

## Is the increase in bone mineral density after hip resurfacing uniform across the femoral neck?

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Received: 15 October 2011 / Accepted: 23 October 2011 / Published online: 16 November 2011  
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We admired the work of Willis-Owen and his colleagues on bone remodelling after hip resurfacing presented in their article “Bone mineral density in the femoral neck increases after hip resurfacing: a cohort with five-year follow-up” [1]. Hip resurfacing has evolved as an alternative to total hip arthroplasty in young adults and has shown promising short- and mid-term results when prudent selection criteria were adopted. It is supposed to simulate the normal hip biomechanics and physiological bone remodelling with preservation of the proximal femoral bone stock.

The authors have demonstrated an increase in the bone mineral density (BMD) of the femoral neck after hip resurfacing at five years which resembles physiological remodelling. The whole femoral neck (R1) was analysed as one region and calculations were made. Several finite-element analyses and original articles of case series in the literature reveal that bone remodelling is not uniform across the entire femoral neck [2–4]. The superolateral area adjacent to the implant has evinced a relative stress shielding [2]. Albeit, the significance and implications of differential degrees of BMD of the femoral neck have not been well defined. All the studies available have shown their results of BMD at a maximum of two years. We feel that such a prime study with a unique follow up of five years should have thrown light on this differential density and drawn some conclusions. This would have evoked more interest and provided insight into the remodelling of the femoral neck after hip resurfacing.

Although the surgical procedure was described, the cementing technique used was not explained in detail.

Cementing of the implant guide pin has been shown to decrease the strains in the head and neck resulting in stress shielding [5]. The level of bonding of the stem may alter the loading pattern after resurfacing.

The authors have not commented on femoral neck notching and narrowing in their cases at five years follow-up as these would have gained significance amidst the factors influential in the replication of normal physiological loading and long-term implant survival. Although the limitation of not being able to correlate the BMD changes with implant positioning was acknowledged, overall information about the BMD, implant positioning, and femoral neck notching as well narrowing would have made the article more edifying. Could Willis-Owen and his colleagues please comment?

### References

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