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RAMD

Title	Relationship between physical performance and iron status in the elderly: The Toledo Study Healthy Ageing
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Objectives:
Our aim was to evaluate the relationship between iron status and physical function in older people.

Methods:
637 women (76.2±6.5y) and 574 men (76.1±6.1y) from the Toledo Study for Healthy Aging without iron disease were included in the analysis of this cross-sectional study. Subjects underwent physical performance tests (upper and lower limbs maximal voluntary isometric strength test using standardised techniques and equipment, muscle power was calculated from the sit-to-stand test (STS) and 3 meters habitual gait speed (HGS) was also recorded). Finally, a blood sample was extracted in fasting conditions to evaluate serum iron and ferritin levels. Spearman's rank correlation coefficient was calculated. To assess the effect of poor physical function a score was created identifying the sum of weakest quartile (Q1) for the six measurements of physical function and nominal logistic regression was used to assess the relative effect of harbouring from one to six of the worst quartile of the measured physical function variables on iron status.

Results:
Ferritin was correlated with physical function in women (Handgrip [r=0.14]; STS [r=0.14]; HGS [r=0.12); p<0.05), and men (Handgrip [r=0.12]; STS [r=0.13]; HGS [r=0.14]; p<0.05), but relative STS mean power. Serum iron was correlated with STS mean power and habitual gait speed (r=0.10 and r=0.12, respectively; p<.05) in women. The model shows the relative effect of harbouring any of the worst muscle strength quartiles of the four measured sites (grip, shoulder, knee and hip), STS relative power and HGS. There was no significant association between physical fitness weakness and iron status neither in men nor women.

Conclusions:
The findings indicated that the link between declining physical function and iron status may be caused by different health conditions and ageing. Lower levels of upper- and lower body strength, muscle power and HGS may not have with iron status among elderly people.

Key words: physical performance, serum iron, ferritin, and elderly