Reviewer’s report

Title: Kyphosis and Paraspinal Muscle Composition in Older Men: A Cross-sectional Study for the Osteoporotic Fractures in Men (MrOS) Research Group

Version: 2 Date: 17 September 2013

Reviewer: Andrew Briggs

Reviewer’s report:

Thank you for the opportunity to review this well-written paper. The study is well conducted, uses an appropriate evaluative framework and adds important information to the knowledge base in the area.

Essential Revisions

Introduction
The introduction is well written and refers to contemporary literature and presents a sound rationale for the proposed study. The recent paper by Bayliss et al [1], however, should be referred to in the introduction (this was most likely published after the authors submitted their paper).

Please comment on the precision of CT imaging for measurement of muscle composition.

MRI has also been used to measure muscle composition [2]. Please comment about the benefits of CT over MRI, or provide a rationale for the use of CT, particularly given the exposure to ionising radiation with CT.

Method
Can the authors comment about why the Cobb method was chosen to measure kyphosis, over other methods which are less affected by endplate tilt [3]?

Results
The analytic approach is robust to answer the research questions. I feel the second paragraph of the results section should be tempered (same for conclusion). The first sentence suggests that men in the lowest tertile of paraspinal muscle volume have a greater Cobb angle than men in the highest tertile. The data in Table 2 show the 95% CIs of adjusted Cobb angles overlapping, so this statement does not appear to be supported by the data shown; ie not statistically significant, and as written, is somewhat misleading – please explain and modify accordingly. Further, if you alpha level of significance is #0.05, then the association between lower paraspinal skeletal volume and kyphosis is not associated (even weakly).

Discussion
First sentence of the Discussion, as I understand it, is somewhat misleading.
Rather than “more pronounced” in those with BMI < 30kg/m2, it appears from the data to “only” be associated with this factor, and no association with prevalent fracture.

The authors explain why was hip BMD used in the models rather than lumbar spine BMD. However, measurement artefacts associated with DXA may be overcome, in part, by lateral-projection measures – this should be acknowledged at least.

Are there any clinical implications of this study, other than an underlying geriatric syndrome? For example, we know that increasing kyphosis increases spinal loading and thus likely propensity to fracture [4].

Discretionary revision

Is there a health issue that should be commented on around people with a BMI of >30kg/m2 (ie obese) having a lower Cobb angle?


**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests