



## Programmed Senescence in Living Organisms

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### ABOUT THE STUDY

Ageing which happens over time in humans is often extended. In Hydra and planarian worms it's indeed possible for a creature to be biologically immortal. However, it's not known if it will be possible for humans in the near-future. Reverse ageing technology remains a way off although clinical trials involving regenerative stem cell therapy for diseases such as heart failure are underway. But even then there are concerns that reversing ageing in cells could lead to the uncontrollable reproduction of cells leading to cancer.

However, the great news is that there are certain aspects of our own lives that we can take control of and that can help to increase our lifespan. Leading a healthy lifestyle incorporating exercise, a healthy diet, and good sleep can all go a long way to increase our productivity and health well into old age.

Programmed senescence in living organisms is purposely caused by evolved biological mechanisms to get an evolutionary advantage. Senescence may be a process by which a cell ages and permanently stops dividing but does not die. Over time, large numbers of old (or senescent) cells can build up in tissues throughout the body. Senescence consists of those manifestations of the ageing process. Programmed longevity theory is the idea that ageing is caused by certain genes switching on and off over time.

Fasting indeed has been shown to exert a series of beneficial effects on health span by minimizing the danger of developing age-related diseases like neuro degeneration, cancer or cardiovascular diseases in animal models and possibly humans. Fasting boosts the body's metabolism which makes it easier for the body to break down food and burn calories which in turn leads to weight loss and a younger appearance. It has been found

that fasting did indeed increase lifespan and it also improved offspring performance in terms of reproduction. However, fasting reduced offspring performance when the offspring had access to unlimited food. This method might be doable for some fasting for 3-5 days once or some times a year. Consume about 50% of normal calorie consumption for those few days (short term) and then return to normal caloric intake. A delicate balance between ageing and the body's healing mechanism as well as environmental variables and genetic variations determines how quickly people age. Up to 25% of the lifespan may be attributed to genes but there are numerous more elements that affect how long people live.

An experimental vaccine successfully eliminated ageing cells from the bodies of mice helping to prolong the rodents' lives and reverse some signs of age-related disease. The researchers say the experiment may be a step on the road to a similar vaccine for humans. Senescent cells that have stopped growing as a result of damage or stress yet continue to exist even when they've died are the target of the new vaccination.

### CONCLUSION

An active social life and eat with loved ones; ideally enjoy your meals in the company of family and friends. You're more in tune with other people's emotions in your 40s than at any other time in your life. That insight into how others think and feel can make living together with your loved ones easier will help with a better lifestyle and stress control. Despite ongoing clinical trials using regenerative stem cell therapy for conditions like heart failure, reverse ageing technology is still a ways off. Even so, there are worries that reversing cellular ageing can cause unchecked cell division, which could result in cancer.

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