Abstract

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Experimental increase in telomere length leads to faster feather regeneration.

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Abstract

Telomeres - the protective ends of linear chromosomes - reveal themselves not only as a good proxy in terms of longevity, but more recently also as a marker of healthy ageing in laboratory rodents. Telomere erosion is prevented by the activation of telomerase, an enzyme suspected to be also vital for tissue regeneration and which experimental activation improves health state in mice. One emerging hypothesis is that telomerase activity accounts for the frequently reported positive links between telomere lengths and individual quality in a wide range of organisms. Still, we lack an experimental approach testing the exact impact of inter-individual differences in telomere length on individual trait variability. In a first step study, we tested the impact of the **TA-65**, a plant-derived product stimulating the expression and the activity of telomerase, on telomere lengths and flight feather renewal capacity of captive zebra finches (Taenopygia guttata). Telomere length was longer in **TA-65** treated finches while their feather grew faster than in controls. Our data support the idea that long telomeres could reflect high telomerase activity, and in so doing be a good predictor of greater telomerase-dependent tissue regeneration, which may ultimately explain variation in organism quality and longevity.

KEYWORDS: Ageing; Birds; Feather renewal; Telomerase; Telomere

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