Skinfold and fitness determinants of 9 year old Icelandic school children
Kristján Póir Magnússon1, Þórarinn Sveinsson2, Sigurbjörn Ámi Arngrímsson1, Erlingur Jóhannsson

1. Íþróttaseminarium Kennaraháskóla Íslands
2. Sjúkrarfélagur Háskóla Íslands

Abstract
INTRODUCTION: Main objectives of this study were to assess skinfold thickness and physical fitness (watts/kg) of 9 year old school children (born 1994) in Iceland and assess its determinants with emphasis on parental social factors. Eighteen randomly selected primary-schools participated in this cross sectional study and a total of 488 subjects (73.3% participant rate).
METHODS: Height, weight, sum of four skinfold (suprailiac, subscapular, bicep and tricep skinfolds) and other anthropometric measures were performed on all participants. Maximal ergometric bike test was performed on 229 participants and of those, 177 wore actigraph accellerometers to measure physical activity over 5 consecutive days. Questionnaires regarding family background and lifestyle were collected from 361 mothers and 330 fathers. Multiple linear regression was used to analyze the data and assess determinants of both physical fitness and skinfold thickness with stepwise forward selection.
RESULTS: Skinfold thickness (mm) was found to be the strongest predictor of physical fitness ($\beta = -0.02$, part. $R^2 = 0.44$) and living in a town or a rural area was associated with better fitness ($\beta = 0.53$, part. $R^2 = 0.05$ and $\beta = 0.60$, part. $R^2 = 0.10$, respectively) compared to those who lived in a city. Being a boy was associated with better fitness level ($\beta = 0.32$, part. $R^2 = 0.06$) compared to being a girl. Social factors had very little effect on fitness but having a father with high salary compare to low was associated with lower fitness ($\beta = -0.16$, part. $R^2 = 0.01$) and likewise having a father who smoked ($\beta = -0.05$, part. $R^2 = 0.01$). Physical activity (total kcounts/min) and BMI of ones mother were found to be the strongest predictor of skinfold sum ($\beta = -0.04$, part. $R^2 = 0.08$ and $\beta = 1.6$, part. $R^2 = 0.08$, respectively). Children who had a smoking mother were likelier to have higher skinfold sum ($\beta = 3.4$, part. $R^2 = 0.028$) and children whose fathers had college/university education compared to only middle school education were likelier to have lower skinfold sum ($\beta = -10.6$, part. $R^2 = 0.028$). Being a girl was associated with higher skinfold sum ($\beta = -9.5$, part. $R^2 = 0.02$).
CONCLUSION: These results show that social factors of parents of 9 year old Icelandic school childrens do not seem to have much weight in determining either physical fitness or skinfold thickness of these children.