

## VITAMIN D STATUS OF BELGIAN YOUNG CHILDREN

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### Objectives

This study aims to describe vitamin D status of Belgian children assessed by blood samples taken during winter and spring 2010 and to examine the influence of non-nutritional factors on outcome observed.

### Material and Methods

Participating children (n=357; 51.5% male, 4-11 years) were drawn from the Belgian control region (Aalter) of the EU 6<sup>th</sup> FP IDEFICS cohort. Blood was sampled between February and June 2010. 25(OH)D was measured using radioimmunoassay I125 (INCSTAR 25(OH)D – <sup>125</sup> IRIA kit, Stillwater, MN, USA). Vitamin D status was categorized as deficient (25(OH)D < 25 nmol/l), insufficient (25-50 nmol/l), sufficient (50-75 nmol/l) and optimal ( $\geq$  75 nmol/l). Height and weight were measured with standard clinical stadiometer and balance. The BMI z-score was determined using the LMS method (with British reference population). Skinfold thickness (triceps and subscapular) was measured using Holtain Tanner/Whitehouse skinfold calipers. Ethical approval was granted by the Ethical Committee of the Ghent University Hospital.

### Results

Serum 25(OH)D ranged from 13.6 nmol/l to 123.5 nmol/l (mean  $47.2 \pm 14.6$  nmol/l). Within the group, 5% was deficient, 53.1% insufficient, 39.7% sufficient and 2.2% optimal. No significant difference in vitamin D status was found between boys and girls and no significant correlation with age. However, a significant difference in 25(OH)D concentration between the months of sampling was found, as well as a significant correlation with the number of hours playing outside ( $r=0.14$ ) and the sum of skinfolds ( $r=-0.11$ ). Two different multivariate models (ANCOVA) indicated that 68% of the variability of the 25(OH)D concentration was explained by the month of sampling, the number of hours playing outside and the BMI z-score or sum of skinfolds, respectively.

### Conclusion

The majority of Belgian children have a suboptimal vitamin D status, with more than half having an insufficient status in winter and spring. Month of the year, number of hours playing outside as well as body composition (BMI or sum of skinfolds) were identified as important determinants of vitamin D status in this group of children.

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