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MATERNAL VITAMIN D STATUS AND BONE MINERAL CONTENT IN THE OFFSPRING

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Sir, we were intrigued by results from the Avon Longitudinal Study of Parents and Children (ALSPAC), apparently demonstrating a lack of association between maternal 25(OH)-vitamin D concentration in pregnancy and offspring bone mass¹. Interestingly, they contradict findings (which apparently still stand) from the same group, also in ALSPAC, in which maternal gestational exposure to UVB light was positively related to offspring bone mass at 9.9 years; this led them to suggest that gestational vitamin D exposure exerts a direct effect on offspring bone development². That result was consistent with our findings from the Princess Anne Hospital, Southampton, in which maternal gestational serum 25(OH)-vitamin D positively correlated with offspring bone mass at 9 years, even after adjustment for child's age at DXA³. In their latest ALSPAC analysis, adjustment for age removed the relationship they identified earlier, due to substantial co-linearity between maternal gestational UVB exposure and child's age at DXA. The authors infer that their original findings are not sustained and that the newer results provide evidence that maternal vitamin D is *not* associated with offspring bone mass. Critically, regression analysis cannot distinguish what is truly cause or confounder; our conclusion would be that substantial uncertainty remains, with these data adding to the growing body of observational evidence. However this intra-cohort inconsistency is interpreted, further evidence is needed from well-conducted systematic reviews⁴ and randomised trials⁵. Definitive evidence based policy in this important clinical area must await such information.

Reference

1. Lawlor DA, Wills AK, Fraser A, Sayers A, Fraser WD, Tobias JH. Association of maternal vitamin D status during pregnancy with bone-mineral content in offspring: a prospective cohort study. Lancet. 2013 epub March 19th.
2. Sayers A, Tobias JH. Estimated maternal ultraviolet B exposure levels in pregnancy influence skeletal development of the child. J Clin Endocrinol Metab. 2009; 94(3):765–71. [PubMed: 19116232]

3. Javaid MK, Crozier SR, Harvey NC, et al. Maternal vitamin D status during pregnancy and childhood bone mass at age 9 years: a longitudinal study. *Lancet*. 2006; 367(9504):36–43. [PubMed: 16399151]
4. Harvey NC, Holroyd CR, Ntani G, et al. Maternal vitamin D status in pregnancy and offspring bone health: A systematic review and meta-analysis. *Rheumatology*. 2013 In press.
5. Harvey NC, Javaid K, Bishop N, et al. The MAVIDOS Study Group. MAVIDOS Maternal Vitamin D Osteoporosis Study: study protocol for a randomized controlled trial. *Trials*. 2012; 13(1):13. [PubMed: 22314083]