

Methods

Five-hundred-two children (268 boys and 234 girls) aged 10 to 15 years of age were included in the study. Aerobic capacity was estimated with an incremental cycle ergometer protocol and a shuttle run test. BMI and percentage fat (by skin folds) were determined to calculate FMI and FFMI.

Results

The solid group achieved a higher maximal power output (Watt) during the bicycle test ($p=.000$) and a higher shuttle-run score ($p=.000$) compared to the slender group. This difference has also been shown as a trend in the overweight group. The solid overweight children scored better on the shuttle-run test than the slender overweight children, although not significant ($p=.100$). The W_{max}/kg and W_{max}/kg ffm were comparable between the different body build groups; suggesting a comparable physical activity level.

Conclusion

In this study we showed that body build is an important determinant of the aerobic capacity, independent of BMI. Overweight children (based on BMI) seem to have a lower aerobic capacity, but in solid overweight children, with a relatively large fat free mass, the aerobic capacity is not decreased. In future research it is relevant to investigate possible differences in health status between adolescents with a solid, average or slender body build, with a comparable BMI.

Abstract 10

Sibling resemblance in habitual physical activity. A Study with sibling pairs from northeast of Portugal

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Introduction

Physical activity (PA) lifestyle is known to have significant health benefits. Familial resemblance reflecting genetic and environmental factors shared by family members could be an important determinant of habitual PA levels. However, in the literature the results in familial resemblance are controversial. **Purpose:** to analyze sibling resemblance in habitual PA.

Method

A sample of 71 sibling pairs with age between 11 and 18. All the siblings live in the northeast region of Portugal. PA was evaluated during 7 consecutive days with the MTI actigraph model 7164 (Manufacturing Technology, Inc., Fort Walton Beach, FL, USA). The MTI actigraph data of each day was reduced to bouts (30, 25, 20, 15, 10, and 5 min.) of sustained moderate-to-vigorous (3-5.9 METs) PA (MVPA), vigorous (6-8.9 METs) PA (VPA), and very vigorous (≥ 9 METs) PA (VVPA), as well as to minutes spent in moderate-to-vigorous (3-5.9 METs) PA (MVPA), vigorous (6-8.9 METs) PA (VPA), and very vigorous (≥ 9 METs) PA (VVPA) with a specific computer software, where the regression equation developed by Fredson et al. (1997) for children 6-to-18 years old was implemented. Correlations within siblings were calculated with FCOR routine from S.A.G.E. 5.1 software package.

Results

There was a small number of children with bouts of sustained vigorous and very vigorous PA, therefore these bouts were not analysed for correlations. Within sibling, i.e., with all kind of pairs

included (brother-brother, sister-sister and sister-brother), the correlations vary between 0.35 and -0.003. When calculated independently of the type of sibling pairs, the correlations tend to be higher between same sex siblings (brother-brother: 0.78 to 0.10, and sister-sister: 0.43 to 0.02) than between opposite sex (brother-sister: 0.21 to -0.01). The highest correlation between brothers was found in minutes spent in VVPA (0.78), and between sisters in minutes spent in MPA (0.43).

Conclusion

These results suggest that siblings tend to resemble in habitual PA, this resemblance tend to be higher between pairs siblings of the same sex.

Reference

Freedson, P.S., J. et al.. (1997). Calibration of the computer science and application, inc. (csa) accelerometer. *Med. Sci. Sports Exerc.* 29:S45.

Abstract 11

Comparison of body composition, physical fitness, and physical activity among children and adolescents from different geographical locations in Iceland

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Introduction

Prevalence of overweight and obesity in children and adolescents has escalated drastically but the patterns vary with country and may vary within country. In Iceland, over half the population inhabits Reykjavík and suburbs whereas the remainder is scattered throughout the country in small towns (<15000 inhabitants) and rural areas. The aim of this study was to investigate potential body composition, physical fitness, and physical activity differences between children raised in the Reykjavík area (R) and children living in small towns and rural locations in the countryside (C).

Methods

The subjects were randomly selected according to the geographical distribution of the Icelandic population (R ~65%, C ~35%) and a total of 934 nine and fifteen year-old children participated. Body composition was assessed through body mass index, sum of skinfold thickness from four locations (triceps, biceps, subscapular, suprailiac), and waist circumference. Physical fitness was estimated (W/kg) with a maximal graded bicycle ergometer test and physical activity (weighted average of total counts) was measured with Actigraph activity monitors.

Results

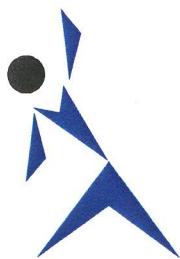
Fifteen year-old girls from R were leaner and lighter but had lower fitness than girls their age from T. Similarly, 15 year-old boys from R were leaner than their compatriots from C but their fitness was not different. No geographical residential differences were found in physical activity among 15 year-old children. Place of living did not affect body composition among 9 year-old children. However, the fitness of the children from R was lower than that of the children from C although the children from R were more active. No geographical location differences were found in the

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