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Roundworms could one day help researchers develop a cure for old age
Wikipedia

Worms Hold the Key to Slowing the Aging Process

Food amounts control the worm's life cycle

Roundworms offered scientists a surprise, when they decided to live longer after they had been subjected to an anticonvulsant ethosuximide, which is a drug used to treat people suffering from seizure disorders. Scientists behind the experiment subjected the creatures to many chemicals, in an attempt to expand on previous results, which showed that anticonvulsants made them live longer. Finally, they were able to discover exactly how the drug worked on the worms.

 Apparently, certain quantities of the substance inhibit the roundworm's smell neurons, which act sort of like a human nose. Their main function is to detect food in the environment and to adapt their metabolism accordingly. Researchers believe that plenty of food around causes the worm to adapt its metabolic rates for quick nutrient intake and processing. Large amounts of energy means it grows faster, but also that it dies younger, in two to three weeks.

Worms that were not subjected to the chemical also lived longer when exposed to limited amounts of food, which seems to indicate that scarceness of food has a direct effect on their metabolisms, in that it reduces them to basic sustenance. As a direct effect, cellular degeneration, which comes with age, is reduced and the lifespan is extended. What scientists still had to discover was how less food triggers such a direct response in the worms' bodies.

 According to the paper they published today (October 24th), in the Public Library of Science Genetics journal, roundworms that were given anticonvulsants lived 29 percent longer than their regular counterparts. The stake that researchers are now following is how to extend these effects on humans as well, because their study seems to indicate that loss of taste, also present in people being treated with the chemical, may have a yet unidentified influence on our metabolic systems as well.

"Emerging evidence suggests that core metabolic pathways that modulate lifespan in worms also modulate lifespan in vertebrates such as mice and perhaps humans. Sensory pathways might also be fairly universal. In an ancient common ancestor, these pathways might have caused metabolic adjustments that affect lifespan. That could be reflected in our own biology," explained Kerry Kornfeld, M.D., Ph.D., leader of the research team working from Washington University School of Medicine in St. Louis.