Preserved pterosaur fossils uncover secrets of ancient flight

Description

Smaller pterosaurs may have flapped their wings while larger ones soared

Terryl Whitlatch

Contrary to prior beliefs, recent discoveries suggest that pterosaurs, ancient flying reptiles, may have had flight tactics similar to modern birds. Analysis of well-preserved fossils from Jordan reveals that larger pterosaurs utilized their wings to soar, while their smaller counterparts flapped to stay airborne.

These findings stem from the examination of pterosaur fossils that date back millions of years. Dr. Jeffrey Wilson Mantilla from the University of Michigan explains that the flight mechanics have left distinct marks on the bone structures of these creatures.

Pterosaurs inhabited the skies long before birds and bats, dominating various continents with their diverse sizes and shapes for approximately 150 million years. The comparison of two pterosaur species' remains unveiled unique bone structures, indicating different flight strategies.

Fossils of *Arambourgiania philadelphiae*, the larger pterosaur, displayed internal spiral ridges in their bones, akin to those of soaring birds like eagles. On the other hand, the bones of the smaller species, *Inabtanin alarabia*, showcased criss-crossed struts resembling those of flapping birds.

Further research aims to explore how over 100 other pterosaur species navigated the skies. Dr. Mantilla plans to analyze fossils from various regions worldwide to determine if the flight patterns observed are consistent amongst different pterosaurs.

Topics:

Vocabulary List:

1. **Pterosaur** /ˈtɛrəˌsɔr/ (noun): An extinct group of flying reptiles that lived during the time of the dinosaurs.
2. **Fossil** /ˈfɑsəl/ (noun): The preserved remains or traces of ancient organisms.
3. **Mechanics** /məˈkænɪks/ (noun): The branch of physics concerned with the motion of objects and the forces acting on them.
4. **Structures** /ˈstrʌk·tʃərz/ (noun): The arrangement or organization of parts to form an entity.
5. **Strategies** /ˈstrætədʒiz/ (noun): Plans of action designed to achieve a long-term or overall aim.
6. **Examination** /ɪgˌzæmɪˈneɪʃən/ (noun): A detailed inspection or analysis of something.

Comprehension Questions

Multiple Choice

1. What recent discoveries suggest about pterosaurs?

   Option: They had flight tactics similar to modern birds
   Option: They were unable to fly
   Option: They were more closely related to mammals
   Option: They primarily lived underwater

2. According to the article, how did larger pterosaurs utilize their wings?

   Option: To walk on land
   Option: To swim in water
   Option: To soar in the sky
   Option: To dig for food

3. What distinct marks on the bone structures of pterosaurs helped analyze their flight mechanics?

   Option: Color variations
   Option: Wing patterns
   Option: Internal spiral ridges
   Option: External bumps

4. For approximately how many years did pterosaurs dominate the skies?

   Option: 50 million years
   Option: 100 million years
   Option: 150 million years
   Option: 200 million years

5. Which bone structures in the fossils of smaller pterosaurs resembled those of flapping birds?

   Option: Internal spiral ridges
   Option: External wings
   Option: Criss-crossed struts
   Option: Smooth surfaces

6. What is the aim of further research mentioned in the article?

   Option: To discover new species of pterosaurs
   Option: To determine the diet of pterosaurs
   Option: To explore flight patterns of other animals
   Option: To analyze fossils to understand different pterosaur flight strategies

Answer

Multiple Choice: 1. They had flight tactics similar to modern birds 2. To soar in the sky 3. Internal spiral ridges 4. 150 million years 5. Criss-crossed struts 6. To analyze fossils to understand different pterosaur flight strategies

Vocabulary quizzes

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

1. Who are professionals who study human history and prehistory through the excavation of sites and the analysis of artifacts and other physical remains?

Option: Geologists
Option: Archaeologists
Option: Biologists
Option: Astronomers

2. What is the complete set of genes or genetic material present in a cell or organism?

Option: Hormone
Option: Protein
Option: Genome
Option: Carbohydrate

3. Which natural substance is known for its powerful pain-relieving properties?

Option: Morphine
Option: Insulin
Option: Vitamin C
Option: Caffeine

4. The process of combining different aspects into a unified whole is known as:

Option: Isolation
Option: Integration
Option: Segregation
Option: Differentiation

5. What type of prehistoric flying reptile is known for its membranous wings and long beak?

Option: Tyrannosaurus Rex
Option: Pterosaur
Option: Stegosaurus
Option: Trilobite

6. What is the act of maintaining or protecting something from damage decay or loss?

Option: Destruction
Option: Preservation
Option: Neglect
Option: Disposal

7. The term "alleviate" means to:

Option: Intensify
Option: Worsen
Option: Increase
Option: Relieve

8. What is an abnormal mass of tissue that forms when cells divide uncontrollably?

Option: Virus
Option: Tumour
Option: Bacteria
Option: Parasite

9. Disruptions refer to:

Option: Harmony
Option: Chaos
Option: Balance
Option: Stability

10. What scientific process involves carefully removing soil to uncover archaeological remains?

Option: Reconstruction
Option: Excavation
Option: Destruction
Option: Restoration

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

11. _____ lifestyles involve minimal physical activity and a lot of sitting.

12. DNA _____ helps in understanding the order of nucleotides in a genetic code.

13. Some individuals benefit from talk _____ to improve mental health.

14. The _____ system is responsible for transporting blood throughout the body.

15. Scientists are _____ their findings with additional research data.

16. Conditions affecting the brain are often termed _____ disorders.

17. Efforts towards _____ aim to revive extinct species using genetic techniques.

18. Characteristics like eye color and height are examples of inherited _____.

19. The neurotransmitter _____ plays a key role in regulating mood and emotions.

20. Persistent feelings of worry and fear often characterize a state of _____.

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

21. Historical items such as pottery tools and jewelry found at archaeological sites are known as artefacts.
22. The process of a caterpillar turning into a butterfly is a beautiful transformation in nature.
23. Understanding the human genome has opened new possibilities in the field of genetics.
24. The scientist double-checked the results to ensure the accuracy of the experiment.
25. Having a clear plan and defined strategies is key to success in any endeavor.
26. The artist's painting featured an intricate design that amazed viewers with its complexity.
27. Understanding the mechanics of how engines work is crucial for a mechanical engineer.
28. Architects study different types of structures to design safe and functional buildings.
29. The doctor performed a thorough examination to determine the cause of the patient's symptoms.
30. Massages can help alleviate muscle tension and promote relaxation.

Answer

Multiple Choice: 1. Archaeologists 2. Genome 3. Morphine 4. Integration 5. Pterosaur 6. Preservation 7. Relieve 8. Tumour 9. Chaos 10. Excavation
Gap-Fill: 11. Sedentary 12. Sequencing 13. Therapy 14. Vascular 15. Substantiating 16. Neurological 17. De-extinction 18. Traits 19. Serotonin 20. Anxiety
Matching sentence: 1. Artefacts 2. Transformation 3. Genome 4. Accuracy 5. Strategies 6. Intricate 7. Mechanics 8. Structures 9. Examination 10. Alleviate

CATEGORY

1. Sci/Tech - LEVEL4

Date Created
2024/09/08
Author
aimeeyoung99