Reading Passage 2: Science with Graph
Practice for the New SAT (2016)
Questions 12-22 are based on the following passage.

This passage is adapted from a report of the United States Surgeon General, published in 2004.

The bony skeleton is a remarkable organ that serves both a structural function—providing mobility, support, and protection for the body—and a reservoir function, as the storehouse for essential minerals. It is not a static organ, but is constantly changing to better carry out its functions.

Both the amount of bone and its architecture or shape are determined by the mechanical forces that act on the skeleton. Much of this is determined genetically so that each species, including humans, has a skeleton that is adapted to its functions. However, there can be great variation within a species, so that some individuals will have strong bones and others will have weak bones, largely because of differences in their genes. Moreover, bone mass and architecture are further modified throughout life. Bones will weaken if they are not subjected to adequate amounts of loading and weight bearing for sufficient periods of time. When they are not (such as in the weightless condition of space travel), rapid bone loss can occur. In other words, as with muscle, it is “use it or lose it” with bone. Conversely, the amount and architecture of the bones can be improved by mechanical loading through exercise.

While they may not get as much attention as heart disease, cancer, and other major diseases, bone diseases are common in the United States. Fractures are the biggest problem associated with bone disease; they are common, costly, and become a chronic burden on both individuals and society. Osteoporosis is a leading underlying cause of fractures, especially among the elderly. It affects both sexes and all races, although to varying degrees. The reason for the disease’s high prevalence is relatively simple—almost everyone loses bone as they grow older.

Bone mass somewhat below the average may be classified as low bone mass; it is a risk factor for fractures, but is not considered a disease. Osteoporosis can be defined as a bone mineral density value substantially below the mean for healthy young women. Based on this definition, it has been estimated that roughly 10 million individuals over age 50 in the United States have osteoporosis of the hip. One problem in estimating the frequency of osteoporosis is that many individuals may have the disease but do not know it. A recent survey revealed that only a small percentage of women and men age 65 and older reported that they had osteoporosis. However, testing at the hip showed that many more actually had the disease. These data for both men and women reveal not only the underdiagnosis of osteoporosis but also the failure to recognize that most hip fractures are due, at least in part, to osteoporosis.

The prevalence of bone diseases is going to increase significantly as the population ages. In the United States, the number of people age 65 and older is expected to rise from 35 to 86 million between 2000 and 2050, while the number age 85 and older will increase from 4 to 20 million. Much of this increase will occur in the next 25 years as the “baby boomers” reach their 70s and 80s. Unless prevention activities are greatly enhanced, this demographic change alone will cause a substantial increase in the number of people with bone diseases.

OSTEOPOROSIS OR LOW BONE MASS IN ADULTS AGED 50 OR OVER

![Graph showing osteoporosis and low bone mass in adults aged 50 or over.](image-url)
1. The passage most strongly suggests that which of the following would be an effective way to prevent bone disease?
   (A) Changes to diet
   (B) Reducing hip fractures
   (C) Weight bearing exercise
   (D) Additional testing for osteoporosis

2. Which choice provides the best evidence for the answer to the previous question?
   (A) Lines 19-21 (“Conversely … through exercise”)
   (B) Lines 22-24 (“While … United States”)
   (C) Lines 44-47 (“These data … osteoporosis”)
   (D) Lines 48-49 (“The prevalence … ages”)

3. What is the main purpose of the first two paragraphs of the text?
   (A) To provide a definition of osteoporosis
   (B) To explain the relationship between fractures and osteoporosis
   (C) To provide background information on bones
   (D) To describe how the amount and architecture of bone can be improved

4. As used in line 3, “reservoir” most nearly means
   (A) repertoire.
   (B) pond.
   (C) fund.
   (D) repository.

5. The author refers to the weightless conditions of space travel (line 17) primarily to
   (A) provide an example of conditions that increase bone mass.
   (B) provide an example of conditions that decrease bone mass.
   (C) compare the properties of bone to muscle.
   (D) suggest a leading cause of osteoporosis.

6. As used in line 55, “enhanced” most nearly means
   (A) improved.
   (B) perfected.
   (C) amplified.
   (D) beautified.

7. Based on the passage, which choice best describes the relationship between osteoporosis and fractures?
   (A) Osteoporosis can lead to fractures.
   (B) Fractures can lead to osteoporosis.
   (C) Osteoporosis and fractures are unrelated forms of bone disease.
   (D) Underdiagnosis of fractures can lead to osteoporosis.

23. Which choice provides the best evidence for the answer to the previous question?
    (A) Lines 24-27 (“Fractures are … society”)
    (B) Lines 27-28 (“Osteoporosis … the elderly”)
    (C) Lines 34-36 (“Osteoporosis … women”)
    (D) Lines 38-40 (“One problem … know it”)

8. Which claim about osteoporosis is supported by the chart?
   (A) Women suffer from osteoporosis at higher rates than men.
   (B) Men suffer from osteoporosis at higher rates than women.
   (C) Rates of low bone mass are about equal across age groups, but higher for women.
   (D) Men have low bone mass more often than women.

9. Which of the following provides the most reasonable summary of the final paragraph?
   (A) Because of the aging population, the number of people with bone diseases will decrease.
   (B) An increase in preventative measures to stop bone disease would only benefit “baby boomers.”
   (C) The aging of the population will lead to an increase in bone disease in the United States, especially if preventative actions are not taken.
   (D) Rates of bone disease will increase in the United States as the birth rate increases.
10. It can reasonably be inferred from the passage and chart that which one of the following predictions is most likely to be correct?

(A) Fewer women will have osteoporosis in 2050.
(B) In coming decades, men will have low bone density more often than women.
(C) As the number of people who are 80 years old or older increases, so will the number of people who have osteoporosis.
(D) If more men survive to be 80 years or older, their rate of osteoporosis will match the rate for women.
# Summary

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# Answers

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