



Can the relation between short sleep duration and obesity be observed in early childhood?

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PO.382
Anthropometry references for 10- to 18-year-olds in the Autonomous Region of Madeira, Portugal
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Introduction: Arm anthropometry is an important approach to evaluate nutritional status. The aim of this study was to develop anthropometric references for several arm measurements: [mid-upper arm circumference (MUAC), triceps skinfold thickness (TST), upper arm muscular circumference (UAMC), upper arm total area (UATA), upper arm muscular area (UAMA) and upper arm fat area (UAFA)] by age and gender of 10 to 18 year-old people of the Autonomous Region of Madeira, Portugal (RAM).

Methods: The data was collected cross-sectionally between October 2007 and June 2009 in a representative sample of 4603 adolescents, 2406 girls and 2197 boys, aged between 10 and 18 years-old. MUAC and TST were measured using standardized procedures and UAMC, UATA, UAMA and UAFA were calculated. To elaborate the references, the smoothed percentile and z-scores curves for age and gender were estimated between 120-228 months (at six months intervals) using the LMS statistical procedure.

Results: Mean and standard deviation values as well as charts of smoothed percentiles curves (P1, P3, P5, P10, P25, P50, P75, P90, P95, P97 and P99) and z-scores (-2, -1, 0, 1 and 2) are presented by age and gender for MUAC, TST, UAMC, UATA, UAMA and UAFA.

Conclusion: Charts for Madeira adolescents' arm anthropometry which reflect the characteristics of this population are useful tools in clinical settings and community practice.

Conflict of interest: None.

Funding: Research relating to this abstract was funded by 'Centro de Ciência e Tecnologia da Madeira'.

PO.383
Weight, height and BMI references for 10- to 18-year-olds in the Autonomous Region of Madeira, Portugal
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Introduction: Nutritional and growth monitoring require up-to-date reference growth data built from representative samples of the population. The aim of this study was to develop anthropometric references for weight, height and body mass index (BMI) for age and gender of 10 to 18 year-old people of the Autonomous Region of Madeira, Portugal (RAM).

Methods: The data was collected cross-sectionally between October 2007 and June 2009 from a representative sample of 4603 adolescents, 2406 girls and 2197 boys, aged between 10 and 18 years-old. Weight and height were measured using standardized procedures and BMI (kg/m²) was calculated. To elaborate the references, the smoothed percentile and z-scores curves for age and gender were estimated between 120-228 months (at six months intervals) using the LMS statistical procedure.

Results: Mean and standard deviation values as well as charts of smoothed percentiles curves (P1, P3, P5, P10, P25, P50, P75, P90, P95, P97, and P99) and z-scores (-2, -1, 0, 1 and 2) are presented by age and gender for weight, height and BMI. For BMI percentile 85 is also shown.

Conclusion: This is the 1st study in Portugal in which anthropometric measurements of a representative sample of 10-18 year-old people were collected, leading to the establishment of local references by

age and gender. This research is of great public health value to monitor growth and the nutritional status of Madeira adolescents.

Conflict of interest: None.

Funding: Research relating to this abstract was funded by "Centro de Ciência e Tecnologia da Madeira".

T4:PO.384

Can the relation between short sleep duration and obesity be observed in early childhood?

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Background: Epidemiological studies in adults and children have shown a strong association between short sleep duration and the risk of obesity. Experimental data have suggested several pathways that may predispose short-duration sleepers to obesity. Studies in infants are limited and conflicting.

Methods: Questionnaires and anthropometric data from the Danish SKOT Cohort on complementary and young child feeding were used in this preliminary analysis. Data collected at 9 months ($n = 292$ [138 boys]; weight = 9.0 ± 1.0 kg) and 18 months ($n = 223$ [107 boys]; weight = 11.2 ± 1.1 kg) were analyzed. The WHO Growth Standard sex adjusted body-mass-index-for-age z-score (BMI z-score) was the main outcome measure. Night hours spent in bed (HB) was used as an indicator of sleep. The model was adjusted for gestational age, birth weight, partial breastfeeding, household income, and smoking during pregnancy. These covariates are all known to play a role in obesity and/or infant sleep.

Results: HB was 10.7 ± 0.73 hours and 10.9 ± 0.66 hours for 9 and 18 months, respectively. BMI z-score was 0.34 ± 0.98 and 0.54 ± 0.97 for 9 and 18 months, respectively. The adjusted correlations between HB and BMI z-score for 9 and 18 months were 0.014 ($P = 0.82$) and -0.079 ($P = 0.24$), respectively. Hence, no significant association existed between sleep and BMI z-score for either 9 or 18 months in this cohort. Likewise, we did not find associations of sleep duration with other indices of adiposity such as waist circumference and skin fold thickness.

Conclusion: Our results do not show any relation between sleep length and BMI z-score in infants. These results suggest that short sleep duration does not seem to be a major contributor to the adiposity phenotype at this age. Future studies using objectively measured sleep will be needed.

Conflict of interest: None disclosed.

Funding: The SKOT cohort study is funded by the Danish Food Industry Agency.

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Obesity risk linked to the rs9939609 polymorphism of the FTO gene is influenced by dietary intake in Spanish children and adolescents

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Introduction: The FTO rs9939609 variant has shown a strong association with obesity-related traits in several genomewide association studies. In this context, the impact of this polymorphism and its rela-

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