

Taste Aversion: Definition, Conditioning & Learning

Have you ever avoided a favorite food after eating it made you nauseous? If so, you've experienced taste aversion. Read this lesson to learn how taste aversion may have helped save the lives of your ancestors.

Definition

Imagine you are relaxing after just finishing your favorite meal - your uncle's homemade macaroni and cheese - when suddenly you are overwhelmed by a horrible stomachache. You spend hours or even days battling nausea. Later, when you have fully recovered from your illness, you associate the taste or smell of that favorite meal with the miserable sickness you recently experienced. What was once delicious now seems revolting. You never want to eat your uncle's macaroni and cheese again.

Taste aversion is a learned response to eating spoiled or toxic food. When taste aversion takes place, you avoid eating the foods that made you ill. Taste aversion can be so powerful that sometimes you also avoid the foods that you associate with an illness, even if the food did not cause the illness.

Psychologists Study Taste Aversion

Psychologists John Garcia and Robert Koelling studied taste aversion in 1966 while researching the effects of radiation on laboratory rats. Garcia and Koelling noticed the laboratory rats started to avoid drinking the water from plastic bottles in the radiation chambers. Realizing the rats might be associating the plastic-tasting water with the sickness experienced from radiation, the researchers designed an experiment to test their hypothesis.

Garcia and Koelling gave three groups of rats high, medium, or low doses of radiation after the rats drank sweetened water. The higher the dose of radiation, the sicker the rats became. As you might predict, the rats that received the highest doses of radiation strongly associated the sweetened water with the illness following the radiation. The majority of those rats later refused to drink sweetened water.

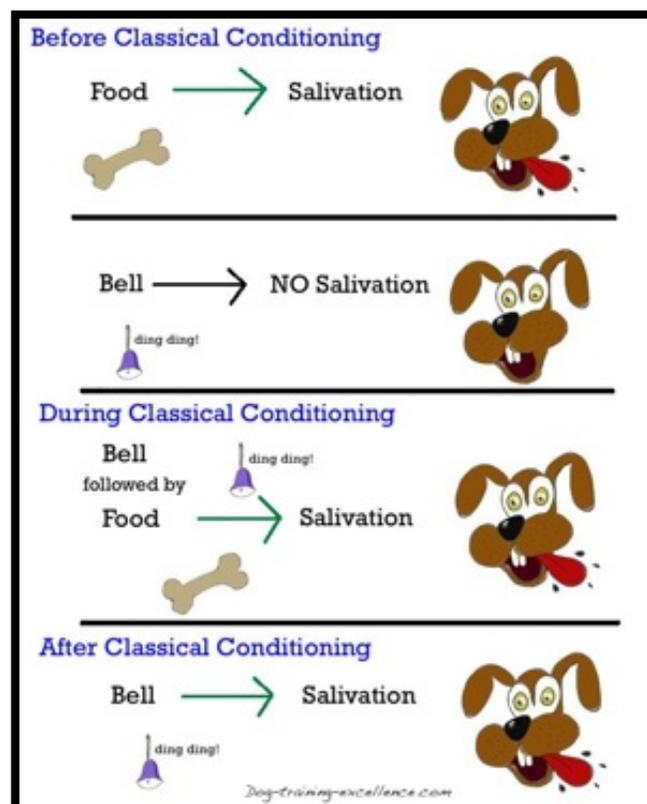
Conditioning And Learning

Ivan Pavlov's (1849-1936) research with dogs is a famous example of classical conditioning. Pavlov trained dogs to salivate at the sound of a tone by ringing a tuning fork every time he gave the dogs food. Soon, the dogs learned that the sound of the tone signaled their meal, and the sound alone caused the dogs to salivate.

Before being conditioned, or trained, the tone was a neutral stimulus (NS), causing no response from the dogs. The dog food was an unconditioned stimulus (US), a stimulus that automatically triggers a response - in this case, the automatic and unlearned reaction, or unconditioned response (UR), of salivation.

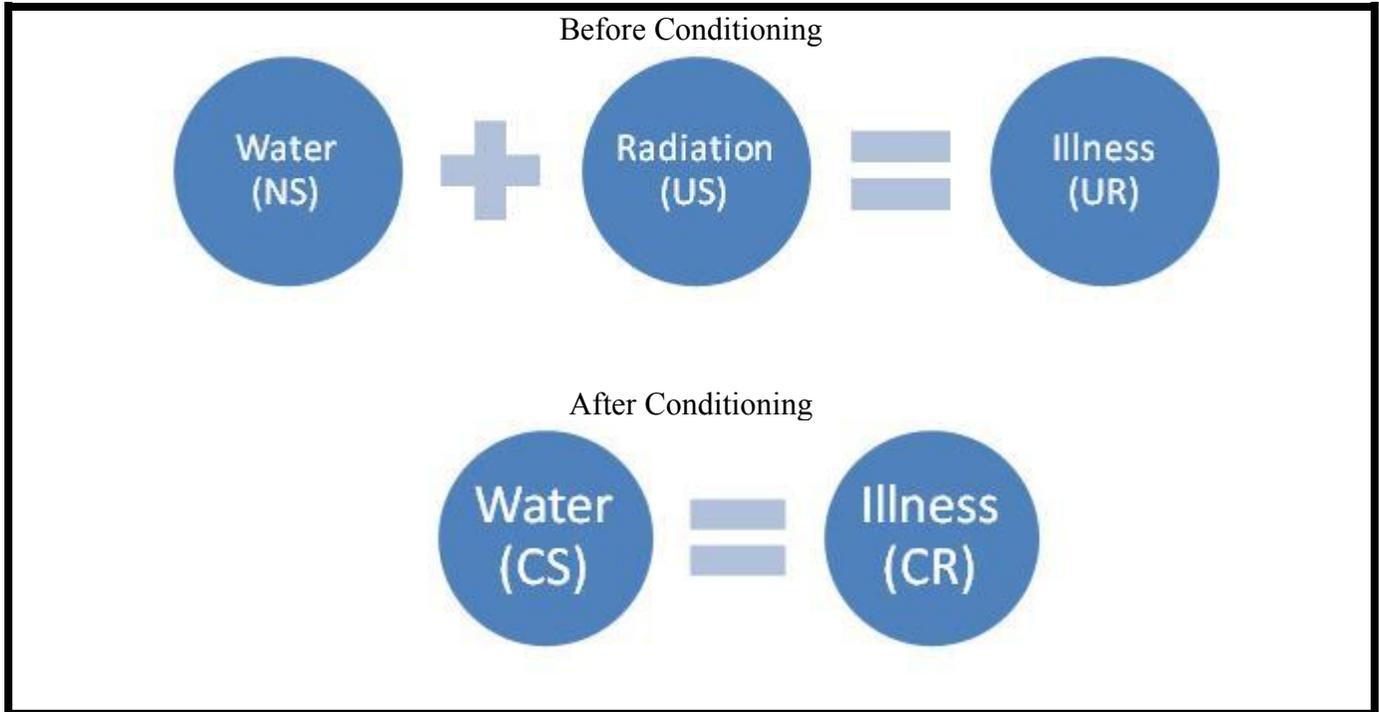
Once conditioning took place, the neutral stimulus of a tone transformed into a conditioned stimulus (CS), demonstrating that an association had been made. Now, the tone has meaning for the dogs, a signal that they are about to receive food, and the salivation can be labeled as a learned reaction, or conditioned response (CR).

The taste aversion experiment with rats is another example of classical conditioning. Before experiencing radiation, sweetened water was a neutral stimulus for rats,



causing no response. The radiation created an automatic response of illness, so the radiation was the unconditioned stimulus in the experiment, and the illness was the unconditioned response.

Once the rats began to be ill from the radiation that was paired with the sweetened water, they were conditioned. The sweetened water became the conditioned stimulus, and the illness became the conditioned response. The rats avoided the sweetened water, just like you might avoid your uncle's macaroni and cheese after it made you ill.



The Importance Of Taste Aversion

Taste aversion demonstrates that classical conditioning has an important adaptive purpose - one that aids in our survival. If our caveman ancestors ate tainted or poisoned food, it could kill them; however, through the process of conditioning, our ancestors learned quickly to avoid potentially deadly foods.

Today, many cancer patients are warned not to eat their favorite foods while undergoing radiation or chemotherapy. While sick, patients may start to rely on comfort foods to help them feel better, only to find that they can't stomach those foods later as a result of taste aversion.

In another example of Garcia and Koelling's research with taste aversion, wolves were exposed to poisoned sheep carcasses and became ill. Once the association was made between sheep meat and illness, the wolves refused to eat sheep carcasses. Even more surprising, the wolves seemed to become fearful of live sheep! This application of taste aversion could help modern farmers protect their livestock without killing native animal populations. It could also explain your newly learned fear for your uncle at the next family dinner.

Check Your Understanding

1. In Garcia's and Koelling's research with rats and radiation...
 - A) the radiation was the unconditioned stimulus and the conditioned stimulus.
 - B) the unsweetened water was initially the unconditioned stimulus that became the conditioned stimulus.
 - C) the illness was the neutral stimulus.
 - D) the unsweetened water was initially the neutral stimulus that became the conditioned stimulus.
2. A modern application of taste aversion might best apply to
 - A) farmers protecting their livestock.
 - B) dogs learning to salivate.
 - C) children improving behavior as a result of rewards.
 - D) parents becoming good role models for their children.
3. Which of the following is the best definition of taste aversion?
 - A) A reason why most infants do not like the taste of baby food.
 - B) A type of learning that causes you to avoid foods you associate with illness.
 - C) A neutral stimulus that causes dogs to salivate.
 - D) A natural response when your favorite food is taken away from you.
4. Taste aversion is an example of
 - A) operant conditioning.
 - B) observational learning.
 - C) cognitive learning.
 - D) classical conditioning.
5. Prior to conditioning, an unconditioned stimulus...
 - A) automatically triggers a natural response.
 - B) is a learned behavior.
 - C) transforms into a conditioned response.
 - D) follows an unconditioned response.

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