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Pterosaurs were an ancient group of winged reptiles that lived alongside the dinosaurs. Many pterosaurs were very large, some as large as a giraffe and with a wingspan of over 12 meters. Paleontologists have long wondered whether large pterosaurs were capable of powered flight (flying by flapping their wings) or whether they were able only to glide. Several arguments have been made against powered flight. Doubters point out that since modern reptiles are cold-blooded, ancient reptiles such as pterosaurs were probably cold-blooded as well. Cold-blooded animals typically have a slow metabolism and are unable to produce a lot of energy. Powered flight is an activity requiring a lot of energy, which is why all modern vertebrates that fly are warm-blooded, not cold-blooded. It seemed unlikely that pterosaurs would have been able to generate the energy needed to fly. Second, there is a limit to the weight of animals that can be kept airborne by powered flight. Pterosaurs that were as large as a giraffe were probably so heavy that they would not have been able to flap their wings fast enough to stay aloft for any length of time. Third, all animals with powered flight are able to take off from the ground. For example, birds take off by jumping from their legs or running to gain speed and then jumping. But these methods would not have worked for large pterosaurs. Large pterosaurs would have needed big, powerful muscles in their back legs to launch themselves into the air, and we know from fossilized bones that their back leg muscles were too small and weak to allow the pterosaurs to run fast enough or jump high enough to launch themselves into the air.

Now listen to part of a lecture on the topic you just read about. Recent research has revealed that pterosaurs may, in fact, have been capable of powered flight. First, the issue of pterosaur metabolism. Some recently discovered pterosaur fossils indicate that pterosaurs had a dense, hairlike covering, somewhat similar to fur. Hair or fur covering is typical of warm-blooded animals because those animals need to maintain a high body temperature when external conditions are cold. So, if the metabolism of pterosaurs was more like that of warm-blooded animals, and so faster than the reading suggests, then it would have supplied them with the energy needed for powered flight. Second, the idea that large pterosaurs couldn’ t use powered flight because they were too heavy. We now know that pterosaurs had anatomical features that made them unusually light for their size. For example, the bones of pterosaurs were hollow instead of solid. Hollow, lightweight bones would have kept the pterosaurs’ weight low despite their large body frames. The pterosaurs’ weight was probably low enough to allow them to keep themselves airborne by flapping their wings.

Third, takeoff would indeed be a problem for pterosaurs—if they took off the way birds do. But there are important differences between birds and pterosaurs. Birds only use their hind limbs—their legs—for walking on the ground, so they only have two limbs to push off from when they launch. But pterosaurs walked on all four limbs while on the ground. There are modern flying animals that walk on all four limbs—bats, for example—and they use all four limbs to push off the ground, not just the back ones. Studies indicate that even the largest pterosaurs would’ ve had no trouble using all four limbs to run fast enough or jump high enough to launch themselves into the air.

Summarize the points made in the lecture, being sure to explain how they oppose the specific points made in the reading passage.

Do you agree or disagree with the following statement? It is important to know about events happening around the world, even if it is unlikely that they will affect your daily life. Use specific reasons and examples to support your answer.