

$P = 0.004$), a difference >0.5 s.d.]. Similar patterns were observed for bone area and BMD. At 34 weeks gestation, the proportion of women with vitamin D insufficiency [$25(\text{OH})\text{D} < 50$ nmol/l] was reduced (16.6% vs 63.5%, $P < 0.001$) in women who had received cholecalciferol compared with placebo. In the placebo group, $25(\text{OH})\text{D}$ declined in women who delivered in winter or spring, but in mothers taking cholecalciferol, $25(\text{OH})\text{D}$ rose from 14 to 34 weeks, irrespective of birth season ($P < 0.001$). No safety issues were identified.

Conclusion: Maternal supplementation with 1000 IU cholecalciferol during pregnancy increases bone mass in offspring born in winter months and prevents the seasonal decline in $25(\text{OH})\text{D}$ in these mothers. These findings have implications for public health policy relating to antenatal vitamin D supplementation.

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O16 MATERNAL GESTATIONAL VITAMIN D SUPPLEMENTATION RESULTS IN GREATER BONE MASS FOR OFFSPRING BORN DURING WINTER MONTHS: THE MAVIDOS MULTICENTRE RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED TRIAL

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Background: Maternal vitamin D status has been associated with lower bone mass of the offspring in observational studies. We therefore tested whether 1000 IU/day cholecalciferol during pregnancy would result in greater offspring bone mass at birth in a UK multicentre, randomized, double-blind, placebo-controlled trial (MAVIDOS, ISRCTN82927713).

Methods: Pregnant women with serum 25-hydroxyvitamin D [$25(\text{OH})\text{D}$] of 25–100 nmol/l at 12 weeks gestation were randomized to 1000 IU cholecalciferol/day or matched placebo until delivery. Plasma $25(\text{OH})\text{D}$ concentration was measured centrally at 14 and 34 weeks gestation (Liaison, DiaSorin, Saluggia, Italy). Within 2 weeks after birth, offspring whole body bone mineral content (BMC) was assessed by DXA (Discovery, Hologic, Marlborough, MA, USA; or iDXA, GE-Lunar, Madison, WI, USA; measurements standardized).

Results: Whole body BMC was non-significantly greater in infants born to mothers supplemented with cholecalciferol [$n = 665$; mean 61.6 g (s.d. 11.7) vs 60.5 (11.1), $P = 0.21$]. However, in a pre-specified analysis, there was an interaction between treatment allocation and birth season ($P = 0.04$): infants born in winter (December–February) to mothers randomized to cholecalciferol had a greater BMC than infants of mothers randomized to placebo [63.0 g (s.d. 10.8) vs 57.5 (10.9),