Reviewer's report

**Title:** Influence of arthritis and non-arthritis related factors on areal bone mineral density (BMDa) in women with longstanding inflammatory polyarthritis: a primary care based inception cohort

**Version:** 2  **Date:** 30 January 2010

**Reviewer:** Jeffrey B Driban

**Reviewer's report:**

**Major Compulsory Revisions**

1. Pages 4-5: The bone health survey is described as being “derived from a previously validated questionnaire on osteoporosis lifestyle risk factors.” How was the original instrument modified and was reliability or validity testing performed on the revised version? A description of the modifications and a statement of whether or not it was validated would be sufficient. If it was validated then it would be interesting to see this data.

2. Page 6: The results suggest that 51% of participants had ever smoked. Do you know how many of these participants were current smokers or smoked during the 10 year period? This data could be helpful in interpreting the results. If this data is not available it would be beneficial to mention this limitation in the discussion.

3. Page 6: The results suggest that 60% reported taking oral contraceptive pills. Do you know how many of these participants were currently taking oral contraceptive pills or had taken them during the 10 year period? This data could be helpful in interpreting the results. If this data is not available it would be helpful to mention this limitation in the discussion.

4. Page 6: Mean CRP levels are reported as “units”. Were the measuring units mg/L?

5. Page 6-7: Were the 36 participants who underwent hand radiographs statistically similar to the rest of the study cohort (e.g., age, weight, age of menarche, CRP)? Coincidentally, it would be helpful if this sentence clarified which radiographs were performed.

6. Page 7: The results are reported for “age at natural menopause”. How many participants in the study had natural menopause?

7. Page 7: It is stated that “Those with a CRP greater than 10 at baseline had higher BMDa at both the spine and femoral neck at baseline and also follow up...” My interpretation of this paper was that BMDa was only measured at the 10-year follow-up but this sentence seems to suggest otherwise. Clarification of this issue in the manuscript would be helpful.

Page 8: How many participants in this cohort satisfied the ACR tree criteria for
RA at baseline and 10 years?

Page 9: The authors accurately state that there is some concern about a selection bias in this subcohort but the data they reference is not shown. The addition of some of this data would help with the data interpretation.

Page 9: The authors state that the “inter- and intra-observer variation in assessment of joint counts was good”. Briefly including this data in the methodology would be beneficial.

Minor Essential Revisions

1. It would be helpful if the authors defined each abbreviation when it first appears (e.g., IP [inflammatory polyarthritis]).

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.