FAMILIAL CLUSTERING OF PHYSICAL ACTIVITY. A QUANTITATIVE GENETIC ANALYSIS WITH THE IPAQ QUESTIONNAIRE.
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Familial clustering in any phenotype assumes the presence of additive and interactive genetic environmental factors. Physical activity (PA) is a highly complex and multifactorial trait that shows remarkable heterogeneity within any populations.

The purpose of this study was to quantify the importance of genetics factors in familial clustering in PA.

Our sample comes from 89 Portuguese nuclear families (362 subjects). PA was assessed with the short version of the International Physical Activity Questionnaire (IPAQ). Phenotypes used were: light (L), moderate (M) and vigorous (V) PA; total PA (T), sitting time (S) and the time watching TV (TV) (as a proxy for sedentary behavior). Familial correlations and constitutions of genetic factors were computed with FCOR and ASSOC modules of the S.A.G.E. statistical package. Prior to these analysis all PA traits were adjusted for such covariates as age, sex, age2, age3, age*sex, age2*sex and age3*sex and considered standardized residuals.

Reliability estimates for the IPAQ questionnaire were within the range presented in the literature: $0.70 \leq 0.80$. Almost correlations were positives and low to moderate in all phenotypes ($r \leq 0.74 \pm 0.14$). Genetic factors were as follows: $L = 0.25 \pm 0.14$; $M = 0.40 \pm 0.18$; $V = 0.54 \pm 0.17$; $T = 0.32 \pm 0.11$; $S = 0.26 \pm 0.11$; $TV = 0.23 \pm 0.11$.

We conclude that genetic factors have a low to moderate influence in PA variance within the population. Environmental factors do play, also an important role. Yet, it is important to keep in mind that response to intervention programs to promote PA is dependent on the phenotype of individuals, as well as its interactions with physical and social environment.

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