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Effects of Exercise on Metabolic Age in Adults with **Metabolic Dysfunction-Associated Steatotic Liver Disease:** a Secondary Analysis of a Randomized Controlled Trial J.D.K. Bernal, T.C. Ng, and P.M. Siu

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## Background

Metabolic perturbations accelerate biological ageing and decrease healthspan. Metabolic dysfunction-associated steatotic liver disease (MASLD) refers to hepatic steatosis in the presence of obesity, hypertension, hyperglycaemia, or hyperlipidaemia. Although older age increases the risk of adverse liver outcomes, biological ageing is not well characterised in this patient population and the anti-ageing effects of management approaches for MASLD is unknown. Moreover, the optimal exercise frequency for metabolic adaptations is uncertain.

# Results

We analysed 156 participants (mean [SD] age = 54.6 [10.9] years, metabolic age = 56.8 [11.1] years) in the intention-totreat analysis. At post-intervention, both exercise groups showed statistically significant reductions in metabolic age compared to CON (adjusted mean differences: X1 vs. CON: -1.5 years [95% CI, -0.1 to -2.8], *P* = 0.0317; X3 vs. CON: -2.0 years [95% CI, -0.6 to -3.3], P = 0.0039), with no differences between X1 and X3.

### **Objectives**

Secondary analysis of an ongoing randomized controlled trial to examine the effects of once- and thrice-weekly exercise on biological ageing in adults with MASLD.



### **Methods**

Adults with MASLD were randomly assigned in a 1:1:1 ratio

to the once-weekly exercise (X1), thrice-weekly exercise (X3), and control (CON) groups. Metabolic age, calculated by comparing an individual's basal metabolic rate (BMR) to the BMR average of their chronological age group,<sup>3</sup> was measured using bioelectrical impedance analysis at baseline and after the 16-week intervention.

#### CON X1 Х3

## Conclusion

Metabolic age (years)

These preliminary findings showed the effects of once- and thrice-weekly exercise on slowing metabolic ageing in adults with MASLD.



### References

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