

Handgrip strength, inflammatory markers, and mortality

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First published: 10 April 2019 | <https://doi.org/10.1111/sms.13433> | Citations: [5](#)

Abstract

Purpose

To investigate the extent to which inflammatory markers explain the association between handgrip strength and mortality.

Methods

Analyses of data from The English Longitudinal Study of Ageing. Handgrip strength and inflammatory marker data (C-reactive protein and fibrinogen) were collected at baseline (2004/5) and inflammatory marker data at follow-up (2012/13). Participant data were linked with death records. General linear models were used to explore associations between handgrip strength and inflammatory markers at follow-up. Cox proportional hazards regression models were used to examine associations between grip strength and risk of death. Models were estimated with the covariates age, sex, wealth, physical activity, smoking, depressive symptoms, long-standing illness, and adiposity.

Results

The sample comprised of 5,240 participants (mean age 65.9 (SD 9.4) years; 53.8% female). Over an average 9.7 ± 1.4 years follow-up, there were 650 deaths. Inverse associations were evident between handgrip strength and change in inflammatory markers in women only. There was an association between grip strength and lower risk of mortality in women (hazard ratio = 0.85; 95% CI, 0.74, 0.98) after adjusting for age and wealth. The association was attenuated after adjustment for clinical and behavioral risk factors (0.92; 0.79, 1.07), and further attenuated after adjusting for inflammatory markers (0.95; 0.82, 1.11).

Conclusion

Higher grip strength is associated with lower levels of inflammation at 8-year follow-up, and inflammatory markers partly explained the association between handgrip strength and mortality.