University Press, 1997.)

- e) **After you read:** Look back at the paragraph headings and summarise the main ideas in your own words.

f) Vocabulary

Study the examples from the text above and decide which of the two options in brackets better describes the word in italics in the given context:

1. Although muscle contraction is the *common* (*shared by many/ ordinary*) element of all forms of exercise, many other organs and systems are affected.
2. Contraction of skeletal muscles, the muscles under *conscious* (*voluntary/involuntary*) control, is the primary physiological event during exercise.
3. This type of exercise *involves* (*causes/ includes*) heavy work by a limited number of muscles, for example during weight lifting.
4. The supply of oxygen is *insufficient* (*enough/not enough*) for aerobic metabolism, resulting in a *substantial* (*small/great*) oxygen debt.
5. This form of exercise uses several major muscle groups throughout the body, resulting in greater demands on the cardiovascular and respiratory systems to *supply* (*give/ receive*) oxygen to the working muscles.
6. It is clear that regular exercise, along with a generally healthy lifestyle, is *beneficial* (*good for you/ not good for you*).

Task 3 Grammar: Gerund and Infinitive

Study the sentences below

...studies on this topic are very *difficult to perform*...

... exercise *aids in reducing* weight...

... muscles are not *designed to* actively *lengthen*...

a) Complete the gaps:

1. The uses of

- after prepositions, e.g. *after, before, in, by*, etc.
- as a noun, e.g. *He likes hosting parties*.
- after certain verbs, e.g. *hate, mind, enjoy*, etc.

2. The uses of

- after adjectives, e.g. *ready, pleased, great*, etc.
- after certain verbs, e.g. *decide, agree, hope*, etc.
- to show purpose, e.g. *I'm here*

b) Complete the sentences:

We stopped to take photos We stopped taking photos

c) Complete the gaps with the correct form of the verb in brackets:

1. You need to speak to Mrs. Jones, she is responsible for (deal) with new clients.
2. There's no point in (complain) – he won't change his mind.
3. The book was so interesting that I kept on..... (read).
3. The computer was not working so I tried (restart).
4. After doing the first exercise I gave up..... (try).
5. Unfortunately, we failed (win) the contract.
6. Have you considered (look) for another job?
7. I look forward to (hear) from you soon.
8. He forgot (send) his application.
9. The college principal promised (look) into the matter.

d) Complete the sentences with your own ideas, using *-ing* or *to*:

1. I hope.....
2. I don't mind.....
3. I'd love
4. I can't afford.....
5. You can hardly avoid