

## Oral presentation

### **The relationships between back shape/posture, balance, falling and fear of falling in older adults with hyperkyphosis: systematic review**

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#### **Abstract**

**Background:** Age-related hyperkyphosis, an excessive anterior curvature of the thoracic spine, has been associated with impaired pulmonary function, fractures, functional limitations, falls, increased postural sway and loss of balance. However, it is unclear how back shape and/posture influences balance, falling, and fear of falling in older adults with hyperkyphosis. The aim of this systematic review is to examine the association between back shape/posture, balance, falling and fear of falling in older people with hyperkyphosis.

**Methods:** This systematic review was registered at PROSPERO, ID: CRD42018088268. The following databases were searched for relevant studies; Medline (1966 – December 2017), AMED (1985 – December 2017), CINAHL (1982 – December 2017), ScienceDirect (1943 – December 2017), EMBASE (1974 – December 2017), Web of science (1982 – December 2017), PsychINFO (1973 – December 2017). Also searched were the reference lists of all the relevant articles and grey literature. Two independent authors independently selected studies, assessed the quality of the studies and extracted data.

**Results:** Of the 95 studies found, two studies met the final inclusion criteria and were included in this review. Both of the studies found that hyperkyphosis with and without osteoporosis influenced postural sway and risk of falls among elderly women. Unfortunately, the studies were shown to have low methodology quality.

**Conclusion:** women with hyperkyphosis have higher postural sway and greater number of falls than elderly women without hyperkyphosis. However, based on the quality appraisal of the small number of studies identified, one can conclude that evidence is lacking and is of poor methodology quality with level 3C according to Oxford Centre for Evidence-based Medicine. The findings suggest that there are gaps in the literature which need to be addressed further.

**Keywords:** age-related hyperkyphosis; back shape/posture; balance; falls; fear of falling