



Large Animals: Cancer Risk vs. Evolutionary Defenses

Description

ESL-NEWS.COM





Some researchers from University College London have discovered that bigger animals, like elephants and whales, have evolved genes that help them resist cancer better than smaller animals. This means that despite having more cells that could develop cancer, larger animals actually have a lower risk of the disease. This finding challenges a long-standing idea called Peto's paradox.

In their study of 263 species, the scientists found that for every 1% increase in body mass, there was only a small increase in cancer rate. This suggests that larger species have developed more ways to protect themselves against cancer over time. For example, elephants and whales have genetic adaptations that enhance DNA repair and prevent abnormal cell growth.

Understanding how these animals resist cancer could lead to new treatments for humans. By targeting specific biological pathways that protect against cancer in these animals, scientists hope to develop more effective therapies. These potential treatments could be highly promising because they are based on mechanisms that have evolved over millions of years.

Further research in this area could revolutionize cancer treatment and prevention, offering hope for the future.

Topics:

Vocabulary List:

1. **Species** /'spi:ʃi:z/ (noun): A group of living organisms consisting of similar individuals capable of exchanging genes or interbreeding.
2. **Evolution** /,i:və'lu:ʃən/ (noun): The gradual development of something especially from a simple to a more complex form.
3. **Adaptations** /,ædæp'teɪʃənz/ (noun): Changes or processes that allow an organism to better survive in its environment.
4. **Mechanisms** /'mek.ə.nɪ.zəmz/ (noun): Processes by which something occurs or is carried out.
5. **Therapies** /'θer.ə.piz/ (noun): Treatments intended to relieve or heal a disorder.
6. **Resistance** /rɪ'zɪs.təns/ (noun): The ability not to be affected by something such as a disease.

Comprehension Questions

Multiple Choice



-
1. According to the researchers from University College London, what characteristic do bigger animals like elephants and whales possess in terms of cancer resistance?
 - Option: They have fewer cells that could develop cancer
 - Option: They have lower overall body mass
 - Option: They have evolved genes that help resist cancer better than smaller animals
 - Option: They have a higher risk of cancer

 2. What concept is challenged by the finding that larger animals have a lower risk of cancer despite having more cells?
 - Option: Darwin's theory of evolution
 - Option: Peto's paradox
 - Option: The theory of relativity
 - Option: The law of gravity

 3. How many species were included in the study conducted by the scientists?
 - Option: 102 species
 - Option: 185 species
 - Option: 263 species
 - Option: 325 species

 4. What do elephants and whales have that enhance DNA repair and prevent abnormal cell growth according to the text?
 - Option: Genetic adaptations
 - Option: Extra body weight
 - Option: More body fat
 - Option: Higher metabolic rate

 5. What could potentially lead to new treatments for humans according to the text?
 - Option: Studying fish genetics
 - Option: Exploring outer space
 - Option: Understanding how animals resist cancer
 - Option: Developing new smartphones

 6. Why are the potential treatments based on mechanisms that have evolved over millions of years considered highly promising?
 - Option: Because they are based on guesswork
 - Option: Because they involve expensive technologies
 - Option: Because they are based on proven evolutionary adaptations
 - Option: Because they are purely theoretical



True-False

7. Bigger animals like elephants and whales have evolved genes that help them resist cancer better than smaller animals.
8. The scientists found that for every 1% increase in body mass, there was a significant increase in cancer rate.
9. The researchers believe that understanding how animals resist cancer could have no implications for humans.
10. Potential treatments based on mechanisms that have evolved over millions of years are not considered promising by scientists.
11. The study conducted by the scientists involved 102 species only.
12. Peto's paradox is a concept that remains unchallenged by the researchers.

Gap-Fill

15. By targeting specific biological pathways that protect against cancer in these animals, scientists hope to develop more effective _____.
16. Potential treatments for cancer that are based on mechanisms evolving over millions of years are highly _____.
17. Further research in this area could revolutionize cancer treatment and _____.
18. For every 1% increase in body mass, there was only a small increase in cancer rate across the 263 _____ included in the study.

Answer

Multiple Choice: 1. They have evolved genes that help resist cancer better than smaller animals 2. Peto's paradox 3. 263 species 4. Genetic adaptations 5. Understanding how animals resist cancer 6. Because they are based on proven evolutionary adaptations

True-False: 7. True



8. False 9. False 10. False 11. False 12. False

Gap-Fill: 15. treatments 16. promising 17. prevention 18. species

Vocabulary quizzes

Multiple Choice (Select the Correct answer for each question.)

1. What term refers to the vast expanses of outer space?

- Option: A) Geographical
- Option: B) Cosmic
- Option: C) Biological
- Option: D) Technological

2. Which term describes the process of creating offspring or making copies?

- Option: A) Geological
- Option: B) Encounter
- Option: C) Reproduce
- Option: D) Hydrogels

3. What term refers to a serious disagreement or argument?

- Option: A) Interference
- Option: B) Encounter
- Option: C) Conflict
- Option: D) Perception

4. Which term describes the process of gradual development or change?

- Option: A) Advancements
- Option: B) Resolution
- Option: C) Adaptations
- Option: D) Evolution

5. What term refers to the refusal to accept or comply with something?

- Option: A) Temporarily
- Option: B) Complexity
- Option: C) Resistance
- Option: D) Permanence

6. Which term refers to treatments for medical conditions?

- Option: A) Breakthrough
- Option: B) Sabotage
- Option: C) Therapies



Option: D) Directive

7. What term describes improvements or developments?

Option: A) Obscured

Option: B) Pattern

Option: C) Advancements

Option: D) Utilizes

8. Which term is related to the study of shapes and spaces?

Option: A) Encounter

Option: B) Complexity

Option: C) Geometry

Option: D) Hydrogels

9. What term means to bring about a complete change in a significant way?

Option: A) Meet

Option: B) Challenge

Option: C) Revolutionize

Option: D) Repeat

10. Which term means capable of working successfully or feasible?

Option: A) Geological

Option: B) Encounter

Option: C) Viable

Option: D) Perception

Gap-Fill (Fill in the blanks with the correct word from the vocabulary list.)

11. _____ features are related to processes occurring within the Earth.

12. Proper _____ is essential for the smooth functioning of any organization.

13. The repeated arrangement of elements forms a recognizable _____.

14. The manager issued a clear _____ to all employees regarding the new policy.

15. _____ are the working parts or steps that make something function.

16. The unique _____ of the dish came from the blend of spices used.

17. The _____ of the situation required a thorough analysis to understand.



18. During their _____ with the new species the researchers noted unique behaviors.
19. The new technology _____ the latest advancements in artificial intelligence.
20. One's _____ of a situation can greatly impact their response.

Matching Sentences (Match each definition to the correct word from the vocabulary list.)

21. The dense fog the view of the mountains making it difficult to see them clearly.
22. Her grandfather's passion for music greatly her own musical tastes.
23. are a type of materials with high water content often used in medical applications.
24. The five include sight hearing touch taste and smell.
25. The scientific team made a major in cancer research leading to new treatment possibilities.
26. There are millions of different on Earth each with its unique characteristics.
27. The bird's to cold environments include growing thicker feathers for insulation.
28. The spy attempted to the enemy's communication system to hinder their operations.
29. The company issued a new safety outlining emergency procedures for all employees.
30. The store closed for renovations but reopened with a new look.

Answer

Multiple Choice: 1. B) Cosmic 2. C) Reproduce 3. C) Conflict 4. D) Evolution 5. C) Resistance 6. C) Therapies 7. C) Advancements 8. C) Geometry 9. C) Revolutionize 10. C) Viable

Gap-Fill: 11. Geological 12. Administration 13. Pattern 14. Directive 15. Mechanisms 16. Flavor 17. Complexity 18. Encounter 19. Utilizes 20. Perception

Matching sentence: 1. Obscured 2. Influenced 3. Hydrogels 4. Senses 5. Breakthrough 6. Species 7. Adaptations 8. Sabotage 9. Directive 10. Temporarily

CATEGORY

1. Sci/Tech - LEVEL3

Date Created

2025/02/26



Author

aimeeyoung99

ESL-NEWS.COM