

Abstract

Is Thinness Associated with Poorer Diet and Nutrient Intake and Status in Danish 8–11-Year-Olds? [†]

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Abstract: Thinness is used to denote low BMI in children and may be a marker of undernutrition. However, despite prevalence rates of up to 10%, thinness in children is highly overlooked in high-income countries, and we have little knowledge about the diet and nutrient status among these children. We investigated if dietary intake and biomarkers of nutrient status, including iron, *n*-3 LCPUFA and vitamin D, differed in Danish schoolchildren with thinness compared to children with normal and overweight. We also investigated if intakes of important micronutrients were adequate across weight groups. We used cross-sectional data from 815 Danish 8–11-year-old children collected during the period August–November 2011. Measurements included 7-day dietary records, anthropometry and analysis of nutritional biomarkers in fasting blood samples. We defined thinness using the age- and sex-specific IOTF BMI cut-offs. In total, 10.2% of the children had thinness (boys: 8.9%; girls: 11.6%). These children had lower intake of energy, protein and red meat and higher intake of added sugar compared to children with normal and overweight. Thinness was also associated with higher fish intake compared to overweight, but we found no group differences in whole-blood EPA+DHA. Furthermore, thinness was associated with lower intake of iron and zinc than the other groups and lower intake of selenium versus normal weight, but with no group differences in iron biomarkers, serum ferritin or hemoglobin. The proportions of children with adequate intake of zinc and selenium were lower in the thin (56.5% and 50.7%) compared to the normal-weight children (72.5% and 63.9%) ($p < 0.05$), but the intake of these micronutrients as well as vitamin B12 and calcium were generally high across all weight groups. In contrast, intake of vitamin D and iron were low across groups, and there were no group differences in serum 25(OH)D. Danish children with thinness had different dietary intake than children with normal and overweight, but thin children did not generally have a poorer diet than normal-weight children. We also found comparable nutrient status and intakes of important micronutrients except for iron, zinc and selenium, which were lower in thin children and should be explored further.

Keywords: thinness; underweight; dietary intake; nutrient status



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