



SCIENCE & TECHNOLOGY

Study: Empathy May Have Ancient Roots

April 09, 2023

A new study suggests that our ability to share other's feelings, also called empathy, may have very ancient beginnings.

The study, published recently in *Science*, says our ability to share experiences might have existed in animals that lived millions of years ago. It would be before fish and **mammals** took different **evolutionary** paths.

Scientists generally resist assigning humanlike feelings to animals. But it is generally accepted that many animals have emotions, including fish.

The new study shows that fish can sense fear in other fish, and then become afraid themselves. This ability, the study says, is controlled by oxytocin, the same brain chemical that plays a part in human's ability to experience empathy.

The researchers investigated by deleting genes linked to the production and **absorption** of oxytocin in the brains of zebrafish. The small tropical fish is often used in research.

The fish became antisocial after the treatment. They failed to sense or react when other fish showed worry.

After some of the changed zebrafish received oxytocin injections, their ability to sense and react to others' feelings returned. Scientists call the brain process "emotional contagion."

Ibukun Akinrinade of the University of Calgary was a co-writer of the study. Akinrinade said about the fish, "They **respond** to other individuals being frightened."

In that way, "they behave just like us," she said.

Past research has shown that oxytocin plays a similar part in **transmitting** fear in mice.

The new research shows the “ancestral role” of oxytocin in transmitting emotion, said study co-writer Rui Oliveira of Portugal’s Gulbenkian Institute of Science.

This brain processing “may have already been in place around 450 million years ago, when you and me and these little fish last had a common ancestor,” explained Hans Hofmann of the University of Texas at Austin. Hofman was not involved in the research.

Oxytocin is sometimes thought of as a “love” hormone, but Hofmann said it is actually more like “a **thermostat** that determines what is socially” important in a situation – activating parts of the brain “that may make you run from danger” or take part in mating or reproduction.

Such a thermostat could be important for the survival of many animals, especially those who live in groups, said Carl Safina of Stony Brook University. Safina was not involved in the study.

“The most basic form of empathy,” he said, “is contagious fear – that’s a very valuable thing to have to stay alive....”

I’m John Russell.

Christina Larson reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

Words in This Story

mammal -- *n.* a type of animal that feeds milk to its young and that usually has hair or fur covering most of its skin

evolutionary -- *adj.* describes the process by which changes in plants and animals happen over time

absorb – *v.* to take in (something, such as a liquid) in a natural or gradual way

respond -- *v.* to do something as a reaction to something that has happened or been done

transmit -- *v.* to give or pass (information, values, etc.) from one person to another

thermostat - *n.* a device that automatically adjusts the temperature in a room to a desired level
