

The Skeletal System

Long relegated to props hung in poorly decorated haunted houses or characters in lousy horror movies, skeletons have gotten a bad rap. Except for those times when we break one, most of us think of bones as little more than the leftovers from Buffalo wings or the things that hurt when our shins bump the coffee table. That is, we have a tendency to overlook them and what they represent: namely our own shape.

Try imagining your life without your skeleton. Your body would be an amorphous blob incapable of thought. Without a skeleton, you would have no shape. Worse, you would have no skull. And without a thick skull, your brain would be left vulnerable and would, as a result, be unable to grow to the size it has. In other words, human life would not be anything close to human-like without a skeleton. And yet, despite its importance, people tend to forget about or simply not understand how the skeletal system works. In fact, they do not seem to grasp that the skeletal system is more than just a collection of bones: It is a system of the body just as important as the cardiovascular system, the nervous system, or any other bodily system.

Bones are Organs

Every anatomical system is anchored around an organ that performs a vital bodily process. The respiratory system, for instance, is centered around the lungs, while the nervous system is centered around the brain. The skeletal system is actually anchored around 206 organs. See, each bone is a complex organ composed of many cells, fibers, and minerals. Their collective function is to support the rest of the body by making it erect, attach muscles to allow for movement, and protect other organs from danger. Bones also create new red blood cells in their marrow, thus helping the respiratory system, as red blood cells transport oxygen and carbon dioxide to and from tissues throughout the body. Bones also store calcium, iron, and fat; and they also ensure that the rest of the organs and muscles in the body have room to grow.

That last point is important. Bones grow throughout a person's life. And without bones growing and even fusing together, nothing else in your body would ever grow large, as there would simply be a dearth of expansion space.

Mapping Bones

Scientists have classified all the bones in the body into two major divisions: the axial and appendicular skeletons. The former refers to everything on the body's middle axis, while the latter refers to the bones that make up the arms, legs, pelvis, and shoulder girdle. These bones include the femur, the tibia, the ulna, and the radius. In the axial system, there are 80 bones, including the skull, the ribs, the vertebral column, and the sternum.

By far, the most important bone is the skull. Anthropologists believe that, without a large and thick skull, humans would not have been able to evolve into the most intelligent creatures to ever walk the face of Earth. The skull is actually composed of 21 bones that are fused together as a person ages. Thus, as a child, the skull is made up of 21 separate bones, but as an adult, these bones have amalgamated into just one.

The other bones in the body are of varying sizes and shapes. They are classified as long, short, flat,

irregular, and sesamoid bones. The fibula and tibia are examples of long bones, the carpal bones in the wrist are examples of short bones, ribs are examples of flat bones, the vertebrae are examples of irregular bones, and the patellae are examples of sesamoid bones. Sesamoid bones are bones formed after birth and that stretch over joints. Some humans actually end up with additional sesamoid bones in the hands or feet, but all of us at minimum have kneecaps.

That last point is key: everyone's bone structure is slightly different from everyone else's. Athletes often have higher bone mass densities than non-athletes, and many people have bones of different sizes and lengths than do others. The skeletal system, on average, accounts for around a third of a person's body mass and weight, but, of course, everybody's weight fluctuates too. Regardless of these differences, the skeletal system is equally important for all people.

1) It can be inferred from paragraph 1 that the author believes most people

- A. cannot imagine what a skeleton looks like
- B. find the study of bones uninteresting
- C. do not understand all of the bodily systems
- D. take their bones for granted
- E. are afraid of skeletons

2) As used in paragraph 2, the word **amorphous** has the nearest antonym in

- A. idiotic
- B. smart
- C. imagined
- D. lacking
- E. concrete

3) According to the passage, the respiratory system

- I. includes the lungs
- II. is the most important anatomical system in the body
- III. is aided by the skeletal system

- A. I only
- B. II only
- C. I and III only
- D. all of the above
- E. none of the above

4) Each of the following is a function of bones EXCEPT

- A. producing red blood cells
- B. storing oxygen

- C. aiding in muscle movement
- D. protecting other organs
- E. creating room for organs to grow

5) Which of the following is true of the appendicular bones?

- I. They are located outside the body's middle axis.
- II. They include bones that make up the legs and arms.
- III. There are 126 of them in the average human body.

- A. II only
- B. I and II
- C. I and III
- D. II and III
- E. all of the above

6) The passage suggests that children have

- A. more bones than adults
- B. more red blood cells than adults
- C. fewer bones than adults
- D. fewer red blood cells than adults
- E. the same number of bones and red blood cells as adults

7) As used in paragraph 6, the word **amalgamated** belongs in which of the following word groups?

- A. composed, written, created
- B. insured, protected, defended
- C. combined, synthesized, blended
- D. fused, welded, soldered
- E. separated, unconnected, detached

8) According to the passage, the skull is the most important bone in the body because it

- A. is hefty enough to allow the brain to develop fully
- B. prevents damage to the cardiovascular system
- C. is the first bone formed while a body is developing
- D. is the result of fusing together 21 separate bones
- E. stops growing once a person is an adult

9) According to the passage, how many classifications of bone types are there?

- A. 2
B. 3
C. 5
D. 80
E. 206

10) The main purpose of this passage is to

- A. describe why the skeletal system allowed the brain to develop in humans
- B. analyze several different viewpoints on how the skeletal system is formed
- C. explain the skeletal system and its import to the human body
- D. refute the notion that skeletons are scary and suggest a different interpretation
- E. argue that most people are not aware of the skeletal system but should be

11) What can you do to protect your skeleton and keep it healthy? Explain.

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