

Ecological Theories of Sleep



This activity will help you to:

- Understand and recall the ecological theory of sleep
- Analyse information and relate it to psychological theories
- Use information from psychological research to evaluate theories

The Ecological Approach

Ecological theories of sleep agree with restoration theories in that they suggest that since sleep is common to so many animals it must serve a useful purpose. However, the ecological view looks at sleep from an evolutionary perspective. In other words, sleep is analysed in terms of the survival advantage it confers on animals that do it. There are several strands to the ecological approach.

Webb (1982) suggests that the main function of sleep is to conserve energy. Mammals use a great deal of energy just keeping their body temperature constant, and more is consumed looking for food, avoiding predators and so on. Webb's **hibernation theory** suggests that sleep forces animals to conserve energy by forcing their activity level to drop, and reducing their body temperature.

Meddis (1975) emphasises the ecological niche an animal fits into. This relates to the ways in which an animal's environment exerts evolutionary pressure to evolve in certain ways. It follows from this that an animal's sleep patterns will depend on factors like how much time each day it must spend looking for food, whether it is a predator or prey species and how its physical environment affects its sleep opportunities.

The ecological view of sleep predicts that:

- Small animals, which lose heat faster than large ones, will sleep more.
- Dietary factors will be related to sleep habits. Animals with an energy-rich diet will be able to sleep more because they need to spend less time looking for food.
- Predators will sleep more than prey species.
- Animals will show adaptation to specific environmental challenges they face.

What you need to do...

On the other side of this sheet is some information about a variety of different animals. Use the information provided to try to predict each animal's sleep habits. Which will sleep more and which less? We will then see if the predictions you have made are correct, and use this information to discuss the validity of the ecological approach.



African Elephant. A herbivorous mammal, the largest one that lives on land. Apart from humans, it has few predators, although big cats occasionally attack the very young and old or the sick.

Suggested Sleep

Actual Sleep



Little brown bat. One of the smaller bat species. It eats insects and has a large appetite (during one feeding flight it may consume 20% of its weight). They are preyed on by snakes and birds of prey, and are most vulnerable when roosting

Suggested Sleep

Actual Sleep



Lion. A large carnivore. It preys on most animals in its environment including buffalo, antelope and zebra. Apart from humans, the only threats it faces come from other lions.

Suggested Sleep

Actual Sleep



Buffalo. A large herbivore that lives in herds. It is preyed on by big cats including lions.

Suggested Sleep

Actual Sleep



Rabbit. A small herbivore that lives underground when not feeding. It is preyed on by a number of large animals including foxes and birds of prey.

Suggested Sleep

Actual Sleep



Dolphin. A number of species of aquatic mammal. They eat fish. They live underwater, but breathe air. Apart from humans, their main predators are sharks, which are most likely to attack the calves.

Suggested Sleep

Actual Sleep