

## 970 Age-related Differences in Acute Skeletal Muscle Atrophy After Immobilisation: A Systematic Review

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**Introduction:** Muscle atrophy is a recognised cause of morbidity and mortality. Whilst the association between loss of muscle mass and age is well established, it is controversial as to whether older adults' atrophy at a different rate or are more susceptible to atrophy in the acute setting. The aim of this systematic review is to identify if there are any age-related differences in the rate of atrophy between older and younger persons.

**Method:** A systematic search of Medline, Embase and Cochrane databases in December 2020 was carried out. All studies whose design involved a period of immobilisation and a comparison between older and younger cohorts were included. Studies must have direct pre-and-post immobilisation muscle mass measurements, and the percentage change in muscle mass was extracted from each study.

**Results:** Searching revealed 1007 records, of which six articles met the inclusion and exclusion criteria. 150 participants were included; 136 (90.7%) were male, and 14 (9.3%) were female. Studies used immobilisation periods between five and 14 days, and measured muscle volume by MRI, DXA or CT. Three studies reported greater atrophy in the older group, and three studies reported greater atrophy in the younger group.

**Conclusions:** There is no convincing evidence of any differences between the rates of atrophy in older persons in comparison to younger persons. We highlight that the current literature is inconsistent and overall, there is a lack of high-quality research on the topic, with particular concern regarding the significant lack of literature regarding atrophy rates in women.