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## Iron status in the elderly: a review of recent evidence

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### Highlights

- Perturbations of iron metabolism resulting in changes in iron status are observed in a variety of age-related medical conditions, including kidney disease, cancer, cardiovascular disease, and neurodegenerative diseases.
- Biomarkers of iron status outside the ‘normal’ range may be indicative of other underlying health conditions and should be investigated, but a consensus for cut-off levels for optimal iron status in the elderly is required in order to establish normal, safe ranges.
- Hormonal treatments, erythropoiesis stimulating agents, hepcidin inhibitors and ferroportin modulators have potential as novel therapies for treating challenging conditions, such as inflammation-related anaemia. The use of conventional treatments with high dose iron supplements needs to be reviewed.
- Lifestyle changes, for example exercise and diet, may help improve iron status in healthy older people.

### Abstract

A comprehensive literature review of iron status in the elderly was undertaken in order to update a previous review (Fairweather-Tait et al, 2014); 138 papers were retrieved that described research on the magnitude of the problem, aetiology and age-related physiological changes that may affect iron status, novel strategies for assessing iron status with concurrent health conditions, hepcidin, lifestyle factors, iron supplements, iron status and health outcomes (bone mineral density, frailty, inflammatory bowel disease, kidney failure, cancer, cardiovascular, and neurodegenerative diseases). Each section concludes with key points from the relevant papers. The overall findings were that disturbed iron metabolism plays a major role in a large number of conditions associated with old age. Correction of iron deficiency/overload may improve disease prognosis, but diagnosis of iron deficiency requires appropriate cut-offs for biomarkers of iron status in elderly men and women to be agreed. Iron deficiency (with or without anemia), anemia of inflammation, and anemia of chronic disease are all widespread in the elderly and, once identified, should be investigated further as they are often indicative of underlying disease. Management options should be reviewed and updated, and

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