
Extended Underwater Time: Lizards Enhance Dive Durations with Air Jacket

Description

Some species of lizards have developed a fascinating adaptation to stay underwater for extended periods by expelling and then re-inhaling bubbles of air. This behavior, initially observed in 2015 during fieldwork in Costa Rica by Lindsey Swierk from Binghamton University, has now been scientifically validated through experiments.

Swierk's observation of *Anolis aquaticus* lizards diving into streams and remaining submerged for significant durations led to the discovery of their unique bubble-rebreathing technique. These lizards expel large bubbles from their nostrils underwater, which stay connected to their heads before being breathed in again.

Subsequent research by Swierk and her team revealed that at least 18 species of *Anolis* lizards employ this bubble-rebreathing strategy, enabling them to stay underwater for up to 18 minutes. Their water-repellent skin, covered by a thin layer of air while submerged, gives them a distinct silvery appearance and allows the bubbles they blow out to remain attached.

In a recent study, Swierk applied an emollient to temporarily alter the lizards' skin properties, resulting in smaller bubbles being exhaled. The experiment demonstrated that the ability to rebreathe larger bubbles significantly enhances their underwater endurance, likely due to increased oxygen extraction and potential gill-like functions of the bubbles.

This intriguing adaptation mirrors similar mechanisms observed in other underwater creatures like the star-nosed mole and water shrew, although their bubble-rebreathing is believed to serve olfactory rather than respiratory purposes.

Swierk's findings shed light on the remarkable strategies evolved by these lizards to thrive in their aquatic environments, showcasing the intricate balance between physiological adaptations and survival in the natural world.

Topics:

Vocabulary List:

1. **Adaptation** /əd.æp'teɪ.ʃən/ (noun): A change or adjustment to improve survival in a particular environment.
2. **Submerged** /səb'mədʒɪd/ (adjective): Completely covered or hidden under a surface often water.
3. **Rebreathing** /ri:'bri:.θɪŋ/ (verb): The act of inhaling previously exhaled air or gas.
4. **Emollient** /ɪ'mol.i.ənt/ (noun): A substance that softens or soothes the skin.

5. **Physiological** /,fɪz.i.ə'lɒdʒ.i.kəl/ (adjective): Pertaining to the functions and processes of living organisms.
6. **Olfactory** /ɒl'fæk.tər.i/ (adjective): Relating to the sense of smell.

Vocabulary quizzes

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

1. Which of the following words means drawn out in time or having a long duration?

- Option: Compelling
- Option: Incremental
- Option: Protracted
- Option: Orchestrating

2. What term refers to the study of people's efficiency in their working environment?

- Option: Capacitive
- Option: Ergonomics
- Option: Adaptation
- Option: Diversity

3. Which word means spreading throughout something?

- Option: Submerged
- Option: Rebreathing
- Option: Permeating
- Option: Emollient

4. Which term is related to or connected with the sense of smell?

- Option: Physiological
- Option: Olfactory
- Option: Compelling
- Option: Capacitive

5. What is the financial support provided for a project or activity called?

- Option: Challenges
- Option: Initiatives
- Option: Priorities
- Option: Funding

6. Which term describes causing a marked change in someone or something?

- Option: Robust
- Option: Transformative
- Option: Intricate



Option: Rebreathing

7. What are restrictions or limitations that affect a situation or action?

Option: Eschewed

Option: Constraints

Option: Diversity

Option: Challenges

8. Which term means relating to or denoting an increase or addition?

Option: Incremental

Option: Synthesize

Option: Adaptation

Option: Robust

9. What are difficulties or problems that arise during a task or activity?

Option: Challenges

Option: Funding

Option: Initiatives

Option: Priorities

10. Which term refers to things that are regarded as more important than others?

Option: Priorities

Option: Ergonomics

Option: Capacitive

Option: Orchestrating

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

11. The film had a _____ storyline that kept the audience engaged.

12. The company launched several new _____ to improve sustainability.

13. The team made _____ to their strategy in light of the new information.

14. Proper _____ can prevent musculoskeletal issues in the workplace.

15. The organization values _____ in its workforce.

16. The software has a _____ security system to protect user data.

17. She was responsible for _____ the entire event.



18. The artist _____ traditional painting techniques in favor of a more modern style.

19. Scientists aim to _____ data from various experiments to draw conclusions.

20. The sunken ship remains _____ beneath the ocean surface.

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

21. The touchscreen technology relies on the user's electrical properties to function properly.

22. The artist spent weeks creating the detailed and complex design.

23. Researchers combine the findings from multiple studies to create a comprehensive review.

24. The speaker delivered a speech that captivated the audience and left them wanting more.

25. The educational program had a profound impact on the students changing their perspectives.

26. The lotion contained soothing and moisturizing ingredients to soften the skin.

27. The study focused on the body's natural functions and processes under different conditions.

28. The project manager coordinated the efforts of various teams to ensure timely completion.

29. The aroma of freshly baked cookies spread throughout the house.

30. The company made small incremental changes to its products to improve customer satisfaction.

Answer

Multiple Choice: 1. Protracted 2. Ergonomics 3. Permeating 4. Olfactory 5. Funding 6. Transformative 7. Constraints 8. Incremental 9. Challenges 10. Priorities

Gap-Fill: 11. Compelling 12. Initiatives 13. Adaptation 14. Ergonomics 15. Diversity 16. Robust 17. Orchestrating 18. Eschewed 19. Synthesize 20. Submerged

Matching sentence: 1. Capacitive 2. Intricate 3. Synthesize 4. Compelling 5. Transformative 6. Emollient 7. Physiological 8. Orchestrating 9. Permeating 10. Incremental

CATEGORY

1. Sci/Tech - LEVEL6

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