

# Revisiting vitamin D supplementation in pediatric age in Portugal

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Vitamin D insufficiency has been a cause for concern among health professionals who care for Portuguese children and adolescents, and interesting studies have been published in the last decade<sup>1-6</sup>.

In this issue, an excellent state-of-the-art on vitamin D supplementation in Portuguese children and adolescents is provided by renowned national experts<sup>7</sup>. It is a didactic and practical review on this topic, useful for pediatricians and family doctors who provide pediatric primary care.

Some aspects revisited in this article are worth highlighting.

To implement a prophylactic supplementation strategy with a certain nutrient, prior knowledge on the prevalence of its status in the target population is necessary. Unfortunately, representative data on hypovitaminosis D in the Portuguese pediatric population is lacking<sup>7</sup>. As the authors state, based on prevalence data from the northern region of Portugal<sup>2,3</sup> and a systematic review of vitamin D status in southern European countries that included children and adolescents<sup>8</sup>, it can be speculated that in Portugal the prevalence of vitamin D insufficiency in pediatric age is high. It is worth mentioning an higher than expected prevalence of hypovitaminosis D reported in populations that benefit from high sun exposure<sup>9</sup>.

The serum 25(OH)D level is the recommended biomarker to define vitamin D insufficiency or deficiency. Although there is no full consensus, for clinical

purposes it is pragmatic to consider that levels below 20 ng/mL (50 nmol/L) indicate individuals at risk<sup>7</sup>. Screening for 25(OH)D serum levels and vitamin D supplementation should not be universal and is only recommended in specific, well-defined situations<sup>7</sup>.

Serum 25(OH)D cutoffs used to define hypovitaminosis D have been based on the effects of vitamin D on bone health. This strategy narrows the target to the tip of the iceberg, disregarding the wide spectrum of extra-skeletal effects of vitamin D deficiency at the level of other organs and systems that are dependent on the action of this pre-hormone, such as the immune and cardiovascular systems<sup>9</sup>. Other important disorders associated with hypovitaminosis D in childhood and adolescence have been described, including metabolic syndrome and mood disturbances<sup>9</sup>. In the future, it would be desirable to determine serum 25(OH)D cutoff points specific for extra-skeletal disorders related to vitamin D deficiency in pediatric age.

In infants born at term, it is consensual that daily supplementation with 400 IU of vitamin D<sub>3</sub> should be universal in the first year of life<sup>7</sup>. Beyond this age, supplementation should be considered in risk groups, particularly children and adolescents who consume diets low in vitamin D, obese children, and those deprived of minimally recommended sun exposure<sup>7</sup>. For preterm infants born with a weight of less than 1800 g, the European Society for Pediatric Gastroenterology Hepatology and Nutrition very recently reduced the

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recommended daily intake of vitamin D<sub>3</sub> from 800-1000 IU/kg/d<sup>10</sup> to 400-700 IU/kg/d<sup>11</sup>. This reduction was justified by the lack of safety data with the use of higher doses and by the most recent data on the effect of vitamin D<sub>3</sub> supplementation on bone mineral density in this population. In the revised guidelines for enteral nutrition in preterm infants by the Portuguese Neonatal Society<sup>12</sup>, the recommended intake of vitamin D was updated accordingly.

Along with vitamin D supplementation, it is important not to neglect educational measures, including diet and sun exposure recommendations provided in this review, which if followed can avoid pharmacological measures<sup>7</sup>.

The Portuguese Journal of Pediatrics welcomes original studies and reviews on the supplementation of other vitamins and micronutrients in Portuguese children and adolescents.

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