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*Planarian Stem Cell: Memory Copying*

Planarian are flatworms able to regenerate themselves through the differentiation of stem cells, every multi cellular organism is able to do a similar type of renewal, but the planarian has been recorded to be able to renew itself completely with just a small fragment of itself. My main purpose for conducting this experiment is to test the stem cell ability to renew itself. If humans were able to gain a better understanding of the stem cells, they might be able to use stem cells for curing serious diseases. I tested the ability of regeneration, and tried to see if a simple reaction like a stimulus could be able to be renewed through stem cell renewing. If a regenerated planarian is able to renew its stimuli, the process could be taken to more complex thinking, from stimulus renewal to complete memory renewal. The first step would be to train the planarian to a stimulus, dissect it, allowing it to regenerate, and then test to see if both regenerated halves of the planarian are also trained to that stimulus. Through my experiment I found that overall, the flashing sequence that I used as my stimuli had been trained on the planarian that I regenerated even though I had not trained them to it. The regenerated planarian average for food finding was 16 minutes, and the non-regenerated flash average was 14-16.6 minutes while the non-flash average is 26.4-42.6 minutes. These numbers show that my hypothesis of stimuli being passed through regeneration was supported by my data.