

Controversy 2: Why Do Our Bodies Grow Old?

Test Bank

Multiple Choice

1. The maximum human life span is approximately _____.

- a. 77 years
- b. 82 years
- c. 100 years
- d. 120 years
- e. 150 years

Ans: d

Answer Location: Why Do Our Bodies Grow Old?

Difficulty Level: Easy

2. The time-dependent biological process that involves functional loss and susceptibility to disease and death is called _____.

- a. the Gompertz law
- b. normal aging
- c. successful aging
- d. the wear-and-tear theory of aging
- e. the Hayflick limit

Ans: b

Answer Location: The Process of Biological Aging

Difficulty Level: Easy

3. Which of the following are considered to be “wear-and-tear” theories of aging?

- a. somatic mutation theory of aging
- b. error accumulation theory of aging
- c. accumulative waste theory of aging
- d. all of these
- e. a and b

Ans: d

Answer Location: Wear and Tear Theory

Difficulty Level: Medium

4. According to the cellular theory of aging, which of the following processes occur?

- a. Free radical damage eventually gives rise to the symptoms we know as aging.
- b. Cross-linking compounds in the collagen begin to accumulate and eventually impair cellular function.
- c. The body's immune system begins to weaken and can no longer distinguish between bodily tissues and foreign tissues.

- d. The capacity for cell division weakens over time.
- e. None of these.

Ans: d

Answer Location: Cellular Theory

Difficulty Level: Medium

5. The Hayflick Limit refers to which of the following processes?

- a. HeLa cells continue to divide and grow.
- b. Normal human cells grown in tissue culture go through a limited number of cell divisions.
- c. Aging is regulated by glandular cells, perhaps of the hypothalamus, thymus, or pituitary gland.
- d. Waste products and other harmful substances build up in the cells.
- e. None of these.

Ans: b

Answer Location: Cellular Theory

Difficulty Level: Medium

6. "Compression of morbidity" refers to which of the following processes?

- a. the acceleration of the inverse relationship of morbidity and mortality
- b. when illness is pushed further into old age
- c. an increase in the maximum life span
- d. whenever the natural life span is exceeded
- e. none of these

Ans: b

Answer Location: Why Do Our Bodies Grow Old?

Difficulty Level: Medium

7. According to Hayflick, when does aging begin?

- a. at conception
- b. at birth
- c. following the reproductive period
- d. when the animal becomes independent of its parents
- e. none of these

Ans: c

Answer Location: Reading 5: Why Do We Live as Long as We Do?

Difficulty Level: Hard

8. According to Fries and Crapo, all of the following are true except _____.

- a. The number of extremely old persons will increase.
- b. The percentage of a typical life spent in dependency will decrease.
- c. The period of adult vigor will be prolonged.
- d. The need for intensive medical care will decrease.
- e. The cost of medical care will decrease.

Ans: a

Answer Location: Reading 6: Vitality and Aging

Difficulty Level: Hard

9. Explanations for the improvement in functioning of current cohorts of older persons include _____.

- a. increases in the educational levels of newer cohorts of elders
- b. decreases in the frequency of obesity
- c. improvements in medical interventions
- d. all of these
- e. both a and c

Ans: e

Answer Location: Reading 7: The Compression of Morbidity Hypothesis

Difficulty Level: Hard

10. According to de Grey, the therapies being developed by the SENS (Strategies for Engineered Negligible Senescence) project to prevent and cure aging will be available for mice in _____ years and for humans in _____ years.

- a. 50, 75
- b. 50, 50
- c. 25, 25
- d. 25, 20
- e. 10, 20

Ans: e

Answer Location: Reading 9: We Will Be Able to Live to 1,000

Difficulty Level: Hard

True/False

1. Recent research is investigating the role of inflammation in a variety of aging related diseases.

Ans: T

Answer Location: Free Radicals

Difficulty Level: Easy

2. Although cultural stereotypes suggest that women are more biologically fragile than men, the Gompertz law indicates that women and men are equally likely to die.

Ans: F

Answer Location: The Process of Biological Aging

Difficulty Level: Medium

3. Many biologists believe that aging may be explained by a single cause.

Ans: T

Answer Location: Biological Theories of Aging

Difficulty Level: Easy

4. The maximum life span for a species is unalterable.

Ans: F

Answer Location: Ways to Prolong the Life Span

Difficulty Level: Medium

5. Research in the area of cryobiology has found that raising and maintaining a higher body temperature can increase the life span in fruit flies and some vertebrates.

Ans: F

Answer Location: Environmental Approach

Difficulty Level: Hard

6. Over the 20th century, both life expectancy and life span increased.

Ans: F

Answer Location: Why Do Our Bodies Grow Old?

Difficulty Level: Medium

7. Hayflick likens aging to the ticking on of a cheap watch that eventually results in its failure

Ans: T

Answer Location: Reading 5: Why Do We Live as Long as We Do?

Difficulty Level: Medium

8. According to Hayflick, scientists have made significant progress during the last century in uncovering the fundamental cause of aging.

Ans: F

Answer Location: Reading 5: Why Do We Live as Long as We Do?

Difficulty Level: Medium

9. Like other biomedical goals, discovering the processes that cause aging or determine our life span would have a strictly positive value.

Ans: F

Answer Location: Reading 5: Why Do We Live as Long as We Do?

Difficulty Level: Medium

10. According to Fries and Crapo, average life expectancy has increased while life span has remained the same.

Ans: T

Answer Location: Reading 6: Vitality and Aging

Difficulty Level: Medium

11. According to Fries and Crapo, if all disease and trauma were eliminated, death would still occur.

Ans: T

Answer Location: Reading 6: Vitality and Aging

Difficulty Level: Medium

12. Premature deaths resulting from violence will comprise a smaller proportion of total premature deaths, according to Hayflick.

Ans: F

Answer Location: Reading 5: Why Do We Live as Long as We Do?

Difficulty Level: Medium

13. According to Mor, the compression of morbidity hypothesis is now generally accepted as valid.

Ans: T

Answer Location: Reading 7: The Compression of Morbidity Hypothesis

Difficulty Level: Medium

14. The concepts of morbidity and disability can be used interchangeably—they mean the same thing when considering the compression of morbidity hypothesis.

Ans: F

Answer Location: Reading 7: The Compression of Morbidity Hypothesis

Difficulty Level: Medium

15. “Disability free” or “active” life expectancy is the number of years an individual can expect to live beyond age 65 without significant functional impairment due to disability or chronic illness.

Ans: T

Answer Location: Reading 7: The Compression of Morbidity Hypothesis

Difficulty Level: Easy

16. A challenge in determining the need for care in the older population is that population surveys on health in later life measure health status in multiple ways.

Ans: T

Answer Location: Reading 8: Health Trends in the Elderly Population

Difficulty Level: Medium

17. Even if the compression of morbidity continues, there will still be an increase in health care resources needed because the size of the older population is increasing.

Ans: T

Answer Location: Reading 8: Health Trends in the Elderly Population

Difficulty Level: Medium

18. International research on health trends in later life provides consistent results across countries.

Ans: F

Answer Location: Reading 8: Health Trends in the Elderly Population

Difficulty Level: Medium

19. According to de Grey, even though it may be possible for people to live to be 1,000 years of age, none of the added life span will be lived in frailty, debility, or dependence.

Ans: T

Answer Location: Reading 9: We Will Be Able to Live to 1,000

Difficulty Level: Medium

20. de Grey argues that the first person to live to 1,000 years of age has not yet been born.

Ans: F

Answer Location: Reading 9: We Will Be Able to Live to 1,000

Difficulty Level:

21. The various therapies that will be able to repair all the types of molecular and cellular damage that occur over time will have to be implemented before that damage is evident.

Ans: F

Answer Location: Reading 9: We Will Be Able to Live to 1,000

Difficulty Level: Hard

22. de Grey considers biophysical aging to be a disease that should be cured.

Ans: T

Answer Location: Reading 9: We Will Be Able to Live to 1,000

Difficulty Level: Medium

23. Olshansky agrees with de Grey (“We will be able to live to 1,000”) that with sufficient resources devoted to research, we can find a cure for aging.

Ans: F

Answer Location: Reading 10: Don’t Fall for the Cult of Immortality

Difficulty Level: Medium

24. Olshansky finds that throughout much of human history, many individuals have believed that physical immortality was soon within reach.

Ans: T

Answer Location: Reading 10: Don’t Fall for the Cult of Immortality

Difficulty Level: Medium

25. Olshansky argues that research on aging should focus on improved physical health and mental functioning and not on the search for a cure to aging.

Ans: T

Answer Location: Reading 10: Don’t Fall for the Cult of Immortality

Difficulty Level: Easy

26. Olshansky concedes that the science of aging has significantly advanced in recent decades such that gerontology is close to discovering the key to physical immortality.

Ans: F

Answer Location: Reading 10: Don’t Fall for the Cult of Immortality

Difficulty Level: Medium

Essay

1. According to the various biological theories of aging, is the maximum human life span really finite and fixed? Explain.

Ans: Varies

Answer Location: Is Aging Inevitable?

Difficulty Level: Medium

2. In your opinion, how much emphasis should be placed on promoting health versus curing diseases in old age? Explain.

Ans: Varies

Answer Location: Focus on Practice: Health Promotion

Difficulty Level: Easy

3. What if medical technology succeeds in significantly prolonging the human life span? What are the implications for health care economics?

Ans: Varies

Answer Location: Compression or Prolongation of Morbidity

Difficulty Level: Medium

4. What hope do we have for compressing morbidity or extending longevity according to Hayflick? Would these discoveries necessarily have positive consequences? Explain.

Ans: Varies

Answer Location: Reading 5: Why Do We Live as Long as We Do?

Difficulty Level: Medium

5. Describe what is meant by the “rectangular curve.” How does the rectangular curve assist us in our understanding of human aging and future changes in life expectancy?

Ans: Varies

Answer Location: Reading 6: Vitality and Aging, The Rectangular Curve

Difficulty Level: Medium

6. Mor suggests that the compression of morbidity may turn out to be a cohort effect and not a lasting improvement in the functioning of older adults. What does Mor base his argument on? Do you agree or disagree with his thinking?

Ans: Varies

Answer Location: Reading 7: The Compression of Morbidity Hypothesis

Difficulty Level: Medium

7. Parker and Thorslund suggest that trends in compression of morbidity are more complex than initially thought—the general trend seems to be that older sectors of the population report more diseases and health problems, at the same time that their functional ability is maintained for longer periods. How do the authors explain this trend? Do you think this trend will continue into the 21st century?

Ans: Varies

Answer Location: Reading 8: Health Trends in the Elderly Population

Difficulty Level: Hard

8. Do you agree or disagree with de Grey that developing therapies that would dramatically increase life expectancy is tantamount to “playing God”?

Ans: Varies

Answer Location: Reading 9: We Will Be Able to Live to 1,000

Difficulty Level: Medium

9. Compare and contrast de Grey's “We Will Be Able to Live to 1,000” and Olshansky's views on the likelihood of preventing and curing aging. What evidence does Olshansky use to refute de Grey's argument?

Ans: Varies

Answer Location: Reading 10: Don't Fall for the Cult of Immortality

Difficulty Level: Medium

10. There is increasing evidence of social inequalities in longevity and the potential for experiencing a healthy old age. Discuss the factors that are important to consider in the compression-of-morbidity discussion.

Ans: Varies

Answer Location:

Difficulty Level: Hard