Starfish that clone themselves live longer

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Coscinasterias tenuispina starfish. Credit: University of Gothenburg

Starfish that reproduce through cloning avoid ageing to a greater extent than those that propagate through sexual reproduction. This is shown by a new research study in which researchers from the University of Gothenburg participated. The study has recently been published in the highly respected journal *Heredity*.

In the study, researchers investigated the telomere lengths and population

genetics of a starfish, *Coscinasterias tenuispina*. The telomeres are located at the ends of the chromosomes, and affect the lifespan and health of an individual.

The studied starfish exhibited both asexual and sexual reproduction. Asexual reproduction, or cloning, involves the starfish dividing itself into two or more parts, after which the new parts regenerate. The researchers wanted to find out whether the populations that clone themselves the most have better health and signs of delayed ageing in relation to the populations that carry out more sexual reproduction. Both Mediterranean and Atlantic populations were studied.

"Our results from the genetic markers show that the starfish are more inclined to clone themselves in the Mediterranean," says Helen Nilsson Sköld from the University of Gothenburg's Sven Lovén Centre for Marine Sciences in Kristineberg. "In actual fact, there only appears to be a single clone off the Spanish Costa Brava. In the Atlantic, however, sexual reproduction is more common."

Better health and a longer lifespan without sexual reproduction

There turned out to be a clear positive link between long telomeres and the level of clonality.

"We also noted that the telomeres were longer in the newly formed tissue than in the 'old' tissue in the same starfish," adds Helen, who - together with Bethanie Carney Almrort - was one of the two researchers in the group from the University of Gothenburg.

"According to the researchers, this rejuvenation of the telomeres in connection with the formation of new tissue during cloning is probably

one of possibly several explanations behind the particularly good health and long telomeres of clones."

The principle behind the study, that clones avoid ageing by regulating telomeres, has also been previously studied by other researchers in flatworms.

"The strengths of our study are that we have confirmed these results in a completely different animal group, and that our data comes from wild populations," she concludes.

More information: The study was published in the May issue of *Heredity*: www.nature.com/hdy/journal/vao … t/pdf/hdy201543a.pdf

Provided by University of Gothenburg