and if one causes the other or vice versa, but their responsibility in the development of severe complications of obesity is undoubted. Considered the greater risk of NAFLD for IR obese children, it might be advisable to perform LU whenever IR-HOMA is pathologic, regardless of the lack of clinical or laboratory sign of NAFLD.

doi:10.1017/S136898001200208X

34 – Evaluation of oxidative stress markers in obese children

P Matusik[1], Z Prokopowicz[2], B Norek[2], M Olszanecka-Glinianowicz[3] and E Malecka-Tendera[1]

[1]Department of Paediatrics, Endocrinology and Diabetes, Medical University of Silesia, Katowice, Poland: [2]Upper-Silesian Center for Child's Health, Katowice, Poland: [3]Department of Pathophysiology, Medical University of Silesia, Katowice, Poland

Introduction: Obesity in childhood can increase the risk of cardiovascular morbidity and mortality in adulthood. Oxidative stress seems to be involved in the pathophysiology of atherosclerosis, diabetes and cardiovascular complications in obesity. The aim of our study was to evaluate the level of oxidative stress markers in obese children comparing to the lean control group.

Method: Oxidative stress markers (TOS – total oxidative status, TAC – total antioxidative capacity, oxy-LDL), leptin and adiponectin were determined in forty-two obese children and forty healthy controls. Nutritional status by BMI and waist/height ratio calculation and body composition analysis (Tanita BC-418) was assessed in all children.

Results: TAC was significantly ($P < 0{\cdot}0001$) lower, but oxy-LDL level was significantly ($P < 0{\cdot}05$) higher in obese than in healthy children. TOC was significantly correlated with fat percentage ($r = 0{\cdot}494$; $P < 0{\cdot}05$) measured by bioimpedance and with leptin level ($r = 0{\cdot}518$; $P < 0{\cdot}01$) in obese children.

Conclusions: High level of oxy-LDL together with low antioxidant capacity detected in obese children, and significant relation of nutritional status to total oxidative stress indicate imbalance in oxidative/antioxidative status in obese children. This situation can lead to higher risk of atherosclerotic and diabetic complications in the future.

Funding: Research relating to this abstract was funded by Medical University of Silesia Grant No. KNW-1-183/09.

doi:10.1017/S1368980012002091

Poster Abstracts: Physical Activity and Fitness

35 – The relationship between BMI and balance in 7–16-year-old boys

S Birch and MJ Duncan

Department of Biomolecular and Sports Science, Coventry University, UK

Introduction: Overweight/obesity negatively influences balance and stability in adults. Research has not assessed whether this is the case in children. The aim of the present study was to determine the relationship between BMI and balance performance in a sample of 7–14-year-old boys.

Method: Two hundred and twenty-nine boys aged 7–16 years (mean age 11·4 (SD 2·4) years) participated in the study following ethics approval. Height and mass were determined using a Seca stadiometer and weighing scales (Seca Instruments, Hamburg, Germany) from which BMI was determined and weight status being classified using International Obesity Task Force criteria. Balance was assessed using a computerised stadiometer (MFT S-3 System, Innsbruck, Austria) and from which two measures of balance; balance stability and sensorimotor balance were determined.

Results: Pearson's correlations indicated that higher BMI was associated with poorer balance stability ($r = -0{\cdot}392$, $P = 0{\cdot}0001$) and sensorimotor balance ($r = -0{\cdot}296$, $P = 0{\cdot}0001$).

Analysis of covariance, controlling for age indicated that balance stability, performance was significantly poorer for children who were 'overweight/obese' compared with 'normal weight' children ($F(1, 226) = 79{\cdot}2$, $P = 0{\cdot}001$). Likewise, sensorimotor balance was significantly poorer for 'overweight/obese' children ($F(1, 226) = 11{\cdot}76$, $P = 0{\cdot}001$)

https://doi.org/10.1017/S1368980012002091 Published online by Cambridge University Press

but also improved as children got older (F (1, 226) = 4·43, P = 0·03, t = −1·847).

Conclusions: The present study adds novel data in that multiple domains of balance performance (balance stability, sensorimotor balance) were examined, suggesting that children within the 'normal weight' category exhibit superior balance scores compared with overweight/obese children.

doi:10.1017/S1368980012002108

36 – Patterns of physical activity in primary-school children: the effect of ethnicity

EL Eyre[1], E Smith[1], S Kumar[1], AJ Wagenmakers[2] and KA Matyka[1]

[1]Warwick Medical School, The University of Warwick, UK: [2]Schools of Sport and Exercise Sciences, University of Birmingham, UK

Introduction: Ethnicity is an important predictor of metabolic health and the reasons for this are likely to be multifactorial. Differences in physical activity (PA) may contribute to this risk but few data exists in childhood.

Method: 122 (57 White EU, 36 South Asian, 29 other ethnic) children (mean age 8·5 (SD 0·5) years) wore a combined physical activity/heart rate (Actiheart, UK) monitor for 7 d.

Median daily activity counts per minute (CPM) were compared between ethnic groups using Wilcoxon signed-rank test.

Results: Examining the group as whole, PA is greater on weekdays than weekends (109 *v.* 99 cpm, =3·92, P = 0·000) and during school than after school (117 *v.* 99 cpm, =−3·22, P = 0·001). Compared with children from all ethnic backgrounds, White EU were more active on weekdays (u = 1376, =−2·45, P = 0·014; mean rank = 70 *v.* 54, white EU *v.* all other ethnic groups, respectively) and after school (u = 1237, =−3·16, P = 0·002, mean rank = 72 *v.* 52). Subgroup analysis showed that South Asian children had no differences between weekday and weekend PA (103 *v.* 92 cpm, =1·654, P = 0·098) but were more active at school than after school (122 *v.* 91, =3·174, P = 0·002). White EU children were more active on weekdays than weekends (116 *v.* 90 cpm, =−2·24, P = 0·025) but did similar activity after school and during school (118 *v.* 112 cpm, = 4·65, P = 0·642).

Conclusions: Ethnic groups exercise differently but all children engage in highest activity at school. The contribution of PA on metabolic well-being needs further investigation in vulnerable groups of children.

doi:10.1017/S136898001200211X

37 – South Asian children spend more time in light activities and less time in moderate and vigorous PA on weekdays

ELJ Eyre[1], S Kumar[1], E Smith[1], AJ Wagenmakers[2] and KA Matyka[1]

[1]Warwick Medical School, The University of Warwick, UK: [2]School of Sport and Exercise Sciences, The University of Birmingham, UK

Introduction: South Asian (SA) children are at increased metabolic risk compared with White children. The role of physical activity in this risk is unknown. The present study compares metabolic equivalent (MET) levels in SA and White EU children.

Method: Ninety-five (54 White EU, 41 SA) children (mean age 8·4 (SD 0·5) years) wore a combined activity and heart rate monitor (Actiheart, Cambridge, UK) for 7 d. Time spent in MET levels were categorized into light (LPA), moderate (MPA) and vigorous physical activity (VPA). Results were analysed using the Mann–Whitney test.

Results: SA children spent fewer minutes (average 7 d) in VPA (U = 589, = −4·12, P = 0·000, SA mean rank = 34·62 *v.* White EU mean rank = 39·68) and more minutes in LPA than White EU (U = 889, −1·82, P = 0·034, SA mean rank = 54·37 *v.* White EU 43·94). SA children spent fewer weekday minutes in MPA (U = 875, = −1·75, P = 0·040, mean rank 42·33 *v.* 52·31 SA *v.* White EU, respectively) and

https://doi.org/10.1017/S1368980012002091 Published online by Cambridge University Press