

Adaptation Encyclopedia Article

Adaptation

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Adaptation

Behavior that enables an organism to function effectively in its environment.

Adaptation describes the process whereby an organism adapts to, or learns to survive in, its environment. The process is crucial to natural selection, enabling those organisms or species best suited to a particular environment to survive. Ethologists, scientists who study the behavior of animals in their natural habitats from an evolutionary perspective, document adaptive behavior.

Adaptation occurs in individual organisms as well as in species. Sensory adaptation consists of physical changes in sense organs in response to the presence or cessation of stimuli. Examples include the adjustment by pupils of the eyes when moving from bright light into a darkened room, or the way in which the sense of touch becomes accustomed to the sensation of cold after an initial plunge into water. Once a steady level of stimulation (such as light, sound, or odor) is established, the organism's sensors adjust, and no longer respond actively to it. However, any abrupt changes in stimulus require further adaptation.

The adrenalin-produced reactions to environmental dangers, including rapid breathing, increased heart rate, and sweating, are collectively referred to as the "fight or flight" response. These reactions are considered a form of adaptation. The ability to learn new responses, as in **classical** and **operant conditioning**, is another form of adaptation.

The process of adaptation begins in infancy. Infants become more efficient as they nurse and with each year acquire behavior that will enable them to succeed. In the preschool years, the child learns to function or adapt to his environment by emulating and imitating the behavior of others. These adaptive behavior skills are vital to a child's successful development.

For Further Study

Books

Haggerty, Robert J., et al. *Stress, Risk, and Resilience in Children and Adolescents: Processes, Mechanisms, and Interventions*. New York: Cambridge University, 1994.

Harrison, G. A. *Human Adaptation*. New York: Oxford University Press, 1993.

Lorenz, Konrad. *The Foundations of Ethology*. New York: pringer-Verlag, 1981.

Nesse, Randolph M., and George C. Williams. *Why We Get Sick: The New Science of Darwinian Medicine*. 1st ed. New York: Times Books, 1994.