Reviewer's report

Title: Temperature Influence on DXA measurements: Bone Mineral Density acquisition in frozen and thawed human Femora

Version: 1 Date: 22 October 2008

Reviewer: Sami KOLTA

Reviewer's report:

Comments to the authors:

General comments:
This article deals with a technical problem that could affect in vitro BMD results. This point is important to investigate as it is usually not much discussed in papers dealing with frozen samples.

Specific comments:
1. line 73: please change “BMD” to “bone mineral density (BMD, g/cm²)”.
2. line 75: please change “How ever” to “However”.
3. line 113: the authors set the water level to 60 mm. Why ? usually, the water level is set to 14 or 15 cm in order to simulate soft tissue thickness of the thigh region. The water level used could affect the BMD results. Please comment on the choice of 60 mm water.
4. line 131: What was the technical mistake that led to the exclusion of one specimen ?
5. Results section lines 137 to 142: the authors cannot present the results as they did. They cannot write "The BMD within the Wards triangle (which by the way is not a triangle) , Neck … increased after thawing" because their p value are 0.2 and 0.5 even if afterwards they specified that only the superior neck was significant. This way of presenting the results could be misleading. There is clearly no significant change.

Moreover, the last sentence stating that the inferior neck BMD “tended” to decrease is also to be changed because there is no “tendency” statistically speaking when the p value is 0.5.

Please change to: “There was no significant change in the BMD of the Ward, Neck and inferior neck regions after thawing. The BMD of the trochanter and shaft regions significantly decreased by 1.6% (p=0.000) and 1.7% (p=0.048) respectively. That of the superior neck region increased significantly (p=0.042).”

6. Could the authors check the p value for the superior neck region (the least difference and SD values and the only significant increase.
7. A more general comment on the presentation of the results. The authors used the Wilcoxon test when there was no normality. In that case presenting the
results as median values and IQR and not mean +/- SD would be more appropriate. Please comment.

8. line 167: please change “were they used rice …” to “where they used rice …”

9. line 179: same comment as number 3.

10. table 1: please delete the line “wingspan” that is difficult to understand as that doesn’t add any information.

11. line 120 and legend of figure 2: what do the authors mean by “regions were readjusted manually”. Why? in what circumstances? on what basis? did the authors calculated the reproducibility of this manual adjustment?

12. figures 2 and 3: the width of the “Neck” region is not the same on both figures. As we know that the density of the femoral neck is not homogeneous (it increases as we go proximally). The width of the Neck region will affect the Neck BMD. Why did the authors change the width of this region? a standardization the regions of interest are necessary to compare results between specimens. Please comment.

13. figure 3: on the legend, the wards triangle and superior neck are inversed. Please correct and change “ward triangle” to “Ward area”.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.