Board #82 2:00 PM - 3:00 PM
Familial Aggregation of Physical Activity Levels: A Study with Families From Northeast of Portugal
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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 familial resemblance in habitual PA, sport participation, and sedentary behavior.

METHODS: sample comprised 1136 individuals from 284 families (284 parents and 284 sibling pairs). The offspring were 6 to 19 years old (14±3.2). All the families live in the northeast region of Portugal. PA was evaluated with two questionnaires: IPAQ short version and Baekie et al. (1982). Intra-familial correlations adjusted for age and heritability were calculated respectively with FCOV and ASSOC routines from S.A.G.E. 5 software package.

RESULTS: In the habitual PA and sport participation indicators the correlations between spouses are higher (0.26 to 0.52) than between parents and offspring (0.08 to 0.24), and between siblings (0.13 to 0.51). In inactivity indicator the correlations are identical between all family relationships (0.31 to 0.40). The heritability values are all significantly different from zero (p<0.05) and vary between 0.14 and 0.42 in PA and sport participation indicators. In physical inactivity heritability is 0.49.

CONCLUSION: These results suggest that families tend to resemble in habitual PA, sport participation and in sedentary behavior. The pattern of correlations found is indicative that the environment factors have more influence than genetic factors in PA and sport participation. It seems that sedentary behavior is more genetic dependent than habitual PA and sport participation.

Board #83 3:00 PM - 4:00 PM
Familial Resemblance in Physical Activity: The Flemish Longitudinal Offspring Study (FLOS)
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Scientific evidence demonstrates that regular physical activity reduces the risk of morbidity and mortality from a number of chronic diseases. In order to implement appropriate strategies for the promotion of physical activity, it is important to understand the factors explaining the wide variation of physical activity levels in the population. In addition to social and physical environment, demographic and psychological factors, familial factors, both genetic and environmental, may also play a role.

PURPOSE: To investigate familial resemblance in physical activity and to determine if this could be best explained by genetic and/or environmental factors.

METHODS: 292 Flemish families (271 means, age 45 years; 243 mothers, mean age 42 years; 238 sons, mean age 15 years; 195 daughters, mean age 14 years) participated in the Flemish Longitudinal Offspring Study (FLOS) conducted within the framework of the Research Centre Sport, Physical Activity and Health. Physical activity was assessed using the Flemish Physical Activity Computerized Questionnaire (PPACQ). Pearson correlations were used to investigate resemblance between family members. To further explore these familial correlations underlying variance components models were tested using model fitting techniques.

RESULTS: Several significant and moderate correlations were found between parents (0.16-0.30), parent-offspring (0.14-0.36) and siblings (0.16-0.52). Generally, significant similarities between parents (0.16-0.36) and between siblings (0.24-0.52) were higher than between parent-offspring (0.15-0.36). For almost all variables, a model including common environmental (Ve) and unique environmental (Ve) factors explained most of the observed variability in physical activity. Only for time per week spent on vigorous sports and on moderate activities, an additional genetic factor (Vg) further improved the model fit. Maximal transmissibility (Ve+Vg) ranged from 7% for frequency per week of moderate activities to 23% for time spent watching TV. This could be completely explained by Ve, except for time per week spent on vigorous sports and on moderate activities where also a Vg of respectively 4% and 11% was estimated.

CONCLUSIONS: The results of this study suggest familial resemblance in several dimensions of physical activity. For most physical activity variables the maximal transmissibility could be completely explained by common environmental factors. This is an important finding in the light of the development of effective strategies for the prevention of inactivity. The Policy Research Centre Sport, Physical Activity and Health is supported by the Flemish Government.