ALTERED BONE MINERAL CONTENT AND BODY COMPOSITION IN CHILDREN AND ADOLESCENTS WITH CONFIRMED PRENATAL ALCOHOL EXPOSURE

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Introduction and Aims: Development of the skeletal system begins at the early embryonic stage and continues into early adulthood. We sought to characterise bone and body composition in children and adolescents diagnosed with, or at risk of, fetal alcohol spectrum disorder (FASD) compared to typically developing children.

Design and Methods: In addition to height and weight measurements, bone and body composition was determined through use of dual X-ray absorptiometry. FASD diagnosis was confirmed by a clinical assessment team, including a psychologist, paediatrician, and occupational therapist.

Key Findings: Children with FASD or at risk of FASD (aged 4-10) were shorter stature than age matched controls. By adolescence (aged ≥11) those with FASD remained shorter and had lower areal bone mineral density, bone mineral content, and lean tissue mass, as well as greater percentage fat mass than their typically developing peers.

Discussion and Conclusions: Adolescents who were diagnosed with FASD had greater odds of impairments to bone and body composition. The results suggest that alcohol-induced changes to the regulation of lean tissue mass and bone and fat deposition worsen in the second decade of life. While novel, our findings are in line with previous reports of adverse bone development and poor bone and metabolic health in younger alcohol-affected populations.

Implications for Practice or Policy: The results suggest that the multi-disciplinary approach seen in the FASD diagnostic process should extend to providing comprehensive post-diagnostic supports for physical, developmental and mental health needs. The exacerbation of metabolic outcomes at adolescence highlights the importance of early diagnosis and intervention and raises the question as to whether endocrinologist referral and growth hormone administration should be pursued in response to a finding of childhood growth restriction to optimise bone and body composition during paediatric growth.

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