

79.00

EFFECTS OF ENVIRONMENTAL FACTORS ON BONE MINERALIZATION ASSESSED BY QUANTITATIVE ULTRASONOGRAPHY

D. Prais^{1,5}, G. Diamond^{2,5}, Z. Zadik³, A. Kattan⁴, D. Inbar^{2,5}

¹*Department of Pediatrics C* ²*The Child Development and Rehabilitation Center, Schneider Children's*

Medical Center of Israel, Petah Tikwa ³*Pediatric Endocrinology Unit, Kaplan Medical Center, Rehovot*

⁴*Clinical Department, Sunlight Medical Ltd.* ⁵*Sackler Faculty of Medicine, Tel-Aviv University, Tel Aviv, Israel*
dariop@clalit.org.il

Background: Although genetic factors play a major role in determining peak bone mass, nutritional status and physical activity, can impact on bone mineralization. A new multi-site quantitative ultrasound system (QUS), has recently been introduced as an alternative to x-ray based bone densitometry.

Aims: to evaluate the relationship between environmental factors and bone mineralization in children, assessed by QUS.

Design: In a pediatric primary care clinic, data on calcium intake and physical activity was collected using an extensive questionnaire. SOS measurements were performed at the distal 1/3 radius and midshaft tibia using the Sunlight Omnisense® apparatus.

Results: A total of 67 patients were enrolled in the study (42 girls). The mean age was 9.4 years. Based on the median level of calcium intake (1000 mg/day), patients were divided into low and high calcium intake groups. A significant difference was found in Z-scores at the radius and tibia between the two groups ($p=0.004$, $p=0.035$, respectively). A normal level of physical activity was reported by 68% of the children; 30% reported a low, and 2% high level of physical activity. A significant difference in Z-scores at the radius and tibia was found between the low and normal physically active groups ($p=0.015$, $p=0.036$, respectively). Within physical activity level groups, an increase in Z-score was noted in accordance with the level of calcium intake.

Conclusions: A positive association was found between calcium intake, physical activity and bone status, as assessed by the QUS. This technique may be useful in assessing bone health in children.

