

fitness test (Graf et al. 2004). 2-way ANCOVA, controlling for age and sex, using tertiles for fitness and sports participation groups (high, medium, low) as well as 2 groups for TV time (up to 60 min/day; more than 60 min/day) were used to examine combined effects on BMIPCT. Continuous scores for sports participation, fitness, and TV time were also used in one-way ANCOVA to determine differences between normal weight, overweight and obese subjects. Results Prevalence of overweight and obesity was 8.5% and 5.4%, respectively. There was no difference between boys and girls in BMIPCT. No interaction effects of fitness, sports participation or sedentary behaviour on BMIPCT occurred but significant main effects were observed for fitness and TV time. Higher TV time and lower fitness scores were associated with higher body weight. Similar results occurred when examining the different weight categories. Only TV time and fitness differed significantly between normal weight, overweight, and obese subjects, while no difference was seen for sports participation. Discussion Time spent watching TV and physical fitness independently influence body weight, while no effect of sports participation on body composition in children was shown. The lack of significance may be due to subjective assessment but could also be a reflection of lower sports participation in children in relation to their habitual physical activity. Overall, more research using objective measurements is needed to examine the combined association of various behavioural and physiological components contributing to weight gain in children. References: Graf C et al. (2004). Physical activity, leisure habits and obesity in first-grade children. *Eur J Cardiovasc Prev Rehabil* 11: 284–290.

ASSOCIATIONS BETWEEN WEIGHT STATUS AND MOTOR COORDINATION DURING CHILDHOOD

Lopes, V.P., Stodden, D.F., Rodrigues, L.P.

Polytechnic Institute of Bragança

Introduction Ordinarily the relationship between obesity, physical activity (PA) and motor coordination (MC) is analyzed having in mind that low levels of PA cause obesity and low MC. But MC was found to be predictor of both PA (Lopes et al. 2011) and adiposity (Lopes et al. 2011). The purpose of this study is to analyze the association between MC and weight status. Methods Participants were 6,625 children (boys n = 3,344; girls n = 3,281), aged 6 - 10 years. Body mass index (BMI) was calculated from height and weight. MC was evaluated using the body coordination test (KTK). A factorial ANOVA was conducted using BMI as dependent variable. A binary logistic regression using two weight status categories as the dependent variable was performed. The odds ratios were calculated for weight status and MC tertiles separately in boys and girls, controlling for age. Results BMI significantly increases across age groups ($F(5, 6224) = 50.59; p < 0.001$). Children with higher MC showed lower BMI levels ($F(10, 6224) = 4.53; p < 0.001$). The differences in BMI among MC tertile groups became larger across age ($F(10, 6224) = 4.53; p < 0.001$). Girls in the first and second tertiles of MC distribution had respectively 3.47 and 1.63 more chances of being overweight/obese than girls in the third tertile. Boys in the first and second MC tertiles had respectively 3.90 and 2.08 more chances of being overweight/obese than boys in the first tertile. Discussion The findings show that children with lower MC had higher BMI than children with higher MC, and this difference became larger across age. The risk of being overweight/obese is higher in children with lower MC. We suggest that the relationship between MC, BMI and PA changes with age. At very young ages, till 4 - 5 years, the levels of PA are extremely important to MC and skills development and to weight control (Bürgi et al. 2011). During subsequent years and until puberty, children's weight status across time may be indirectly affected (from the direct result of PA and fitness levels) via the development of MC throughout childhood. Children who continue to develop higher levels of MC throughout childhood will be able to successfully engage in more movement opportunities promoting a healthy weight status (Stodden, Goodway et al. 2008). References Bürgi, F., U. Meyer, et al. (2011). *Int J Obes* 35(7): 937-944. Lopes, V. P., J. A. R. Maia, et al. (2011). *European Journal of Sport Science*: 1-8. Lopes, V. P., L. P. Rodrigues, et al. (2011). *Scandinavian Journal of Medicine & Science in Sports* 21: 663–669. Stodden, D. F., J. D. Goodway, et al. (2008). *Quest* 60: 290–306.

REDUCED MOTOR SKILLS IN KINDERGARTEN CHILDREN WITH CONGENITAL HEART DISEASE IN COMPARISON WITH HEALTHY CHILDREN

Engelhardt, A.1,2, Hess, J.2, Hager, A.2

Technische Universität München

Objective: Motor competence is of major importance for the interactions of individuals with their environment. School children with congenital heart disease are known to have limitations even with minor defects. Data from kindergarten children are missing. This study was to compare the motor development of kindergarten children aged 4-6 years with congenital heart disease with healthy peers of the same age. Patients and methods: Motor development was investigated in 62 children (19 female, 43 male) with various forms of CHD and compared to 39 healthy children (22 female, 17 male). All subjects performed the motor development test (MOT 4-6), answered the Kiddy-KINDLQ quality of life questionnaire (as well as the parents) and wore an accelerometer to capture daily activity for seven consecutive days. Results: The median (quartile; quartile 3) motor quotient (MQ) in the CHD group (104 [96;113]) was significantly lower than in the control group (111 [104;116]; Mann-Whitney-U test $p=0.005$). Quality of life did not differ significantly ($p=0.774$, parents' questionnaire $p=0.066$), nor the minutes in moderate and vigorous physical activity ($p=0.093$). No correlation between the MQ and the other variables could be shown. Conclusion: Kindergarten children with CHD have a reduced motor ability in comparison with healthy children. This reduction seems not to be related to physical activity or quality of life.

SALIVARY IGA AND UPPER RESPIRATORY SYMPTOMS IN PORTUGUESE YOUNG SOCCER PLAYERS

Rama, L., Leitao, R., Rosado, F., Teixeira, A.M.

Faculty of Sport Sciences and Physical Education of Coimbra

Introduction: In sportive adult population, intense training or competition can induce immune alterations, namely, a decrease of salivary IgA (sIgA), predisposing to upper respiratory symptoms (URS) occurrence (Gleeson, M., 2004). Fewer studies were conducted with children involved in sport participation, looking for mucosal immune response. In young gymnasts, the sIgA at rest seems to be not affected (Pilaire, Bonis, & Lac, 2004). It is generally accepted that sport activity at youth, brings benefits to the health, related to the immune function, as it develops at that time (Barlett, et al., 1998). Most studies shown that more active children had lower illness episodes (Cieslak, Frost, & Klenrou, 2003) The aim of this study was to compare de sIgA response in U-10 soccer players with a control group of teammates which are not involved in physical activity. Methods: 12 young soccer players (U-10 level), training twice a week, and 11 controls, that were not involved in regular physical activity (less than 1 hour/ week), participate in this study held during the first 15 weeks of the training season. Anthropometric measurements and the maturation status were controlled. The Salivary IgA concentration was calculated through ELISA assays (Salimetrics, UK). During the study the URS episodes were recorded. Descriptive, independent t-test and repeated