



**TIME:** 70 minutes

**EXAM CODE:** PV-000000

This test measures your ability to comprehend written materials.

**DIRECTIONS:**

Read the passage carefully and, for each question, choose the one best answer (A, B, C or D) based on what is stated in the passage or on what can be inferred from the passage. Then mark the letter on your answer sheet that matches the letter of the answer that you have selected. (5 points each correct answer)

## The Flaws and Human Harms of Animal Experimentation

By Aysha Akhtar

- 1 Every year, more than 115 million animals are used worldwide for experimentation or to supply the biomedical industry. These experiments, whether basic or applied, aim to expand medical knowledge and develop new treatments. Yet despite their prevalence, the pain and distress they cause, and the immense resources they consume, animal experiments have rarely been subjected to systematic evaluation regarding their actual contribution to human health.
- 2 Although modern medicine prides itself on being evidence based, animal research has not always been held to the same scientific standards it seeks to uphold. It is often accepted as the default or even the “gold standard” of preclinical testing, despite mounting evidence that its reliability is limited and its predictive power weak. Comparative studies between animal experiments and human clinical trials reveal that results coincide only about half the time—essentially no better than chance.
- 3 Three main reasons help explain why animal experimentation so often fails to translate into human benefit. The first involves the impact of the laboratory environment. Animals are kept in highly controlled, artificial settings that expose them to stress, confinement, and abnormal routines. Such factors can significantly alter physiological and behavioral responses, leading to distorted or non-replicable data. Even when laboratories follow identical protocols, findings often differ markedly across facilities, species, and even among strains of the same species, suggesting that standardization alone cannot ensure reliability.
- 4 The second limitation lies in the difficulty of reproducing human diseases in nonhuman organisms. Most human conditions are artificially induced in animals, yet these models rarely capture the full complexity of human biology. Attempts to make them more representative—by varying the animals’ age, sex, or preexisting conditions—have not solved the issue. Despite decades of effort, the failure rate of drugs that appeared promising in animal studies but later proved ineffective or unsafe in humans remains strikingly high. In areas such as cancer, Alzheimer’s, and cardiovascular diseases, thousands of compounds have shown success in animal trials only to fail at the clinical stage.
- 5 A third and more fundamental obstacle stems from biological divergence between species. Even when animals share genes with humans, those genes can function differently, influencing how organisms respond to drugs or disease. A treatment that regulates blood pressure or metabolism in humans may produce opposite effects in rodents. Genetically modified or “humanized” animals, designed to carry human genes, have not overcome this problem. Nor have experiments on nonhuman primates, whose physiological proximity to humans was once thought to guarantee reliability. In many cases, such studies have yielded misleading results in vaccine, hormone, and neurological research.
- 6 These scientific limitations also raise serious ethical questions. Faulty or misleading animal data can endanger humans by providing false reassurance about safety, allowing harmful substances to advance into clinical testing. Conversely, potentially valuable drugs may be discarded prematurely because they failed in animal experiments, even though they might have been safe and effective in humans. In both scenarios, human welfare and scientific progress are compromised, while vast financial and ethical costs accumulate. At the same time, alternative methods are rapidly advancing. Human-based technologies—such as organ-on-a-chip systems, 3D-printed human tissues, and sophisticated computer modeling—can replicate key aspects of human physiology with far greater accuracy. Because these approaches are grounded directly in human biology, they eliminate the uncertainty of cross-species

extrapolation and often yield results that are more predictive of clinical outcomes. Despite this promise, funding for such innovations remains limited compared with the vast investment that still supports animal research.

- 7 The growing realization that animal experiments are unreliable indicators of human health calls for a reassessment of both their scientific and moral justification. Animals clearly share the capacity to suffer, yet the supposed benefits of their use are increasingly doubtful. If animal testing continues to mislead researchers and divert resources from more valid, human-centered methods, its legitimacy becomes even harder to defend. In the long run, aligning biomedical research with both ethical integrity and scientific accuracy requires a decisive shift away from outdated reliance on animal models. Investing in advanced human-based systems offers not only a more compassionate approach but also a more reliable and forward-looking path for medical science.

Adapted from <https://pmc.ncbi.nlm.nih.gov/articles/PMC4594046/>

1. According to paragraph 1, animal experiments
  - A) have consistently extended human life expectancy.
  - B) are seldom assessed for their real medical impact.
  - C) are primarily conducted for cosmetic testing.
  - D) demand only limited financial resources.
2. The word *held*, is closest in meaning to
  - A) controlled
  - B) made
  - C) found
  - D) judged
3. The word *uphold*, is closest in meaning to
  - A) maintain
  - B) question
  - C) divide
  - D) dismiss
4. In paragraph 2, the author mentions the “*gold standard*” to
  - A) explain why humans should be tested first.
  - B) mock researchers who reject animal testing.
  - C) highlight that animal research is widely accepted.
  - D) suggest that medicine no longer values evidence.
5. From paragraphs 2 and 3, we can infer that strict laboratory control
  - A) guarantees reliable findings.
  - B) prevents variation across species.
  - C) can itself distort animal behavior.
  - D) improves the accuracy of results.
6. The phrase “*Animals are kept in highly controlled, artificial settings that expose them to stress*” could best be replaced with
  - A) Lab stress improves test accuracy.
  - B) Stress has no role in animal studies.
  - C) Animals live freely during experiments.
  - D) Stressful lab conditions affect animals’ responses.
7. According to paragraph 3, one reason animal experiments produce inconsistent results is that
  - A) researchers avoid using standard protocols for animals.
  - B) animals experience stress and unnatural conditions.
  - C) laboratories ignore ethical review procedures.
  - D) animals are rarely used in sufficient numbers.
8. According to paragraphs 3 and 4, one reason animal experiments produce inconsistent results is that
  - A) experimental findings vary across species and even among strains of the same species.
  - B) animals are often used in numbers that are insufficient to ensure consistent experimental outcomes.
  - C) laboratories frequently fail to follow standardized ethical review procedures across different studies.
  - D) researchers sometimes avoid applying consistent protocols across experiments conducted in different settings.
9. In paragraph 4, it can be inferred that drug development failures occur mainly because
  - A) animal testing is too costly.
  - B) researchers avoid clinical trials.
  - C) disease models are ethically disputed.
  - D) animal models simplify human biology.
10. What is the main purpose of paragraph 4?
  - A) To show why animal models of human disease are unreliable.
  - B) To argue that medical research should stop using animals.
  - C) To list the most common animal species used in testing.
  - D) To compare laboratory and clinical drug studies.

11. Why does the author mention diseases like cancer and Alzheimer's in paragraph 4?
- A) To highlight new medical discoveries.
  - B) To question the existence of such diseases.
  - C) To illustrate repeated failures in animal testing.
  - D) To promote further animal-based cancer studies.
12. What is the author's main organizational pattern in paragraphs 3 to 5?
- A) Listing benefits of biomedical experimentation.
  - B) Comparing traditional and modern medical ethics.
  - C) Identifying key reasons for the limits of animal testing.
  - D) Describing the historical development of laboratory science.
13. From the author's discussion of human-based methods in paragraph 6, it can be inferred that
- A) they are more expensive but less effective.
  - B) they are still in early stages but promising.
  - C) they have replaced animal models completely.
  - D) they cannot model human physiology accurately.
14. The phrase "*Eliminate the uncertainty of cross-species extrapolation*" means:
- A) remove the need to compare different species.
  - B) improve results by studying more species.
  - C) depend mainly on animal genetics.
  - D) reduce funding for human research.
15. In paragraph 7, the author contrasts animal suffering with unreliable results to
- A) deny any ethical relevance in testing.
  - B) emphasize animal rights above all else.
  - C) question both scientific and moral grounds.
  - D) prove that humans benefit more than animals.
16. Why does the author call animal models "*outdated*" in paragraph 7?
- A) To stress the need for innovation in research.
  - B) To praise the tradition of using animals.
  - C) To reject all forms of scientific testing.
  - D) To defend current funding structures.
17. In paragraph 6, human-based technologies can
- A) slow down medical progress.
  - B) eliminate all need for research funding.
  - C) make animals biologically closer to humans.
  - D) replicate key human processes more accurately.
18. What best summarizes the author's main argument?
- A) Animal testing is costly but still necessary for progress.
  - B) The failures of animal research demand a new approach.
  - C) Human-based methods cannot replace animal studies.
  - D) Medical research depends on reliable animal models.
19. How does the author structure the argument overall?
- A) By reviewing unrelated scientific theories.
  - B) By focusing mainly on animal welfare laws.
  - C) By summarizing research methods without evaluation.
  - D) By presenting evidence of failure, then proposing alternatives.
20. The tone of the passage is best described as
- A) emotional and sentimental.
  - B) analytical and persuasive.
  - C) aggressive and sarcastic.
  - D) detached and neutral.

END OF EXAM



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## **The Flaws and Human Harms of Animal Experimentation**

### **ANSWER KEY**

1. **B**
2. **D**
3. **A**
4. **C**
5. **C**
6. **D**
7. **B**
8. **A**
9. **D**
10. **A**
11. **C**
12. **C**
13. **B**
14. **A**
15. **C**
16. **A**
17. **D**
18. **B**
19. **D**
20. **B**