

Can exposure to 'young' blood increase lifespan?

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A new study in which young and old mice were surgically joined such that they shared blood circulation for three months showed that the old mice did not significantly benefit in terms of lifespan. In contrast, the young mice that were exposed to blood from old animals had significantly decreased lifespan compared to mice that shared blood with other young mice. The study is published in *Rejuvenation Research*.

Heterochronic parabiosis is a [research tool](#) used to assess the effect of organs and of blood-borne factors on young and old animals. Less controlled than direct blood exchange, parabiosis is a model of blood sharing between two surgically connected animals. Iryna Pishel, from Kyiv National Taras Shevchenko University and Bienta Ltd, in Kyiv, Ukraine, and coauthors used heterochronic parabiosis between young and old mice and the isochronic controls for three months. They then disconnected the animals and studied the effects of being joined on the [blood plasma](#) and animal lifespan.

"The most robust and interesting result of this study is the fact of a significant decrease in the lifespan of [young mice](#) from heterochronic parabiotic pairs," state the investigators. "These data support our assumption that old blood contains factors capable of inducing aging in young animals. Finding and selective suppression of aging factor production in the organism could be the key research field for life extension," they conclude.

Editor-in-Chief Irina Conboy, Ph.D., Professor, College of Engineering, University of California, Berkeley says that "this work clarifies the question whether the young blood or old blood control longevity, which has been debated. Are there lasting effects of heterochronic parabiosis and if so, is it a rejuvenation or aging? The work by the Pishel group established that the lifespan of the old mice does not increase after being parabiosed to young mice. In contrast, the [young animals](#) that were joined with the [old mice](#) suffer a shortened lifespan, even after being disconnected. This discovery is important in establishing the accurate direction for clinical anti-aging approaches and in providing key scientific evidence against the potency of the young blood factors in an aged organism. This work neatly follows the previously published by this group report that infusions of young blood plasma into mice, does not increase their lifespan."

More information: Tatiana Yankova et al, Three Month Heterochronic Parabiosis Has a Deleterious Effect on the Lifespan of Young Animals, Without a Positive Effect for Old Animals, *Rejuvenation Research* (2022). [DOI: 10.1089/rej.2022.0029](https://doi.org/10.1089/rej.2022.0029)

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