

Common diabetic drug Metformin may become a wonder drug to keep people young; Study finds promising results in monkeys

Synopsis

A recent study has shown that metformin, a diabetes medication, may slow ageing in monkeys by preserving cognitive function and delaying tissue ageing. Conducted by Guanghui Liu's team at the Chinese Academy of Sciences, the research suggests potential benefits for human ageing. Further trials are planned to explore these findings in humans.



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A recent study published in *Cell* highlights the potential of metformin, a widely used diabetes medication, to slow ageing in [monkeys](#). The research demonstrates that daily doses of [metformin](#) can preserve [cognitive function](#) and delay ageing effects in various tissues, especially the brain. This finding suggests that metformin could one day be used to delay ageing

in humans.

Metformin's Impact on Cognitive Function

The study, led by Guanghui Liu and his team at the Chinese Academy of Sciences, involved administering metformin to 12 elderly male cynomolgus macaques for 40 months, equivalent to about 13 human years. Results showed that metformin-treated monkeys experienced significantly slower cognitive decline than the non-treated control group. The neuronal activity in these monkeys resembled that of animals around six years younger, or approximately 18 human years, indicating that metformin may help maintain brain health and cognitive function.

Effect on Other Tissues

Beyond the brain, the study explored metformin's impact on other tissues, including the lung, kidney, liver, skin, and brain's frontal lobe. The drug was found to slow the biological ageing of these tissues and reduce chronic inflammation, a common marker of ageing. These results suggest that metformin's benefits extend beyond cognitive preservation, potentially offering broader [anti-ageing](#) effects.

Mechanisms and Future Research

Researchers proposed that metformin's anti-ageing effects could be due to the activation of NRF2, a protein that protects cells from inflammation and injury. While the study primarily focused on healthspan—the period during which an organism remains in good health—it did not assess the drug's impact on overall lifespan.

Challenges and Next Steps

Despite the promising findings, the study has limitations, including a small sample size of male monkeys. Further research is needed to determine if these effects are consistent across sexes and larger populations. Liu and his team are now conducting a trial with 120 human participants, in partnership with Merck, to test metformin's impact on human ageing. Additionally, plans are underway for a larger-scale trial involving 3,000 individuals aged 65–79 to further explore the drug's potential to extend healthspan and improve quality of life in older adults.

The study offers new insights into metformin's potential beyond diabetes treatment, highlighting its possible role in promoting healthier ageing. While these initial results are encouraging, more comprehensive studies are necessary to confirm metformin's impact on human health and longevity.

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