

Title: _____

Introduction

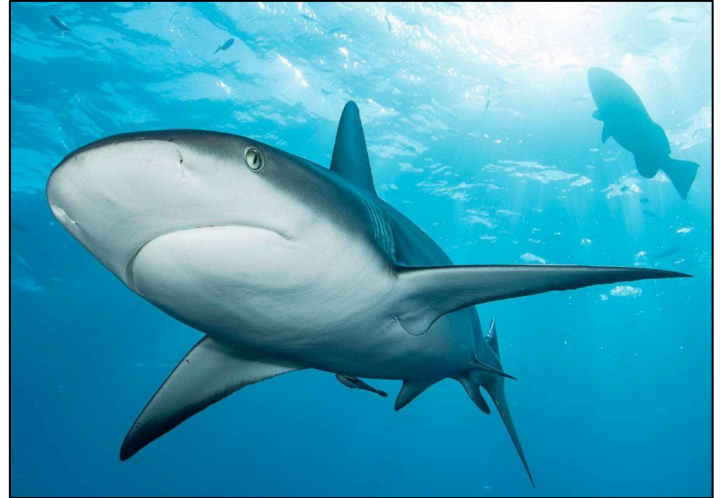
Humans spend one-third of their life asleep, usually at night. However, sharks sleep during the day and are awake at night. We know that most animals sleep, but it is difficult to know what happens while animals sleep. Learning more about how animals sleep can help us understand more about why sleep evolved.

Question

Why do sharks sleep?

Hypothesis

We think sharks sleep during the day to save energy because they need to be active at night.



Methods

We observed six sharks in a tank for three days (12 hours day, 12 hours night). We wrote down if the sharks' eyes were open or closed, how much they moved, and their metabolic rate.

Results

Sharks are more active at night when they are awake. However, we found that sharks do not close their eyes when they sleep. Also, because sharks need to move in order to breathe, they keep moving while they sleep. But, sharks actually move less when they are asleep than when they are awake. Because of this, their metabolic rate is lower (Figure 1). This probably helps sharks to save energy for hunting at night.

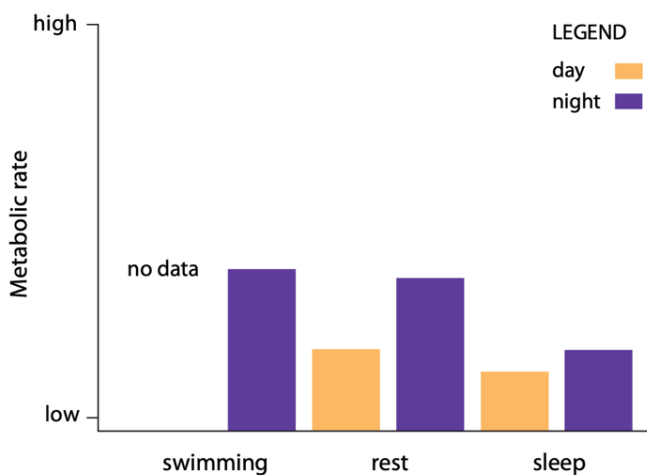


Figure 1: The metabolic rate of sharks when they are awake (night) and when they are asleep (day).

Conclusion

We found that sharks sleep during the day because they have a lower metabolic rate when they sleep. Therefore, sleeping helps them to save energy so they can hunt at night. So, sleep may have evolved because it helps sharks to be better predators.

References

1. Why do Sharks Sleep? Biomedical Science Journal for Kids. 2022.
2. Sharks Apparently Do Sleep, Even With Their Eyes Wide Open. 2022.
<https://www.smithsonianmag.com/smart-news/sharks-apparently-do-sleep-even-their-eyes-wide-open-180979707/>

Helpful Vocabulary!

shark - サメ / **evolve** - 進化する / **observe** - 観察する / **tank** - 水槽 / **metabolic rate** - 代謝率 / **breathe** - 吸う / **hunt** - 狩りをする / **predator** - 捕食動物