Reviewer's report

Title: Time-course of Exercise and Bone Changes in a 12-Month Exercise Trial

Version: 1 Date: 27 January 2009

Reviewer: Olivier Bruyere

Reviewer's report:

The goal of this study was to assess the outcome of exercise intensity on the changes in upper femoral area bone mineral density and mid-femur geometry. This manuscript is interesting and reemphasise the potential key role of exercises in the prevention of bone disease. However, as it states now, the manuscript could be biased by two major elements:

Major Compulsory Revisions:

- The first point relates to the interpretation of the results. From my point of view, the authors could not conclude that a 3-month duration of regular exercise program is needed to obtain positive response in bone. As a matter of fact, all these patients have been treated for 12 months and no assessment has been made after 3 months. I agree that the average daily numbers of impacts after 3 months is predictive of the response to therapy after 12 months. From my point of view, the authors over-interpret their results.

- The second point relates to the statistical analysis. The authors only use univariate analysis. I think that this could introduce a major bias. The authors should adjust their analysis for potential confounders (age, body mass index, baseline BMD, baseline bone geometry …).

- Abstract should also include data on the relationship between impact activity and bone geometry at the proximal and distal tibia.

- The authors should be slightly more balanced regarding the first two sentences of their introduction.

- Exercise program: the compliance in supervised exercise was quite low. Could the authors adjust their results for this confounder?

- The CV of the DXA measurement and the QCT measurement are very low compared to that obtained in the literature. I understand that it has been obtained in laboratory. Could the authors provide us with the CV obtained in clinical practice?

- It could be interesting to show the change in BMD and the change in bone geometry (in percentage of change) in function of the average daily numbers of impacts.

- A table with baseline characteristic of the study population could be interesting.

- A table with change in BMD and change in bone geometry after 12 months could be interesting.
Correlation between impact activity and proximal or distal tibia geometry would be of interest for the readers. Please provide us with data. As it states now, it appears that there are no significant correlation. It deserves an exhaustive discussion.

- Figure 1 could be replaced by an exhaustive table.

**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'