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The relationship between obesity and blood pressure in Australian inner city migrant children living in Sydney

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Elevated body weight and fat distribution are disproportionately increasing in immigrant children world-wide. As there is concern that high blood pressure (BP) is a consequence, we investigated this relationship between various overweight/obesity measures, however diastolic BP was not. The systolic BP (> 121). All migrant children reported lower levels of exercise (Odds Ratios: ME=3, SEA=5, EUR OR=2); although they were equally, or more (SEA) likely to exercise during school time. We concluded that it is important to implement culturally acceptable exercise and extracurricular sports’ programs.

Evaluation of osteoarthritis in severely obese patients in an APORI study

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Introduction: Epidemiological studies show an increased prevalence of osteoarthritis of the knee and hand with increased body mass index (BMI). The connection between obesity and osteoarthritis cannot exclusively be explained by genetic factors or by the accumulation of tear and wear.

Methods: In this study, 380 severely obese patients with BMI≥40 were assessed for osteoarthritis. 46 men and 334 women entered the study from a whole population of 2775 patients under treatment in APORI center. Patients’ weight range was between 89.5 and 147 kgs (mean=109.90 ±11.9) and their age ranged from 14 to 83 years (mean=59.14 ± 18.0). 76 patients had osteoarthritis diagnosed by a specialist. We used BMI as a criterion to choose the severely obese patients (class IV) from this population.

Results: A high percent of our patients were between 95 and 105 kgs. (156, 41.1%) most patients’ BMI was under 45 (282,74.2%). All patients with arthritis were women. There is a significant difference in osteoarthritis regarding the gender of the patient. (P<0.000, df=1). There was a significant relationship between age and arthritis (P=0.027, df=5). Of the patients with osteoarthritis, 61.8% were less than 105 kgs. There was a significant difference in weight between the two groups (P<0.000, df=6). There was no significant difference in BMI between the two groups (P=0.546, df=3).

Conclusion: To our surprise, although there was a relatively higher rate of osteoarthritis in accordance to patients’ weight, we couldn’t find a significant difference between BMI and osteoarthritis in obese patients within class VI. Maybe in higher BMI rates the prevalence of osteoarthritis is steady.

Keywords: BMI, osteoarthritis, obesity.
T4:PO.06

Prevalence of adolescent overweight in urban and rural areas of Greece

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Objective: (1) To assess the prevalence of adolescent overweight (OW) and obesity in 2 district populations: Those of the urban area of Piraeus and those of the rural area of Thebes. (2) To examine how physical activity and sedentary behaviour as well as environmental factors are associated with obesity. It was took into account total energy intake in both groups evaluated.

Subjects: Representative sample of children aged 10-14 years (n=527) participated in a multivariate questionnaire study taken place in both cities from June to September 2006. Weight and height, leisure-time physical activity (LTPA), sedentary behaviour (TV viewing and video-game use) were evaluated from the questionnaire responses while total energy intake was assessed using a 7-day food record.

Results: In total, 15.2% and 11.8% of the children in Piraeus and Thebes respectively (95% CI: 13.0 -17.6) are OW (including obese), according to the IOTF (International Obesity Task Force) definition. LTPA is negatively correlated to OW in both study groups, whereas sedentary behaviour is positively related to OW mainly between adolescents from the urban area of Piraeus.

Conclusion: This study confirms the association between sedentary behaviour and adolescence OW in urban areas. This will contribute to monitoring both childhood OW and its main determinants at the population scale.

T4:PO.07

Prevalence of overweight and obesity in adolescents of municipality of Floridablanca, Colombia

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1 Universidad Industrial De Santander

Objective: To determine the prevalence of overweight and obesity in students adolescents of schools of the municipality of Floridablanca.

Place and date: Floridablanca, Santander, Colombia. Second semester of 2005.

Materials and methods: Study descriptive cross sectional. Hundred ninety-five subjects with ages between 11 and 18 years, students of private and public schools of the municipality of Floridablanca, they responded a survey on demographic variables and eating habits. An analysis was carried out unvaried to examine the characteristics of each one of the subjects and an analysis bi varied for establish the association of the explanatory variables with each one of the variables of interest.

Results: Was a total prevalence of Overweight of 6.7% (IC 95%: 3.5;11.1) and of Obesity of 1.0% (IC 95%: 0.1;3.6). The prevalence of overweight in men was of 8.6% (IC 95%: 3.7;16.2) and in women of 4.9% (IC 95%: 0.1;11.0). The prevalence of Obesity in men was of 2.1% (IC 95%: 0.2;7.5), whereas in the women this event did not appear. Statistically significant differences were according to sex, neither for Overweight, nor for Obesity (P=0.92 and P=0.226 respectively). One appeared association between alcohol consumption and Overweight (OR: 4.11. IC 95%:1.10;15.58, P=0.009).

Conclusion: It is necessary to continue making investigation related to Overweight, Obesity and their associated factors, with the purpose of raising and executing effective strategies of solution that control the occurrence of these events and avoid them in earlier ages.

T4:PO.08

Trends of overweight and obesity among 14-18 years old urban adolescent girls in Ahvaz senior high schools 1997-2006

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Objective: Over the past century, most nutrition research and policy concern the developing world focused on poverty and under nutrition. Now there is growing evidence of a major shift toward overweight and obesity in these societies. The aim of this study was to assess changes in prevalence of obesity among 14-18 years old adolescent girls in Ahvaz between years 1997 and 2006.

Methods: Two cross-sectional studies were carried out separately. In 1997, 398 adolescent girls aged 14-18 year, and in 2006, 420 girls were selected from Ahvaz senior high schools, by stratified sampling. Socio-economic questionnaires were completed, weight and height were measured, then BMI was calculated.

Results: Mean ± SD of height (Cm), weight (kg), and BMI (kg/m²) were 159.82± 5.55 vs. 159.77± 15.69 (P= 0.95), 52.17±8.67 vs. 55.64 ±13.66 (P< 0.001), and 20.41±3.18 vs. 21.57± 3.94 (P=0.001) in 1997 and 2006 respectively. Between 1997 and 2006 obesity (BMI > 95th percentile) increased among 14-year-old subjects (from 4.7% to 14.3%), 15-year-old subjects (from zero to 5.7%), 16-year-old subjects (from zero to 2.8%), 17-year-old subjects (from zero to 3.3%), and 18-year-old subjects (from 4.7% to 9.1%).

Conclusion: Results of this study are eloquent of the fact that prevalence of obesity is increasing among adolescent girl students in Ahvaz. Regarding the adverse effects of obesity, it is critical to encourage healthy eating patterns and increase physical activity among adolescent girls.

T4:PO.09

Does short sleep duration favor abdominal fat deposition in children?

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Objective: The main issue of this cross-sectional study was to determine whether the increased body mass index characterizing short sleeper children is related to an increased predisposition to abdominal fat accumulation.

Method: A total of 422 children (211 boys and 211 girls) involved in the ‘Québec en Forme’ Project were tested for body weight, height, waist circumference, and sleep duration. A regression line between waist circumference and body mass index was computed in each gender for the whole sample except the short duration sleepers (≤ 10 hours of sleep per night). These regression equations were used to predict waist circumference in the short duration sleepers, and the predicted values were then compared to the measured values.

Results: This analysis showed that the measured waist circumference values were significantly higher than the predicted values (59.8 ± 3.3 vs. 56.6 ± 2.5 cm for boys and 58.6 ± 2.7 vs. 55.3 ± 4.2 cm for girls, P< 0.05).

Conclusion: These results show that short sleep duration favors a preferential abdominal fat deposition in children. This finding is of particular concern since abdominal obesity is the most prevalent form of the metabolic syndrome.
Introduction and Aim: Adolescent obesity is a health problem related to nutritional and non-nutritional factors. This research project aimed at comparing obesity and overweight and related socio-economic factors among adolescent girls in the North and South areas of Tehran, the capital of Iran, in 2005.

Methods: In this cross-sectional and analytical study 210 adolescent girls, aged 14 to 17 years, from high schools in the North area of Tehran (n=105; high socio-economic level) and the South area (n=105; low socio-economic level) were selected by the two-step, cluster random sampling method. Demographic data, including mothers' and fathers' educational levels and parents' jobs were gathered, using a validated self-administered questionnaire. Weight (kg) and height (cm) were measured to the nearest 100 gr and 0.1 cm, respectively, and body mass index (BMI) calculated.

Results: The prevalence of overweight obesity was observed in 15.2 % (95% CI 8.5%-22.9%) of the girls in the North area and 26.7 % (95% CI 18.6%-36.3%) of the South area, the difference being significant (P<0.001). Thus obesity overweight was more prevalent in female of a low socioeconomic level than in females of a high socioeconomic level. There was a significant correlation between BMI of the girls and mothers' literacy in the North area. Obesity + overweight was significantly correlated with mothers' job among girls in the South area.

Conclusion: Evidence suggests that overweight and obesity in Tehran, especially among female adolescents of a low socioeconomic level, is a public health problem. It is suggested to design and implement nutritional intervention programs for adolescent girls, particularly in the low socioeconomic areas.

Table 1: Four days of FoRC (F4) and seven days of diary in 41 participants

<table>
<thead>
<tr>
<th>Nutrient / Food</th>
<th>Diary Mean SD</th>
<th>F4 Mean SD</th>
<th>M difference</th>
<th>SD of mean difference</th>
<th>Upper limit (1.96 SD)</th>
<th>Lower limit (-1.96 SD)</th>
<th>Pe aso n C r.</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy (kJ)</td>
<td>864 ± 9.5</td>
<td>15 ± 9</td>
<td>76 ± 11</td>
<td>26 ± 10</td>
<td>184 ± 3.1</td>
<td>2656 ± 15</td>
<td>4563 ± 0.6</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Fat (%) energy</td>
<td>75 (09)</td>
<td>19 ± 12</td>
<td>77 ± 15</td>
<td>26 ± 10</td>
<td>65.2 ± 4</td>
<td>60.6 ± 4</td>
<td>45 ± 0.04</td>
<td>0.04</td>
</tr>
<tr>
<td>NSP (g)</td>
<td>13 (6.8)</td>
<td>25 ± 12</td>
<td>12 ± 15</td>
<td>3 ± 9</td>
<td>4.95 ± 0.9</td>
<td>7.96 ± 0.5</td>
<td>&lt;0.0001</td>
<td>0.09</td>
</tr>
<tr>
<td>Alcohol (units)</td>
<td>1.6 (2)</td>
<td>1.5 ± 1</td>
<td>1.4 ± 2</td>
<td>1 ± 0.9</td>
<td>0.9 ± 0.9</td>
<td>1.58 ± 0.3</td>
<td>&lt;0.0001</td>
<td>0.001</td>
</tr>
<tr>
<td>Fruitive (g)</td>
<td>262 ± 81</td>
<td>14 ± 6</td>
<td>22 ± 6</td>
<td>12 ± 4.2</td>
<td>42 ± 4</td>
<td>86 ± 7.5</td>
<td>127 ± 21.2</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Bread (g)</td>
<td>98 ± 55</td>
<td>43 ± 6</td>
<td>85 ± 11</td>
<td>51 ± 18</td>
<td>39 ± 4.4</td>
<td>64.2 ± 7.4</td>
<td>91.1 ± 6.6</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Cereal (g)</td>
<td>22 ± 50</td>
<td>19 ± 12</td>
<td>18 ± 15</td>
<td>77 ± 18</td>
<td>11 ± 0.9</td>
<td>17.5 ± 2.5</td>
<td>25.9 ± 0.8</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

Completion of four days of FoRC gives adequate agreement with a seven day prospective diet record, without loss of participants, in this study situation. However, participation was low and males were under-represented. Agreement may be high because FoRC and SPoON were completed at the same time. To address these issues, a further validation is scheduled for November 2006. After further testing, it is hoped FoRC could be used to cost-effectively measure and feedback on the diets of a large number of student participants. (Research relating to this abstract was funded by a UK MRC PhD studentship).

T4:PO.12

The feasibility of a school-based lifestyle intervention for adolescent males: The FILA Program

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Introduction: The prevalence of overweight and obesity among adolescent Australian boys is not only increasing but is accelerating. Secondary schools are perhaps the most appropriate setting to intervene for overweight and obese adolescents, however to date, no interventions have specifically targeted adolescent males. The FILA (Fitness Improvement, Lifestyle Awareness) study was developed for adolescent males (12 and 13yrs). The aim of the study was to determine the feasibility of the program in an Independent Boys School in Sydney, Australia.

Methods: The FILA program was a multifaceted 16-week intervention concentrating specifically on: increasing physical activity within curricular and non-curricular time, healthy fast food alternatives, healthy recess snacks, reducing small screen recreation to less than 2 hours per day and behaviour modification techniques. The primary outcome measure was cardio-respiratory fitness. Secondary outcomes included BMI, waist circumference and time spent in sedentary behaviours. All outcomes were assessed at pre (baseline) and post (16-weeks) intervention in the 16 participating boys (mean age 12.79 +/- 0.48, mean BMI 21.65 +/- 3.6).

Results and Discussion: Over the 16-week intervention, cardio-respiratory fitness significantly improved from 32 to 53 laps (P<0.001). Average waist circumference reduced from 77.79 to 76.77 cm but this was not significant. No changes were evident in BMI. The small number of participants may not have provided adequate statistical power to detect changes in outcome variables. Small non-significant changes were evident in time spent in sedentary pursuits, in particular small screen recreation. Overall the FILA program proved to be feasible and strong participant, parent and staff satisfaction was reported. A pilot study is planned for 2007.

Conflict of Interest: There is no conflict of interest regarding this paper.

Funding: There was no funding for this project.
T4:PO.13
Gender differences in the adverse association of visceral fat on BMC in overweight Latino children and adolescents
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Introduction: The link between abdominal adiposity and osteopenia independent of general obesity has not been extensively studied. We have previously reported racial differences in the contributions of subcutaneous and visceral fat to bone mineral content (BMC) in Caucasian and African-American children; however, these associations have not been examined in Latinos.

Methods: The present investigation in 259 (113 girls, 146 boys) overweight (mean BMI=28.2 kg/m2) Latino children and adolescents (11.1 ± 1.7 years) from Los Angeles, California was undertaken to determine whether subcutaneous abdominal adipose tissue (SAAT) and intra-abdominal adipose tissue (IAAT) are inversely related to BMC. SAAT and IAAT were determined by magnetic resonance imaging (MRI). BMC was measured using dual energy X-ray absorptiometry (DXA).

Results: In girls, independent of age, height, VO2max, total fat, total lean, and SAAT, there was an inverse correlation between IAAT and BMC (r=-0.25, P<0.05), but no significant correlation between SAAT and BMC. In post-pubertal girls (Tanner stage 4-5; n=42), inverse correlations between IAAT and BMC were stronger (r=-0.46, P<0.05); in pre-pubertal and pubertal girls (Tanner stage 1-3; n=71), IAAT was correlated with size-adjusted BMC (r=-0.39, P<0.05) and with bone area (r=-0.38, P<0.05). In contrast, in boys, neither SAAT nor IAAT were significantly correlated with BMC.

Conclusion: Subcutaneous fat does not appear to adversely influence BMC in either Latino girls or boys. However, there appear to be gender differences with regards to the inverse contribution of visceral fat to BMC in Latino adolescents, with the most prominent inverse association observed in post-pubertal girls.

T4:PO.14
PROFILES: A computer-based process for nutrition policy analysis and advocacy on the double burden of malnutrition (obesity and malnutrition)
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PROFILES is a process for nutrition policy analysis and advocacy that uses epidemiological models to estimate the functional consequences of the double burden of malnutrition, over and malnutrition, in terms that policy makers understand. Nutritional problems addressed include obesity; sub-optimal infant feeding practices; underweight; stunting; low birth weight; iron, vitamin A and iodine deficiencies. Using local demographic, economic and nutrition data, the consequences of these problems are quantified in terms of productivity, health and survival. On over nutrition the PROFILES models estimate the functional consequences of overweight and obesity as relating to different disease pathways such as diabetes. For diabetes the model calculates mortality, lost productivity and health care costs attributable for high BMI. AED applies the global burden of malnutrition models for nutrition policy analysis and dialogue with partners at the country-level and has worked in 33 countries worldwide. The PROFILES process typically consists of working with national multi-sectoral representatives having a stake in improved nutrition. Steps include identifying nutrition policy reform priorities; using epidemiological models to quantify the potential gains for health, survival and the economy due to feasible improvements in nutrition; and developing strategic policy communication tools for policy dialogue that uses these estimates to argue for increased investment in key nutrition interventions. Future plans include completing the over nutrition models for the cardiovascular disease pathway.

Funding
The Academy for Educational Development (AED).

T4:PO.15
Variation in the prevalence of overweight and obesity in UK schools
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Background: In 2004 the UK Government, within the Choosing Health White Paper, outlined a target ‘To halt, by 2010, the year on year increase in obesity among children under 11 in the context of a broader strategy to tackle obesity in the population as a whole’. In order to justify action there is a need to highlight the scale of the problem. In addition, further analysis comparing differences between schools is important to identify where appropriate resources/support should be provided.

Methods: During 2005 BMI measurements were obtained in 2425 boys and 2267 girls, aged 11.6±0.3y, from 33 out of 40 schools in Leeds, UK. Standardized values were calculated using National Centile Charts and overweight and obesity prevalence defined at the 85th and 95th centiles, respectively.

Results: Overall UK BMI centile charts identified 33.5% of children overweight and obese compared to the 27.7% prevalence reported in the Health Survey of England (2003) for children aged 9–11y. When the data were analysed by school the prevalence of overweight and obesity varied from 23.0% to 42.9%, with 3 schools less than 30% and 4 schools higher than 40%.

Conclusion: These data should be of major concern given the increasing trend in an age group extremely close to that the government has prioritised. In addition, it is clear that there was large variability in the prevalence of overweight and obesity according to school. The upper prevalence values are particularly high and demonstrate the scale of the problem in children attending specific schools.

T4:PO.16
Accuracy of the estimated prevalence of obesity from self reported height and weight in an adult French population
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Objective: To determine how self reported heights and weights from French adults could provide an accurate assessment of obesity prevalence in the population.

Methods: During the 2003 Decennial Health Survey collected by the French National Institute of Statistics and Economic Studies, 1889 subjects participated in a health examination using standardized procedures and equipment. Both self-reported values and clinic measurements of weight and height were recorded for 1858 adults.

Results: The prevalence of obesity (BMI >= 30) was 9.7% when calculated from self-reported heights and weights and 13.7% when using clinic measurements. Considering clinical measurements as the reference, 32.2% of the obese subjects were not classified as obese with self-reported data. Sensitivity and specificity for determining obesity with self-reported data were 68% and 99%. From ROC curve, the best cut-off to classify a subject as obese from self-reported data was 28, giving a sensitivity equal to 94% and a specificity equal to 93%.

Conclusion: Self-reported information involves an underestimation of obesity prevalence. These data suggest that self reported weights and heights would be more satisfactory for the monitoring of obesity prevalence if defining obesity as BMI of 28 or greater.
**T4:PO.17**

**The effect on weight control by community-based, anti-obesity health education program**

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**Objective:** We evaluated the effect on weight control by community-based, anti-obesity health education program promoted by community health center.

**Subjects and methods:** We divided the period of recruitment by 3 times from March 2005 to December 2005. After 927 participants were recruited by means of telephone and direct visit, anti-obesity program was applied to every subjects for 12 weeks. 433 subjects finished their weight control program. The anti-obesity program was composed of exercise, diet education and behavior modification by public employees, additionally, weekly information about exercise, diet was delivered and weekly Short Message Service (SMS) on behavior modification was sent by mobile phone.

**Measurements:** We measured anthropometry of all subject at baseline and 12 weeks. Blood pressure, fasting glucose, total cholesterol, triglyceride, high-density lipoprotein (HDL) and uric acid were also measured. We compared the difference of the changes of parameters by using paired t test.

**Results:** After 12 weeks intervention, mean reduction of weight, waist circumference, body mass index were 1.54kg (P<0.001), 494cm (P<0.001), 0.61kg/m² (P<0.001), respectively. Subjects who have weight reduction less than 3kg were 57.9%, but subject who have waist circumference reduction over 3 inches were 71.3%. In first period, fasting glucose, total cholesterol, HDL and uric acid changes showed significant reduction. Overall, the subject’s were highly satisfied with this anti-obesity program.

**Conclusion:** The weight control program by community-based, anti-obesity health education program promoted by community health center showed positive effect on weight reduction in general population. To prevent rising obesity prevalence, community-base anti-obesity program is necessary.

**Keywords:** obesity, community-based weight control program, SMS, behavior modification

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**T4:PO.18**

**Normoglycemia and risk markers in overweight and obese women from Turkey**

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**Aim:** We aimed to evaluate various metabolic parameters in overweight and obese Turkish women with normal fasting glucose (NFG).

**Materials and methods:** A total of 3455 women participants who had normal fasting glucose (<100 mg/dl) and 232 (6.7 %) subjects with normal weight, 678 (19.6 %) overweight, 2545 (73.7 %) obese were enrolled to the study, retrospectively. They were participated three groups, group I, 66 – 85 mg/dl; group II, 86 – 91 mg/dl and group III, 92 – 99 mg/dl. Thereafter, we determined and compared body compositions (body mass index, abdominal fat mass), resting blood pressures, plasma lipids and lipoprotein levels, glucose homeostasis.

**Results:** There were 969 (28.1 %) patients in group I, 923 (28.6 %) in group II and 1130 (32.7 %) in group III. Mean body mass index and body fat mass in group III (35.1± 6.4 kg/m² and 43.6±18.1 kg) were significantly higher than group I (34.5±6.4 kg/m² and 41.9±18.2 kg) and group II (34.5±6.1 kg/m² and 41.6±16.3 kg), respectively (P<0.05) Body fat distributions were not different between groups. Mean fasting glucose, total cholesterol, triglycerides, triglycerides/HDL-cholesterol ratio, total cholesterol: HDL-cholesterol ratio, non-HDL cholesterol values, systolic and diastolic blood pressures, and HOMA values in groups III were significantly higher in group III than group I and group II, and higher in group II than group I (P<0.05).

**Conclusion:** In present study, our data suggest that normoglicemic patients with overweight and obese women had significantly different antropometric and metabolic risk predictors in various glucose tertiles.

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**T4:PO.19**

**Dyslipidemic hypertension in overweight and obese women from Turkey**

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¹Istanbul University Istanbul Faculty of Medicine Endocrinology and Metabolism

**Aim:** ‘Dyslipidemic hypertension (DHT)’ were reported for a syndrome approximately 12 % of patients with essential hypertension in 1988 by Williams et al. We aimed to determine the feature s of the DHT in obese Turkish women referred to obesity outpatients clinic.

**Materials and methods:** Analyses were performed on 5528 overweight and obese women in our obesity outpatients clinic, retrospectively. Hypertension were defined as a blood pressure which was above 130/85 mmHg or using an antihypertensive drug. Dyslipidemic hypertension criteria was one of the each other dyslipidemia; decreased HDL-cholesterol (<50 mg/dl), increased triglycerides (>150 mg/dl) and LDL-cholesterol (≥130 mg/dl). They divided two groups; group I was simple hypertension and group II was DHT. Body compositions, plasma lipids and lipoprotein levels, glucose homeostasis were determined and compared between groups.

**Results:** There were 1095 (19.8 %) patients with overweight (BMI>2.5 kg/m²), ≥30 kg/m²) and 4453 (80.2 %) obese (kg/m²) women , and 2146 (38.8 %) with DHT. In patients with DHT, mean total cholesterol (218±44.9 mg/dl vs 185.1±26.6 mg/dl), LDL-cholesterol (137.5±41.3mg/dl vs 104.8±18.3 mg/dl), triglycerides (175.6±124.3 mg/dl vs 93.7±28.3 mg/dl), fasting glucose(104±31.9 mg/dl vs 98.9±26.1 mg/dl), insulin levels (15.9±13.1 mIU/l vs 12.0±7.4 mIU/l), HO MA values (4.165±4.246 vs 2.932±2.155) were significantly detected higher than having simple hypertension.

**Conclusion:** In the present study, our data suggest that various cardiovascular and metabolic risk markers were disturbed in DHT. Especially, subjects with DHT were hyperinsulimic and insulin resistance. In conclusion, DHT is more prevalent in overweight and obese Turkish women, and it needs careful management.

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**T4:PO.20**

**Metabolically healthy but obese women and risk markers**

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**Aim:** The existence of a subgroup of obese individuals that display a healthy metabolic profile termed ‘metabolically healthy but obese’ (MHO). We studied overweight and obese Turkish women and investigated MHO prevalence in this population, and also examined clinical features of MHO.

**Materials and methods:** Subjects for this study were 2090 overweight and obese Turkish women aged 18 - 81 years. Identification of MHO patients were defined according to cutoffs for triglycerides (≥150 mg/dl), total cholesterol (≥200 mg/dl), LDL-cholesterol (≥100 mg/dl), HDL - cholesterol (≥50 mg/dl), triglycerides (≥150 mg/dl) and HOMA - IR (≥1.95). Individuals were classified as MHO if four of five criteria were met, the remaining overweight and obese women were classified as metabolically abnormal obese group (MAO).

**Results:** A total of 395 (18.9 %) patients were identified as overweight (BMI ≥ 25 kg/m²) and 1695 (81.1 %) were identified obese (BMI ≥ 30 kg/m²). 295 patients (%) 14.1 %) were classified as MHO and remained 1795 patients (%) 85.9 %) were MAO. MHO participants had reduced age, weight, BMI and waist circumference. MHO participants also had reduced of triglycerides, total and LDL cholesterol, glucose, insulin and HOMA, maximum and minimum blood pressures, as well as increased HDL levels when compared to MAO group (Table 2).

**Conclusion:** Our results indicate that MHO subgroup is associated with an decreased risk of metabolic disturbances. The identification of the MHO patients could have important implications for choice of therapeutic methods.
Adulthood obesity in Black African subjects

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Aim: Only one paper from Senegal is related to adulthood obesity in Sub-Saharan Africa. This study was aimed at describing the socio-demographic features of that form of obesity in Black African subjects in Ivory Coast.

Patients and methods: Nine responding big companies out of 36 initially identified were included. That represented 18,362 employees in whom 360 were chosen on the basis of the assumption of a 35% prevalence rate of obesity in Ivory Coast. Body mass index (BMI) and waist circumference were assessed. Mean age was 43 years (45–50), and sex-ratio was 2.43.

Results: 146 subjects (40.6%) were classified as overweight, and 85 (23.6%) as obese. Among those obese subjects, we could identify 64 (75.29%) with class I obesity, 16 (18.82%) with class II obesity, and 5 (5.8%) with class III obesity. In overweight and obese group we could report 145 males (62.77%), with a sex-ratio of 1.68. We could also identify 143 subjects in 231 (61.9%) with high socioeconomic status. Weight circumference above 102 cm was found in 40 subjects (17.31%). Putative etiological factors of overweight and obesity were: polyphagia (37.4%); eating disorders (80%); stress (44.15%); lack of physical activity (84.78%); familial history of obesity (35.21%). On the other hand, 16 subjects (6.9%) were smokers, and 66 (28.5%) acknowledged alcohol consumption. Cardiovascular risk factors were identified as follows: high blood pressure: 48 (20.7%); and type 2 diabetes: 4 (1.7%).

Conclusion: this preliminary report on adulthood obesity in Ivory Coast, outlines two main findings: over 60% of adults from working area showed weight abnormalities and sedentariness, and eating disorders were the main etiological factors.
Health professionals’ beliefs about obesity

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1Department of Pathophysiology Medical University of Silesia

Introduction: Depression is often accompanied by obesity. The aim of present study was to assess the effect of the complex group weight loss programme on depression levels in obese persons.

Patients and methods: 50 obese subjects (age 47.4 ± 13.5 y, BMI 36.4 ± 5.9 kg/m²) were examined before and after 3 months complex group weight reduction treatment, consisting of 1000 kcal/day diet, physical exercise and psychotherapy. Weight and height were measured and BMI was calculated. The Beck’s questionnaire was used to assess the level of depression.

Results: 23 patients did not have depression (age 43.8 ± 11.7 y), 18 persons suffer from mild depression (age 50.3 ± 15.1 y) 9 subjects have severe depression (age 51.0 ± 13.4 y).

<table>
<thead>
<tr>
<th>Without depression</th>
<th>Mild depression</th>
<th>Severe depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body mass</td>
<td>98.9±19.1</td>
<td>88.0±18.0</td>
</tr>
<tr>
<td>BMI</td>
<td>36.6±6.4</td>
<td>32.8±6.7*</td>
</tr>
<tr>
<td>Level of depression</td>
<td>5.8±2.8</td>
<td>3.5±3.4*</td>
</tr>
</tbody>
</table>

* P < 0.01.

After the complex group weight loss programme in both groups patients with severe and mild depression level of depression significantly decreased.

Conclusion: Complex group weight loss programme with psychotherapy decreased both weight and the level of depression.

Depression level in obese persons before starting the complex group weight loss programme

Olszanecka-Glinianowicz Magdalena, Zahorska- Markiewicz Barbara, Dbrowski Piotr, Wikarek Tomasz, Gruzska Wojciech, Koceak Piotr, Semik-Grabarczyk Elzbieta, Holecki Michał, Ak-Gob Agnieszka

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Introduction: Stress may lead to behavioral changes characterized by increased food intake. The aim of present study was to assess the depression levels in obese persons before starting the complex group weight loss programme.

Patients and methods: The study group consisted of 77 obese subjects (age 48.7 ± 12.2 y, BMI 38.1 ± 5.6 kg/m²). Weight and height were measured and BMI was calculated. The Beck’s questionnaire was used to assess depression level.

Results: 20 patients was diagnosed as having severe depression (22.9 ± 4.6 points), 25 as having mild depression (12.5 ± 2.0 points) and 31 subjects had no depression (4.8 ± 2.5 points). We did not observe differences of age, body mass and BMI between these subgroups. In all the study group significant positive correlation between depression level and BMI was found (r = 0.34, P = 0.02).

When the study group was divided by BMI into two subgroups A – BMI 30.0 – 39.9 and B – BMI > 40.0 significant higher depression level (P < 0.01) was found in subgroup B than in subgroup A (15.3 ± 9.2 points vs. 10.4 ± 6.8 points respectively).

Conclusion: Depression often accompanies obesity. However, it is difficult to state whether depression or obesity appear primarily.
T4:PO.30

Body Mass Index and disability in the English Population over 50 years

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Background: There is little nationally information on the distribution of Body Mass Index in the English Population over 50 years, and none on the relationship between BMI and disability.

Aim: 1. To describe the current distribution of BMI
2. To explore the relationship between BMI and development of locomotor disability.

Method: The English Longitudinal Study of Ageing (ELSA) is a national cohort study of the English population over 50 years. Height and weight was measured at baseline (1999/2001) and in 2004/5. Ability to perform locomotor activities of daily living was assessed in 2002/3 and 2004/5.

Results: In 2004/5, of 7,187 people only 23% men and 30% women had their BMI in the desirable category. More men (49%) than women (39%) were overweight. More women (31%) than men (27%) were obese. The oldest groups were the least likely to be obese. Compared with those of normal weight and adjusting for age and sex, the odds ratio for locomotor disability (scoring 2-10 items compared with 0 or 1) among the overweight was 1.33 (95% CI 1.17 to 1.52, P<0.001) and among the obese was 2.86 (95% CI 2.47 to 3.31, P<0.001)

Discussion: A high proportion of the English population over 50 years is overweight/obese. Overweight/Obesity is associated with a greatly increased risk of locomotor disability but appropriate interventions to prevent this adverse combination depend on the extent to which overweight/obesity precedes or follows locomotor disability. Longitudinal analyses will exploring this will be presented.

T4:PO.31

Balance Day to Maintain a Healthy Body Weight

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Dutch research shows that the public’s awareness of obesity as a health risk is high, as is their knowledge about the importance of a healthy diet and sufficient daily exercise. Yet, people find it difficult to live accordingly – about 45 percent of the Dutch adult population is overweight, ten percent is obese. In answer to this problem Balance Day was developed, a multimedia campaign, launched in January 2006 Balance Day is an innovative approach to obesity prevention and providing an effective intervention. It is a quick personal tool to keep a healthy body weight: compensation for a day of overeating by a day of less energy intake and more daily exercise – e.g. no snacks between meals, no alcohol; stairs instead of elevator.

Results from a formative evaluation by the Rotterdam University showed that the intervention materials have potential for increasing people’s attitudes, motivations and self-reported behaviour actions, with a possible negative side effect on perceived behavioural control. The first campaigning results show a very positive trend: the percentage of the population applying compensation methods increased from 39% to 65%. The Balance Day campaign will be extensively researched for its effects during 2006 and results will be available for presentation. This approach appreciates the ‘temptation’ reality of contemporary Western life and provides a tool to meet the challenge of maintaining a healthy body weight.


T4:PO.32

Secular changes in BMI and fat distribution in 6-year-old Polish children

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Aims: To investigate secular trends in BMI and skinfold measures among Polish children carried out at 1-year intervals from 1995 to 2004.

Materials and methods: A total of 21014 children (10669 boys and 10345 girls) aged 6.5 years (6.0-6.99) from Gdansk. Measurements: weight, height and skinfolds: biceps, triceps, subscapular, suprailiac and calf. The ratio of the 2 trunk to the 3 extremity skinfold thicknesses was calculated (TER).

Results: A 10-year- BMI trend was statistically significant (P=0.03 for boys and P=0.02 for girls). The lowest mean values were notified in 1995 (BMI=15.9 for boys and BMI=15.7 for girls). The highest mean values for both sexes were in 2002 (BMI=16.3 in boys and BMI=16.2 in girls). We observed the increase trend of TER from 1995 to 2002. Then, mean values of this index decreased for boys and girls.

Conclusions: To 2002 the growth of BMI is most often accompanied by higher values of TER. In two last years of the decade the TER values showing a trunk thickness level were decreasing. On the one hand a secular trend in BMI proves the growth of obesity risk in Polish 6-year olds, but on the other hand, a decrease of health hazards connected with fatty tissue distribution was not unambiguously ascertained.

T4:PO.33

Trends of overweight and obesity among 11- 14 years old urban adolescent girls in Ahvaz junior high schools 1996-2006

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Objectives: Obesity and overweight in childhood and adolescence are recognized as public health problems globally. We conducted this study to compare the prevalence of obesity among 11- to 14- year-old adolescent girls in Ahvaz junior high schools between years 1996 and 2006.

Methods: Two cross-sectional studies were done. Subjects were selected by stratified sampling. Numbers of subjects were 418 and 389 persons in the first and second study respectively. Socio-economic questionnaires were completed, weight and height were measured, and then BMI was calculated.

Results: Mean ± SD of height (Cm), weight (kg), and BMI (kg/m²) were 151.0±7.6, 43.5±10.3, 18.68±3.57 that increased to 153.78±7.73, 48.96±11.39, and 20.57±3.97, respectively. Prevalence of obesity (BMI > 95th percentile of NCHS) increased from 3.2% to 6.7% (P<0.05) between years 1996 and 2006.

Conclusion: Results of this study showed that prevalence of obesity is increasing among adolescent girls in Ahvaz. It is needed to encourage them to increase their physical activity and correct their food habits.
Body fat percent, BMI, skinfold thickness, and relative weight curves in Korean children 7-18 years old

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1Inje University Medical School Busan Paik Hospital; 2Busan University Medical School Pusan National University Hospital

Objective: To create sex-specific centile curves for body fat percent, BMI, skinfold thickness and relative weight in Korean children.

Design: The sample consisted of 1083 Korean children and adolescents (555 boys and 528 girls) aged 7-18 years from 3 schools. Their weight and height were measured. Body fat percent was measured using bioelectrical impedance analyzer. Smoothed centile curves were made using the LMS method.

Results: The body fat percent and skinfold thickness increase until at the age of 10-11 years and then decrease among boys. However, those curves continue to rise with age among girls. There are no such sex differences according to age for BMI and relative weight curves. The 95th centile of body fat percent varies between 21.2-35.7% among boys and between 31.2-43.6% among girls. The 95th centile cutoffs of body fat percent are higher in Korean children compared with those that were recently published in Caucasian children.

Conclusions: The body fat percent and skinfold thickness curves in Korean children confirmed sex differences in fat accumulation during puberty, whereas BMI and relative weight do not reflect such sex differences.

Childhood obesity... A community approach

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The prevalence of childhood obesity in the GCC countries is reaching epidemic proportions. Childhood obesity has more than tripled over the past 40 years, and this epidemic will lead to an obese and therefore unhealthy adult population unless we do something now. New research demonstrates that multiple factors are at work in creating this epidemic. Individual behavior clearly plays a role. But, too often, the critical role of the environments in which people live, work and recreate is overlooked – even though they influence people’s choices about food and physical activity. Indeed, social, cultural and physical environments can either support individuals to make healthy choices or be a major impediment. The treatment of childhood obesity should not focus on the overweight child. Rather the treatment approach should focus on the behavior of the entire family, the behavior of the parents, siblings, and any other caregivers or role models. There is no one magic formula to solve the childhood obesity epidemic. A new partnership aims to develop multi-faceted solutions that target the full range of individuals who can have an impact, including physicians, community leaders and families. Community approach should take in consideration the advertising, food industry campaigns, restaurant foods, portion sizes, price, school environments, television, and community design often encouraged eating too much and moving too little. Creation of a livable, walkable communities or active living through community design provides an innovative and sensible approach to the inactivity problem. A national day, to combat childhood obesity in the Gulf will help to increase the community awareness for this devastating problem.

Evaluation of different methods for assessing insulin resistance in a healthy weight and normoglycemic population

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1Centre De Recherche En Nutrition Humaine Rhône Alpes

Objective: Difficulties in measuring insulin sensitivity prevent the identification of insulin-resistant individuals in healthy weight population. Therefore, we compared with the euglycemic insulin clamp both the definitions of the metabolic syndrome and 14 fasting or OGTT-based indexes of insulin sensitivity, to determine the most appropriate method for assessing insulin resistance.

Research Methods: Anthropometric measurements, blood pressure, fasting lipids, liver enzymes, adiponectin, and insulin sensitivity measurement (MMfm/l) using the euglycemic insulin clamp were obtained for 70 normoglycemic individuals (BMI=23.6±3.4 kg/m²). We determined areas under ROC curves, sensitivity, specificity, positive likelihood ratio (LR+) for the optimum cut-off points. Then we selected cut-off values with the highest LR+ and tested the independence of these variables using a forward logistic regression analysis to establish the most reliable criteria of predicting insulin resistance in normoglycemic, healthy weight individuals.

Results: Sensitivity of the metabolic syndrome definitions is very low (6% for ATP III and 18% for IDF). The LR+ of fasting and OGTT-based indexes of the anthropometric measurements were inferior to 10, meaning a weak utility for predicting insulin resistance. The presence of at least one of the following criteria: WHR>0.95, Triglycerides>1.72 mmol/l, FFA>690 μmol/l, allowed to identify 65% of the insulin resistant individuals in the studied population with a very good specificity (96%).

Conclusions: Metabolic syndrome definitions and insulin sensitivity indexes are not suitable for predicting insulin resistance in a healthy weight population. WHR>0.95 and/or Triglycerides>1.72 mmol/l and/or FFA>690 μmol/l provide a simple screening method to detect insulin resistance in the general population.

Pregnancy weight gain and social factors in relation to infant birth weight and growth

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Great pregnancy weight gain is associated with increased risk of complications in pregnancy, infant macrosomia, cesarean delivery, as well as weight retention in post-pregnancy period. In this work weight gain during pregnancy and infant birth weight and development in rural areas in Eastern Croatia were researched. 234 pregnant women, who participated in this study, were categorized according to their pre-pregnancy body mass index (BMI), and the weight gain range recommended by the Institute of Medicine (IOM). Additionally, the women were grouped on the basis of their education and working status, parity and smoking habits. Mean pregnancy weight gain for the group was 14.8±3.1 kg, and mean infant birth weight was 3346±467 g. More than 40% of pregnant women gained weight above the IOM upper cut-offs. Mothers with excessive weight gain were more likely to have high birth weight infants (r=0.247; P<0.001). More than 80% of infants with macrosomia were from mothers who exceeded recommended weight gain. Infant birth weights were correlated to infant weight after 6 and 12 months, respectively (r=0.466 and 0.392; P<0.001). On the other hand, infant increment weight after 6 and 12 months was not correlated to infant birth weight, neither to pregnancy weight gain. In conclusion, the results indicate that a considerable portion of women had pregnancy weight gain higher than recommended by the IOM, but it did not influenced on infants’ growth. These findings suggests that, in terms of pregnancy weight gain, prenatal care in rural areas in Eastern Croatia should be improved.
Obesity in the Elderly: the Lebanese Population

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The prevalence of obesity and overweight is increasing worldwide. Several studies proved the increase of many diseases related to obesity. Little attention has been given to obesity problems in the elderly, an age group increasing rapidly worldwide. The aim of our work was to measure the prevalence of overweight and obesity in the elderly of Lebanon and its evolution since 10 years ago and to investigate about the best anthropometric measurements in predicting ORR.

We have measured 237 Lebanese men and women living at home (Mean Age 69.5, SD 6.3 years). The sample was chosen from the community of Beirut (Urban) and Ras-Baalbeck (Rural). The prevalence of overweight and obesity has strongly increased in this age group, in both genders since these last 10 years. The prevalence of obesity has increased from 27.9% to 46.2%. General obesity measured by BMI was positively related to Diabetes 2 especially in women and in the city residents. Obese women had 2 times more chance to be affected by Diabetes 2 than normal weight women. In the city, obese people had 5 times more chance to be affected with Diabetes 2 than normal weight people. Central obesity measured by the WHR was not associated to any of the obesity relative risks.

Obesity has increased in both genders and age groups (60-69 v/s 70-85 years old) while overweight has decreased in some (female and younger male group) over 10 years. In this population BMI is the best indicator for Diabetes 2 and obesity relative risk.

Reliability of nutritional labelling of fast-food

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Background: Fast-food generally has a high energy density, which together with large portion sizes can induce overconsumption of calories. It is important for the consumer to have reliable nutritional information about content of total fat and industrially produced trans fat (IPTF).

Method: We analysed total fat and trans fat content in 79 samples of fast-food menus consisting of French fries and fried chicken (nuggets/ hot wings) bought in McDonalds and KFC outlets in 26 countries in 2005-6, in order to examine to what extent the fat content of the meals is standardised.

Results: We report the total fat and trans fat content in 160 grams of chicken meat and 171 grams of French fries, corresponding to a large serving at an American McDonald outlet. In these meals the total fat content varies from 41 to 65 grams at McDonalds and from 42 to 74 grams at KFC, the trans fat from 0.3 to 10.2, and 0.3 – 24 grams, respectively.

Conclusion: The differences in total fat content can – at least in part - be due to local taste preferences, but this is not the case for trans fat, that does not add a special flavour to the food. The results show that the same product, by the same provider, can vary in fat calorie content by more than 40%, and in trans fat content by several orders of magnitude. This demonstrates that the same product, unknown to the consumer, can vary substantially with respect to compliance with recommendations for healthy diet.

Prevalence and self evaluation of obesity among medical and nursing staff in a semi-urban Greek hospital

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Introduction: Obesity is on the rise with an epidemic rate.

Aim: A record of obesity prevalence and obesity self evaluation among medical and nursing staff in Korinthos General Hospital.

Materials and methods: The study included 100 individuals (46 doctors and 53 nurses), age 33±0.6 years (mean age±SEM), men/women:33/67. Waist measurement was done and BMI was calculated. A questionnaire regarding the perception of each one concerning his weight and other relevant questions was also filled.

Results: From all the individuals 28 were overweight (group A) and 10 were obese (group B). Men as compared to women were more overweight/obese while there was no difference between doctors and nurses. 51 individuals showed sex specific central obesity (SSCO) while there was no difference between doctors and nurses.

Conclusion: Obesity constitutes a serious problem among the medical and nursing staff of Korinthos general hospital.
T4:PO.42
Intake of Carbohydrates With a High Dietary Glycemic Index, a High Content of Added Sugar and a Low Fiber Content Associate With Insulin Sensitivity Among Danish School Children

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Dietary carbohydrates with a high absorption rate have been associated with the development of type 2 diabetes and metabolic risk factors among Western adult populations. Even though clinical risk factors for type 2 diabetes and coronary heart disease are found to be manifest in children, there is a lack of studies investigating the possible role of dietary carbohydrates on metabolic dysfunctions in pediatric populations. The aim of the present study was to examine the dietary glycemic index (dietary GI), intake of dietary fibers, added sugar and carbohydrates and their respective associations with insulin sensitivity using both a cross-sectional and a six-year longitudinal design. Danish cohorts of school children, 310 girls and 279 boys, were recruited as part of the European Youth Heart Study in 1997-2003. The baseline diet was assessed by a 24-hour recall interview and the dietary GI was calculated from the total intake of available carbohydrates and GI-values of carbohydrate foods, taken from international tables. Insulin sensitivity was included in mixed linear regression models as continuous variables, defined by both the fasting levels of serum-insulin and HOMA-IR. Models were stratified by gender and adjusted for confounding factors. A diet with a high content of added sugar and a low fiber content, respectively was associated with a low insulin sensitivity among girls. Among boys a high dietary GI was associated with reduced insulin sensitivity six years later. The results suggest that consumption of carbohydrates with a low absorption rate may prevent reductions in insulin sensitivity among Danish school children.

T4:PO.43
Obesity and related lifestyle risk factors across family origin among adults in multietnic, low-income, urban neighborhoods

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This study describes the prevalence and co-occurrence of obesity and related lifestyle risk factors (LRF) across 14 groupings of family origin. We assessed body mass index, level of physical activity and dietary habits among 2033 adults living in multietnic, low-income, urban neighborhoods in Montreal, Canada. We tested family origin (based on language first learned in childhood and country of birth) as an independent correlate of co-occurrence in logistic regression analyses within a GEE framework. The prevalence of overweight and obesity was highest among European groups (55.9-61.8%) and Central American/Caribbean (55.4-57.4%). It was lowest among Asians (8.2-28.0%), except for South Asians (55.9%). Although physical inactivity was uniformly high across family origins, it was highest among Portuguese and Italians and lowest among East Europeans. Canadians, Middle Eastern/North Africans and South Americans scored highest on the poor diet indicator (above the median junk food score and below the median healthy food score); and South Asians the lowest. Although junk food consumption was lowest among Italians, they ate healthy foods less frequently than participants of all other family origins. Relative to Canadians, all other family origin groups had a lower risk of co-occurrence. Italians and Portuguese were most likely to be at risk (OR=1.90; 0.79) and Asians least likely (OR=0.29-0.41). Since Italians and Portuguese had the highest proportion of participants born in Canada, length of time in Canada may relate to increased risk of obesity and LRF. Variation in these distributions may explain in part differences in chronic disease morbidity and mortality across ethnic groups.

Funding: The data was collected as part of the Projet québécois de démonstration en santé du coeur, which was funded by the National Health Research and Development Program, Health Canada (grant #6051754-11), the Quebec Ministry of Health and Social Services, and the Quebec Heart and Stroke Foundation. The current analysis was supported by an Interdisciplinary Capacity Enhancement grant from the Canadian Tobacco Control Research Initiative. Professor Dr. Jennifer O’Loughlin holds a Canada Research Chair in the Childhood Determinants of Adult Chronic Disease.

T4:PO.44
Eating occasion habits in Iranian households(2000-2)

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1National Nutrition & Food Technology Research Institute

Eating occasion habits are among important determinant factors of food behaviors definition. According to epidemiological studies, meal frequency has been found to be associated with daily energy & nutrients intake, ideal body weight also blood lipid and cholesterol levels. Meals pattern is defined based on the number, size & time of each meal/snack and it’s contribution to total energy and nutrients intakes. This article aimed at determining meals and snacks consumption pattern of Iranian households using National Household Food Consumption and Nutritional Status Survey data (2000-2). Food consumption patterns of 7158 households were collected through a food habit questionnaire and a combination of food weighing and 24 -h recall method for 3 consecutive days. Data were analyzed using MS -Access/Excel & SPSS 11.5 soft wares. Iranian households consumed averagely 5 daily food and snacks (morning, evening, night) were reported in 36.8% and with 3 meals & 2 snacks in 34.3% of total samples. Only 1.4% of households followed a pattern with 3 main meals with no snack. Among total reported meals, breakfast had the highest frequency (19.3%), then lunch 18.9%, dinner 18.2%, evening snack 17.6%, nig ht snack 13.6% and morning snack 12.4%. Households preferred evening as the best time for snacking (higher frequency of evening snack) and it was in agreement with other literature about snacking. According to food habit questionnaire, 60.2%, 26.4% & 10.2% of households mentioned lunch, dinner and breakfast respectively as the most important main meal. A more precise look at meals pattern (especially food items, meal structure and meal/snack’s contribution to total intakes) is really needed . Iranian food habits also their regional differences can be the best guidance for future nutrition promotion or education programs.

T4:PO.45
Formulation and production of low fat sausage using modified corn starch

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Background: According to increasing trend of the consumption of fat, fat-induced diseases, incidence of obesity at Iranian population, presence of the articles addressed in literature about of fat replacing using modified corn (maize) starch and to formulation and possibility production of low fat sausages, this research was performed in National Nutrition and Food Technology Research Institute and Ghooshitran company in 1384.

Materials and methods: This study was done at first to formulation of low fat sausages by explorer method and secondary to comparison six low fat formulas with control formula (high fat) by experimental method. Formulas 1, 3 and 5 were produced by replacing different levels of fat with starch/water combination at 1:3 and ratios 2, 4 and 6 were produced by replacing wheat flour and different levels of fat with starch/water combination at 1:3 ratio. The treatments were produced in three replicates totally twenty one formulas. Quality characteristics of all treatments as characteristics chemical, technological, microbial and sensorial were evaluated and were compared statistically.

Results: Low fat formula 5 was the best compare to all treatments (P<0.05) and when the fat level were reduced from 14.7±0.35% (control formula) to 6.2±0.08% (low fat formula 5) decreases in fat content was found to be 57.4% (P<0.05). Conclusion: There is production possibility of low fat sausage using modified corn starch. Regarding the presence of fat of replace, is recommended application of its combination being studied in future researches.

Keywords: Low fat, Sausage, Modified corn starch, sensory evaluation
**T4:PO.46**

The influence of cigarette use on adiposity and linear growth in adolescence

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**Objective:** To study the effect of cigarette use on linear growth and changes in adiposity indicators over time among boys and girls.

**Method:** Data on cigarette use were collected every 3-4 months throughout 4.5 years among 1267 students aged 12-13 years at baseline in a convenience sample of 10 Montreal-area schools. Anthropometric indicators were measured at baseline, 3 and 4.5 years. Multiple linear regression models were fitted to estimate the association between cigarette use and changes over time in each of height, body weight, body mass index (BMI), and triceps skin fold thickness, adjusting for baseline values of the outcome of interest, and potential confounders of the association. An interaction term was included in all models to study effect modification of the association by sex.

**Results:** Study participants included 63 persistent smokers and 596 non-smokers. Over the 4.5-year follow-up, the adjusted differences between never-adjusted smokers and nonsmokers were: (i) -3.4 cm in males and 0.4 cm in females for height (P-value for interaction=0.0294); (ii) -2.4 kg/m² in males and 0.3 kg/m² in females for BMI (P-value for interaction=0.0007); (iii) -9.9 kg in males and 1.1 kg in females for absolute body weight (P-value for interaction=0.0001); and (iv) -2.8 mm in males and 1.1 mm in females for triceps skin fold thickness (P-value for interaction=0.0344).

**Conclusions:** Cigarette use was associated with lower rates of linear growth and changes in adiposity indicators in males. In females, the effect of cigarette use on linear growth and changes in adiposity was negligible.

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**T4:PO.47**

Calibration of MTI actigraph in old obese adult

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The purpose was to derive a regression equation that estimates energy expenditure from accelerometer counts in old obese adult. The sample comprised 14 old obese or overweight adults (63±7 years). VO₂ was measured using a stationary breath-by-breath metabolic unit. Each participant wore two MTI Actigraphs over right hip, to prevent any malfunction, or other hazard occurrence, which were the same for all participants. The variation between the unites was low (R=0.99). Only the data of the same unity was used. 1 min. epoch was used. Each participant did these activities in sequence: rest, seated, stand, walk at 2.5 km/h, walk/run at 5km/h, and run at 7.5km/h, and VO₂ and counts were simultaneously assessed. Rest VO₂ was collected for 15 min with the participants in a lay position. For all activities other than rest, VO₂ and counts were collected during 6 min., with the mean value of the last 3 – 6 min. used for data analysis. A hierarchical linear model was used to analyze the relationship between accelerometer counts and VO₂. Coefficients associated with quadratic and cubic trends in third polynomial model were not found to be significantly different from zero. The contribution of body mass index, waist -to-hip ration, sum of skinfolds and gender were not found to contribute significantly to the fit of the model. Thus only results from the unadjusted linear mixed model are reported here. The association between counts and Kcal was 0.89. The derived equation was: Kcal = 1.54 + 0.00127 (Counts-min−1).
Abstracts

T4:PO.51

Overweight and Obesity in Children and Adolescents from Bahia, Brazil: a Cross-sectional Study

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Objective: Estimate prevalence of overweight (OW) and obesity (O) among school children and adolescents in Bahia State, Brazil.

Methods: A cross-sectional study including 7,245 (98.4%) subjects attending public 3,055/43% and private 4,079/57% schools in three state populations (Salvador,² 2,446/34%; Itabuna²B 2,409/34%; Conquista²C (2279/32%). Following the standard WHO criteria, height and weight were collected by three trained pediatricians along with basic demographic information. The BMI of every child was calculated, OW and O were defined utilizing the Cole et al criteria. Contingency tables and respective prevalence ratios with 95% confidence intervals PR(95%CI) were utilized to study associations of overweight and obesity with sex, age group, public/private school and regions.

Results: Of the examined subjects, 837 (11.7%) had OW and 203 (2.8%) had O. The prevalence among girls were of 381 (10.3%) and 94 (2.5%) for OW and O respectively; for boys the prevalence were 456 (13.3%) and 109 (3.2%) PR of 1.29 (1.15-1.44). In the 5-9y; 10-14y and 15-19y age groups, the prevalence of O were 6%, 3.2% and 2.7% respectively. For OW and O the prevalence among girls were of 381 (10.3%) and 94 (2.5%) for boys the prevalence were 456 (13.3%) and 109 (3.2%) PR of 1.29 (1.15-1.44). In the 5-9y; 10-14y and 15-19y age groups, the prevalence of O were 6%, 3.2% and 2.7% respectively. Considering public/private schools, higher prevalence of O were observed in private schools, 10.9% for boys and 6.7% for girls, compared with 2.9% for boys and 1.8% for girls in public ones PR of 2.38 (1.12-2.69). For the regions the prevalence of OW was higher in A among boys 207 (17%), O was higher among girls in region B 44 (3.7%).

Conclusions: O and OW were higher in the more developed regions. Since 14.3% (11.7%+2.6%) of the subjects presented excess of weight, preventive actions are urgent considering cultural characteristics of each region.

T4:PO.52

Knowledge base and functionalities of 6th EU framework project Health plus - supporting nutrition planning and weight control strategy

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The 6th framework project Health plus or Health+ is trying to become a web-based weight control, food intake monitor, lifestyle assistant for overweight and obese persons and certified information provider. The Health+ project has a global objective to support nutritionists, health professional and citizens in choosing strategy for nutritional planning and weight reduction in obesity. Federated national databases are used to evaluate nutritional content of diet intake. Using different knowledge bases the content of nutrients can be evaluated. Diet content is criticised or new diet proposal is given. The structure of knowledge bases and rules following Knowledge base for nutritional advice:

1. Rules commenting portion size of food.
2. Rules commenting content of energy and nutrients.
4. Rules commenting motivation and psychological factors in diet adherence.
5. Rules commenting physical activity.

Nutrition planer functions:
1. analysis and commentary to the portion of food (reduction of size, substitution).
2. Analysis of daily intake and proposal for next day diet.
3. Commentary to used food.
4. Commentary to weight changes, motivation and physical activity.

Conclusion: The principle of federated databases and one knowledge base enables the use of one common European strategy without real integrating of national food databases to one database. One global strategy for weight reduction could be used.

Funding: Research relating to this abstract was funded by Health+ project -6th framework EU.

T4:PO.53

Dysglycaemia is associated with reduced aerobic fitness and increased central obesity

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Obesity, as well as reduced physical fitness, is associated with increased risk of Type 2 diabetes. The relationship of objective measures of aerobic fitness such as resting heart rate and central adiposity, reinforces the importance of physical fitness completed in a set time is negatively associated with resting and anticipatory heart rate and central adiposity, reinforces the importance of physical fitness in the reduction of central obesity, and that the ability to walk briskly is associated with less risk of dysglycaemia.

Conflict of Interest: None.
Funding: Health Research Council of New Zealand, AUT University.

T4:PO.54

Dietary intervention prevents accumulation of abdominal subcutaneous fat in healthy 13-year-old children in STRIP project

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Aims: Distribution of body fat is considered important with respect to the risk of type 2 diabetes and coronary heart disease. The main aim of this study was to examine whether individually organised, individualised dietary counselling begun early in life affects the accumulation of preperitoneal and subcutaneous fat.

Methods: This study is a part of the on-going prospective, randomised STRIP study (Special Turku Coronary Risk Factor Intervention Project for Children). The main aim of the intervention is to reduce the total fat intake to 30% and the intake of saturated fat (SAFA) below 10%. The present study group consists of adolescents, who participated in an ultrasound examination during their 13-year visit (n=500). Body mass index (BMI) was calculated and puberty staged by the Tanner scale. Preperitoneal and subcutaneous fat thickness (PFT, SFT) were measured ultrasonographically at the level of xiphoid process (xip) and umbilicus (umb). Abdominal fat wall index (AFI) was calculated as PFT/SFT.

Results: SFTxip and SFTumb were significantly lower in the intervention group than in the control group even when adjusted for BMI, gender and pubertal status, (P=0.014; P=0.026 respectively). All fat thicknesses were larger in girls than boys (P=0.001) and thicknesses increased during pubertal maturation. PFTxip (P=0.064), PFTumb (P=0.43) and AFI (P=0.81) were not significantly influenced by the intervention.

Conclusions: Dietary intervention aimed at reducing SAFA intake decreases abdominal subcutaneous fat thickness even when adjusted for BMI, gender, and pubertal status. This suggests that repeated, individualised counselling begun early in life favourably affects the distribution of body fat.
T4:PO.55

The prevalence of obesity and abdominal fat distribution in rural population of eastern Poland

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Aims: The aim of the study was to provide estimates of the prevalence of obesity, overweight and body fat distribution in adult rural populations of eastern Poland.

Material and methods: Retrospective analysis of data from two studies conducted in rural districts of eastern Poland. A representative sample consisted of 518 adults randomly selected, 311 women and 207 men, age ≥16 years, mean age 49 years. Anthropometric measurements (waist circumference, weight and height) were performed. Body mass index (BMI) was calculated. Obesity was defined as BMI ≥ 30 kg/m², overweight BMI ≥ 25 kg/m². Abdominal obesity was defined as waist circumference ≥ 94 cm in men and ≥ 80 cm in women.

Results: Based on body mass index, obesity (BMI ≥ 30 kg/m²) was observed in 15.79% of men and 31.11% of women, for overweight (BMI 25–30 kg/m²) these percentages were 77.63% and 61.48% respectively. Based on BMI obesity dominated in women, whereas overweight in men (P<0.05). Abdominal obesity was more frequent among women than men (66.56% vs. 38.24%, respectively, P<0.001).

Conclusions: Excess body weight is reaching epidemic proportions in eastern Poland and obesity rates are among highest if not the highest in European society. The frequency of abdominal obesity was higher in women than in men.

T4:PO.56

Socio-economic characteristics of teenagers who under and over report their energy intake

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Background: The socio-economic characteristics of mis-reporters, especially over-reporters, of energy intake have not been studied extensively before, especially in this age-group. Previously focus has been on educational level while here several other socio-economic variables have been analysed.

Subjects: 441 (57% girls) 16-17y adolescents with BMI 21.3±3.2.

Methods: Energy intake was assessed using a validated dietary questionnaire. Energy expenditure was measured with accelerometers. 15% were classified as under-reporters (UR), 67% as adequate reporters (AR) and 18% as over-reporters (OR).

Results: There were significant differences between UR, AR and OR in number of siblings (χ²-test, P<0.04) where fewer siblings meant a higher proportion of under-reporters. Also the number of maternal working hours: (UR<38, AR=37, OR=34 hours/week, P<0.02) and the family income (UR=30, AR=28, OR=25 thousand SEK/month after tax, P<0.02) was different between the groups. Education level, type of work and marital status of mother and smoking habits of mother and child had no significant relationship with misreporting. None of the significant variables had any association with BMI.

Discussion: This study is unique because of the high proportion of over-reporters, the age of the subjects and for including characteristics never studied before. It suggests that teenagers without siblings in a family of high income with long working hours tend to under-report their energy intake more than others. In addition, those with the opposite characteristics are over represented among over-reporters, suggesting an overall trend. This emphasizes the need for caution when interpreting dietary data and for being careful when excluding under-reporters of energy intake.

T4:PO.57

Comparison of bioelectrical impedance analysis and dual-energy X-ray absorptiometry for the assessment of body composition in Korean children aged 7-15

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Background: Bioelectrical impedance analysis (BIA) is widely used for diagnosis of obesity in Korea. However, the accuracy of BIA method for diagnosis of childhood obesity has not fully evaluated yet.

Methods: Two hundred five Korean children aged 7–15 years were recruited for the study subjects. The body composition of each subject was assessed by both BIA and dual-energy X-ray absorptiometry (DXA). Body mass index (BMI) was calculated. The BMI of the Beauticians was 23.4±4.6 kg/m². All (100%) of the overweight Beauticians (BMI 29.5±4.1 kg/m²) wished to lose weight (by 4.5 kg, which would correspond to a new BMI 24.2±1.2 kg/m²). While even 59.6% of the normal weight Beauticians (BMI 22.5±1.9 kg/m²) wished to further lose weight (by 4.2 kg, which would correspond to a new BMI 22.9±1.9 kg/m²).

Results: There was a significant positive correlation between DXA and BIA for fat mass (r=0.982, P<0.001), fat free mass (r=0.990, P<0.001), and percent body fat (r=0.956, P<0.001). Mean differences between DXA and BIA for fat mass, fat free mass, and percent body fat were -0.4±1.4 kg (P=0.001), -0.6±1.3 kg (P=0.001), and 0.5±2.8% (P=0.016), respectively. The 95% confidence interval for the limits of agreement between two methods for fat mass, fat free mass, and percent body fat were -0.4±2.7 kg, -0.6±2.5 kg, and 0.5±5.5%, respectively.

Conclusions: Although the correlation between estimates of body composition by BIA and DXA was significant, BIA was not interchangeable method with DXA in Korean children aged 7–15.

T4:PO.58

Perception of Obesity and Weight Loss Wishes among Professional Beauticians and Medical Students

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Aims: To study the attitudes about perception of own obesity and weight loss wishes among professional beauticians and medical students.

Methods: We studied 143 professional Beauticians (5 males, 138 females, 34.3±11.4 years old) and 151 medical students (71 males, 80 females, 22.5±1.7 years old) with a special questionnaire for demographic, personal and family data regarding obesity and diabetes. Participants were divided into 2 groups: normal weight (BMI <25 kg/m²) and overweight (BMI ≥25 kg/m²).

Results: The BMI of the Beauticians was 23.4±4.6 kg/m² and of the students 22.8±3.0 kg/m². All (100%) of the overweight Beauticians (BMI 29.5±4.1 kg/m²) wished to lose weight (by 18.3 kg, which would correspond to a new BMI 22.9±1.9 kg/m²), while even 59.6% of the normal weight Beauticians (BMI 21.1±2.0 kg/m²) wished to lose further weight (by 4.5 kg, which would correspond to a new BMI 20.6±1.4 kg/m²). Also 81.3% of the overweight students (BMI 27.0±1.6 kg/m²) wished to lose weight (by 8.9 kg, which would correspond to a new BMI 24.2±1.2 kg/m²), while even 56.9% of the normal weight students (BMI 21.6±2.1 kg/m²) wished to further lose weight (by 4.2 kg, which would correspond to a new BMI 21.0±1.6 kg/m²).

Conclusions: The overweight professional Beauticians have a more realistic perception of their adiposity problem and their wish of weight loss, compared to medical students. The lean Beauticians have a less realistic perception of their body weight, maybe because of a greater proportion of women in this group.
Does obesity influence physical activity behaviour?  

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Predictor of behaviour or a moderator of the intention - behaviour relationship. This was tested in reference to the theory of planned behaviour.

Methods: At baseline, a sample of 1706 individuals (mean age 47.7 years; 60% female) were classified either as obese (n=451, BMI ≥ 30 kg/m²) or not (n=1255). Also, measures of intention and perceived behavioural control were obtained. Leisure –time exercise behaviour was assessed 3 months later.

Results: Moderated regression of behaviour on the variables indicated that obesity was a significant predictor of behaviour (β=−0.21, P=0.0001) above the significant contributions of intention (β=0.30, P=0.001) and perceived behavioural control (β=0.27, P=0.0001). However, obesity was not a moderator of the intention-behaviour relationship (β=0.07, P=0.12).

Conclusions: These findings suggest that obesity is a fact or affecting negatively the regular practice of physical activity. The results also suggest that the prevention of obesity is likely to have direct effects on the prevention of sedentary of the population.

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Measurement of visceral fat thickness by ultrasound and comparison with visceral fat area determinations

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Introduction: The visceral fat quantity is an important factor in the prediction of cardiovascular risk of obesity. The “gold standard” of its determination is the measurement by CT. However, the X-ray loading of patients, the limited availability and high costs make the daily use of CT inadequate for this purpose. The ultrasound examination (US) is a simple, readily available and relatively inexpensive method which makes possible the measurement of visceral fat thickness (VFT) i.e. the distance between linea alba and aorta. According to the literature the data derived from VFT measurements correlate well with those coming from CT determinations. No data are available for comparison of VFT and visceral fat area (VFA) values.

Purpose: Comparison of measured VFT values with VFA data and some other parameters (BMI, abdominal circumference, se lipid data, liver US attenuation etc.).

Materials and methods: 201 patients were examined, 85 males and 116 females. US examinations were made by B-K Medical Hawk EXL 2102 scanner. VFA values were measured by Biospace InBody 720 body composition analyser.

Results: The averages of VFT values increase parallel with BMI: in patients with BMI<25=13.2±4.5 mm, BMI between 25 and 29.9=26.1±3.6 mm, BMI between 30 and 39.9=41.3±6.2 mm and BMI≥40=82±23 mm. There is a significant correlation (P<0.001) between VFT and VFA, BMI; no correlation was found with liver US attenuation and se lipid data.

Conclusion: On the basis of US-measured VFT values it is possible to judge the visceral fat quantity.
Characterisation of socio-economic status (SES) influences the prevalence of overweight and obesity in children and adolescents

**Aim:** To compare the influence of parental education (PE) and residential district (RD) on overweight and obesity in children and adolescents.

**Methods:** Weight and height were measured in 2419 6-, 2567 10- and 1527 14y old children/adolescents as part of the Kiel Obesity Prevention Study (KOPS). Overweight/obesity were defined >90th/97th BMI percentiles (Kromeyer – Hauschild et al., 2001). SES was characterised by (1) PE: both parents with <9 school years=low, at least one parent with 10 school years=middle, at least one parent with >12 school years=high (2) RD by quartiles of unemployment rate, number of foreigners and number of welfare recipients in Kiel: 2–3 parameters in upper quartile=low, 2–3 parameters in lower quartile=high. Group differences were analysed by χ²-test and through the slope of a linear regression line.

**Results:** There were significant differences in the prevalence of obesity in all age groups. These differences were unaffected by definition of SES. The higher the SES, the lower the prevalence of obesity. However prevalence of overweight classified by PE was significantly different in all age groups, while classifying SES groups. These differences were unaffected by definition of SES. The higher the SES, the lower the prevalence of obesity. However prevalence of overweight classified by PE was significantly different in all age groups, while classifying SES groups. The slope of the regression line of overweight/obesity on PE was steeper (6y-old: -2.5/-2.45, 10y-old: -2.45/-3.1, 14y-old: -1.7/-4.2) than on RD (6y-old: -0.25/-1.25, 10y-old: -1.9/-1.35, 14y-old: 0.9/-1.85) and increased with age.

**Conclusions:** There was an inverse SES gradient in overweight/obesity, which was more pronounced for obesity. The SES gradients differ with respect to PE and RD. A combination of both or even more SES variables could be useful to characterise SES. KOPS was funded by Deutsche Forschungsgemeinschaft (MU714-5.1-5), WCRF, Wirtschaftliche Vereinigung Zucker. There is no conflict of interest.

**T4:PO.64**

Relationships between parents' BMI and the offspring's early weight growth velocity

**Aim:** To compare the influence of parental education (PE) and residential district (RD) on overweight and obesity in children and adolescents.

**Methods:** Weight and height were measured in 2419 6-, 2567 10- and 1527 14y old children/adolescents as part of the Kiel Obesity Prevention Study (KOPS). Overweight/obesity were defined >90th/97th BMI percentiles (Kromeyer – Hauschild et al., 2001). SES was characterised by (1) PE: both parents with <9 school years=low, at least one parent with 10 school years=middle, at least one parent with >12 school years=high (2) RD by quartiles of unemployment rate, number of foreigners and number of welfare recipients in Kiel: 2–3 parameters in upper quartile=low, 2–3 parameters in lower quartile=high. Group differences were analysed by χ²-test and through the slope of a linear regression line.

**Results:** There were significant differences in the prevalence of obesity in all age groups. These differences were unaffected by definition of SES. The higher the SES, the lower the prevalence of obesity. However prevalence of overweight classified by PE was significantly different in all age groups, while classifying SES groups. These differences were unaffected by definition of SES. The higher the SES, the lower the prevalence of obesity. However prevalence of overweight classified by PE was significantly different in all age groups, while classifying SES groups. The slope of the regression line of overweight/obesity on PE was steeper (6y-old: -2.5/-2.45, 10y-old: -2.45/-3.1, 14y-old: -1.7/-4.2) than on RD (6y-old: -0.25/-1.25, 10y-old: -1.9/-1.35, 14y-old: 0.9/-1.85) and increased with age.

**Conclusions:** There was an inverse SES gradient in overweight/obesity, which was more pronounced for obesity. The SES gradients differ with respect to PE and RD. A combination of both or even more SES variables could be useful to characterise SES. KOPS was funded by Deutsche Forschungsgemeinschaft (MU714-5.1-5), WCRF, Wirtschaftliche Vereinigung Zucker. There is no conflict of interest.
T4:PO.67
Obesity prevalence, daily diet cost and dietary patterns are related to socioeconomic position in French middle-aged SUVIMAX participants

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Objective: Obesity rates in United States and Europe are higher in lower-income and less educated individuals. Because of limited resources, some consumers may select unhealthy foods that are less expensive. We compared corpulence, dietary patterns, diet cost (DCO, €/day) and energy cost (ECO, €/10MJ) between various socioeconomic positions (SEP) in middle-aged French subjects.

Materials & methods: Analyses were based on data from 2,157 men and 1,898 women, aged 45-62 years, who completed at least six 24-h dietary records during the first 2 years of follow-up (1995-1997). Four independent dietary factors were identified in each sex using principal component analysis: F1.'meat-alcohol', F2.'prudent', F3.'convenient', F4.'seasoned pastarice'. To estimate diet cost and energy cost, we assigned mean national retail price in France in 1997 to each of the 988 foods.

Results: Workers were more likely to be obese compared to managers, after adjustment for age, energy intakes, smoking status and physical activity level. Average DCO varied from €7.10 to €6.09 in men and from €5.65 to €5.03 in women, with especially in women lower DCO in the lower SEPs. Similar trends were found for ECO. Dietary patterns also differed between SEPs with some sex-specific relationships. In particular, male managers were more likely to adhere to 'convenient' pattern, whereas male workers had the highest score for 'meat-alcohol'. The opposite relationships were found in women. In both sexes, managers had the highest scores for 'prudent' pattern.

Conclusion: Our results support emerging evidence that socioeconomic inequalities may contribute to differences in dietary patterns and nutritional status.

Conflict of Interest: None Declared.

Funding: Research relating to this abstract was funded by ANR-2005-PNRA-012 (POLNUTRITION).

T4:PO.68
The visual analogue scale for the measurement of appetite in Koreans

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Background: It is important to evaluate the degree of appetites objectively. We investigate reproducibility and validity of Visual Analogue Scale (VAS) in measuring appetite and predicting amount of food intake in Koreans who have different cultural background form western population.

Method: All subjects were tested on two different occasions separated by 6 weeks. They filled out VAS questionnaires before lunch. Between lunch and dinner, they filled out questionnaires every hour. VAS indicates hunger, satiety, fullness, prospective consumption, sweet, salty, savoury, and fatty. During the test meal, the subjects could eat ad libitum until comfortable satisfaction; and after the test meal we calculate energy intake.

Result: After the test and retset their reaction curves were almost accorded. Mean 4.5 hours VAS values' CRs(20~ 34mm) was smaller than fasting VAS values' CRs(35~ 54mm). Before dinner, the relationship between VAS values of Hunger and energy intake was 0.436 on the first day and was 0.400 on the second day. Fasting values, the difference between pre and post test values and the 4.5 hour mean values of the sweet and salty were correlated to the subsequent energy intake(P<0.05).

Conclusion: The VAS scores were highly reproducible in assessing appetites in Koreans. The higher fasting VAS scores indicated more subsequent food intake amounts. In conclusion, the VAS scores are reliable methods in predicting appetites in Koreans.

T4:PO.69
Association between body mass index and iron deficiency anemia in Iranian female college students resident in dormitory, I.R.Iran

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Background and aims: Overweight and obesity is a growing problem and important risk factor for many non-communicable diseases. On the other hand, Iron deficiency anemia (IDA) is one of the most common nutritional deficiencies in the world especially in developing countries. This study was conducted to determine the frequency of IDA and its association with body mass index (BMI) in a group of college students resident in I.R. Iran.

Materials and methods: Subjects were 215 female college students from shahed Beheshti University of Medical Sciences who resident in dormitory. Demographic and anthropometric data were obtained using questionnaire and standard protocols and then BMI was calculated. Blood samples were taken and used for measuring hemoglobin and ferritin concentrations. Anemia, iron deficiency and IDA were defined as hemoglobin<125g/L, ferritin<20µg/L and both of them, respectively. Subjects were categorized based on BMI as underweight (BMI<18.5kg/m²), normal weight (BMI 18.5-24.9kg/m²), overweight (BMI 25-29.9kg/m²) and obese (BMI>30kg/m²).

Findings: Mean of age, hemoglobin and ferritin were 21±2.1 years old, 131±11g/dl and 37.6±31.1µg/dl, respectively. Frequency of anemia, iron deficiency and IDA was 21.4, 31.1 and 12.4%, respectively. Mean of BMI in subjects was 22.1±3.0 Kg/m² and was increased with age (r=0.14, P<0.05). Among them, 7.9% were underweight, 78.2% were normal weight, 12.5% were overweight and 1.4% were obese. BMI was associated with ferritin (r=0.14, P=0.05).

Conclusion: Lower BMI is associated with lower hemoglobin and ferritin in Iranian college aged females. This is important to consider in treatment of IDA.

T4:PO.70
Prevention of obesity in 16-25 year olds: Evidence for the effectiveness of interventions

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Background: Studies of treatment interventions in obese people have shown some short-term beneficial effects on many health outcomes but the evidence for the long –term sustainability of these benefits is limited. Research has identified early adulthood (16–25yrs) as one of the potential trigger periods for weight gain, when young adults leave school or college, or commence employment and develop an independent life style including nutrition and physical activity. Prevention of weight gain in this vulnerable age group, as they develop and establish lifestyle and behavioral patterns, is critical.

Aim: To conduct a systematic review of evidence for effective interventions in this age group and identify the barriers and facilitators for implementation.

Methodology: A systematic search was conducted on electronic bibliographic databases using a robust search strategy and 3199 abstracts were identified, 123 were potentially eligible for inclusion.

Findings: 28 articles met the inclusion criteria and were critically appraised. The interventions tested through RCT designs included dietary, exercise, cognitive approaches to motivation and expectations, and multidisciplinary approaches. A variety of exercise programmes were effective in preventing weight gain in the age group, with different findings for men and women.

Conclusions: Multidisciplinary approaches to lifestyle changes of long duration, and the use of the educational setting are important for effective prevention of weight gain in this critical age group.
**T4:PO.71**

Association of trunk fat and BMI with lipid profile and insulin among Brazilian adolescents: a school population based study

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**Objective:** To determine the association of adiposity, measured by DXA (dual X-ray absorptionmetry) and BMI (body mass index) z-score with lipid profile and carbohydrate profile.

**Method:** Study carried out with 259 adolescents (14-19 ye 143 female) at a public school in São Paulo. The continuous variables that were not normally distributed were log10 transformed (trunk fat, LDLc, triglycerides, insulin, apolipoprotein B). Means differences for gender were assessed by Student’s t-test. Correlations between the adiposity measures (BMI z-score, trunk fat) and biochemical variables were calculated using Pearson’s correlation coefficient. Statistical tests were considered significant when P<0.05. The statistical analyses were completed using the software Stata 8.0.

**Results:** Significant gender distributions were observed for HDLc (45.28mg/dl and 52.62mg/dl); apolipoprotein A-I (106.74mg/dl and 121.66 mg/dl); trunk fat (6082.18g and 8760.88g), for boys and girls respectively.

Significant correlations of adiposity measures (trunk fat, BMI z-score), respectively for boys were demonstrated with insulin (0.65; 0.57), HDLc (0.37; -0.34), triglycerides (0.41; 0.38), apolipoprotein B (0.30; 0.23), LDLc (only one not significant; 0.25), apolipoprotein A-I (0.26; -0.23). The significant correlations of adiposity measures among girls were with insulin (0.54; 0.46), HDLc (-0.28; -0.31) and apolipoprotein A-I (-0.23; -0.25).

**Conclusion:** Trunk fat (DXA) and BMI are correlated with several important cardiovascular disease risk factors and were already present in a sample of adolescents of low-income families. The traditional clinical tools (BMI z-score, HDLc, LDL cholesterol) were as good as the more sophisticated and expensive ones (DXA, ApoA-I, ApoB) to identify fatty mass and cardiovascular disease risk factors.

**T4:PO.72**

H.A.C.E.S.PROJECT (Correct dietary Habits and healthy exercise) an opportunity of community intervention (preliminary results)

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**Aim:** To study the changes of the diet habits and physical activity after three years of school health program intervention (2005 -2008) in eight schools of our health district.

**Methods:** Comunitary intervention longitudinal and prospective study with a control group. Population aged 7 -10.Intervención group: N=112 Control group: N=98.

Before and after the intervention anthropometric measurements will take (weight, height and subcutaneous skinfolds) and data will obtain from questionnaire draw up for the purpose. During these three years teachers will work activities with children in the classroom and sanitary professionals will teach to the family at school.

**Results:** We present here the results previous to the intervention which is now at the second year. Anthropometric measurements: Intervention group: according to international standards/national standards 10.71/8.93% of girls and 8.93/12.50% of boys were obese and 7.14/6.25% of girls and 12.53/5.75% of boys were overweight. Control group: according to international standard/national standard 9.28/8.16% of girls and 8.25/15.31% of boys were obese and 13.40/6.12% of girls and 2.06/6.12% of boys were overweight. Dietary habits intervention/control group: a 4.23/2% haven’t breakfast. Dairy products are most consumed at breakfast but fruit is only 6% in both groups. 80.70/33.5% of children take sandwich in the mid morning snack and juices represented between 43–45%. Pastries are 27.11/23.23% at the afternoon snack. Physical activity: 35% of our population practice less than half and hour physical activity after school and 34% of the intervention group watched TV and computer more than 2 hours.

**Conclusion:** Our population have similar results to another studies. We pretend to improve their dietary and physical activity habits with a systematic intervention program with parents, teachers and of course, the children.

**T4:PO.73**

Analysis of UK recommendations on obesity based on an implementation framework

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**Background:** Obesity is increasingly seen as a public health problem and a threat to morbidity and mortality. A variety of authorities and organisations have made recommendations for the treatment and prevention of obesity but little impact has been seen. It is important that recommendations on obesity are based on evidence. Ideally such recommendations should be specific, measurable, achievable, realistic and time - based.

**Aim:** To analyse the recommendations on obesity in the UK from 1996 to 2006.

**Methods:** A search was conducted for all UK recommendations on obesity in the period 1996-2006. The recommendations were analysed in terms of their target populations, specificity, responsible agency, monitoring, timeframe, prioritisation and resourcing.

**Findings:** 18 sets of recommendations were identified. Most stressed their basis in evidence. Most identified their target populations but the recommendations tended to be non-specific in nature. The implementation agencies were identified but not whether they had accepted responsibility. Few include any time frame, had any prioritisation or any indication of costs of resources.

**Conclusions:** Recommendations on obesity may be based on evidence they are not formulated in a way that ensures their implementation. Implementation of recommendations needs different skills from those of appraising evidence.

**T4:PO.74**

Influence of Slimming World's lifestyle programme on the diet, activity behaviour and health of participants and their family

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**Aim:** This survey investigated the impact of Slimming World’s diet an activity programmes on the lifestyles of those accessing the services and their families.

**Methods:** A questionnaire was distributed through Slimming World’s magazine and website. 2,812 respondents were randomly selected for analysis, including Slimming World group members (53%) and non-members (47%).

**Results:** Those following Slimming World’s dietary programme reported significant changes towards healthier food choices in line with current guidelines (P < 0.01). Over 80% reported an improvement in their own health and >33% reported improvements in their partner or family’s health (P < 0.01). Respondents had increased their physical activity levels since becoming aware of Slimming World’s activity programme (P < 0.01). Almost half of those reporting increased activity indicated that their partner or whole family had also done so. Health benefits associated with improved diet and increased activity included lowered blood pressure, improved mood, improved mobility and greater confidence. Benefits increased with duration of membership.

**Conclusion:** The Slimming World programme has a beneficial impact on diet and activity behaviours. Furthermore, people accessing Slimming World’s services disseminate positive behavioural changes to the wider family network.

**Keywords:** Weight control, Diet, exercise, family, health

**Funding:** This work was funded by Slimming World, Alfreton, Derbyshire, UK.
T4:PO.75
Female obesity: a study on its relationship with sexuality
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This study has the main objective to identify relevant and connected phenomena, relating obesity and sexuality. It is justified by the growth of obesity and difficulty in achieving positive results with conventional medical treatments. The changing on aesthetic standards, where thinness has gained importance, and the observation that thin persons present better health conditions were the main responsible aspects to set an environment, in a multi-disciplinary approach, for a better comprehension and development of procedures to reduce and maintain a healthy weight. For a deeper understanding of obesity, it’s necessary to consider sexuality as one of the most influential elements, because the body is an instrument of expression, for these women, of their dissatisfactions and elaborations of feeding avidity. The psychoanalysis principles are essentially appropriate to the understanding the obese women, having been stated as a conceptual background. Due to the theme complexity, the qualitative research techniques were chosen and semi-structured interviews were used for data gathering. Data analysis and psychoanalytic discussion have shown some categories of elements that turned in providing a psychological understanding of these women. The conclusion was that the subject of sexuality was always present and linked to obesity, inside all elements: the childhood and adolescence, the way of being, the obesity, the sexuality and the future, within oral, anal and phallic pleasures, on Oedipus representations and complex conflicts of unsolved processes, on religion as a mean of repression, and on their body, elected to signalize the conflicts that these women have, due to their obesity.

T4:PO.77
Percentage of body fat in Brazilian adolescents classified as overweight according to different diagnostic criteria
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Objective: To observe the correlations between the percentage of body fat (%BF) and total body fat in kilograms (TBFkg) with body mass index (BMI). Determine cutoff points for %BF coincident with BMI cutoff points for overweight proposed by Must et al, 1989, Cole et al, 2000 and CDC, 2000, 2002.

Methods: Cross-sectional study comprising 163 adolescents, both genders, aged 14-19y from a public school in São Paulo. Body composition was analyzed by densitometry (Lunar DPXL). Nutritional status classification was based on the most used criteria: Must et al, 1989, Cole et al, 2000 e CDC 2000, 2002. Stata 8.0 software was used for the data analysis. Pearson correlation coefficient was used to examine the correlations between the %BF and TBFkg with BMI; Receiver Operating Characteristic curve was drawn to define the most accurate %BF cutoff point coincident with the above mentioned diagnostic criteria cutoffs.

Results: High correlations between %BF and BMI, and TBFkg and BMI were observed; respectively, 0.87 and 0.92 for males and 0.91 and 0.96 for females; the cutoff points of %BF coincident with the three studied criteria were 40.2% (sensitivity 95%; specificity 97%) for females and 23.5% (sensitivity 97%; specificity 90%) for males.

Conclusion: Coincidence of same %BF for both sexes with the three most used criteria cut off points indicated that for this specific population they could be used interchangeably for the assessment of body fat. This information can also help the interpretation of DXA results related to BMI in clinical settings.

T4:PO.76
Weight management in general practice: views of patients, nurses and general practitioners in the UK
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Objectives: To ascertain views of patients, nurses and general practitioners (GPs) on services in general practice for the management of weight.

Design: Survey using semi-structured interviews.

Setting: General practices in and around London.

Participants: 16 patients, 18 practice nurses and 19 general practitioners.

Results: Patients, nurses and GPs considered current lifestyles to be the cause of overweight, were of the opinion that plenty of information was available on diet and exercise and that the individual was responsible for his/her own weight. Patients appreciated the limitations on health professionals’ time and resources but nevertheless would like regular monitoring and support from them with losing weight. Practice nurses felt there was not enough time to deal appropriately with helping patients change patterns of behaviour, believed patient motivation was a key factor and found obesity a challenge as nothing seemed to work. GPs regarded obesity to be a sensitive issue, were frustrated as they felt patients were in denial or came to them as a last resort wanting them to solve the problem, thought existing medications problematic, considered psychological issues important, reported a lack of access to dietitians, and felt that Government should take some action. GPs and nurses said they would like further training in this area.

Conclusions: General practice is a considerable un-tapped resource for the management of obesity and overweight. Patients say they would like support with weight loss from health professionals. GPs and nurses considered they had a role to play in weight management and would like appropriate training.

Conflict of Interest: There is no conflict of interest.

Funding: Research relating to this abstract was funded by the British Heart Foundation and North Central London Research Consortium.

T4:PO.78
Withdrawn
T4:PO.79
Understanding roadblocks to physical activity participation in a UK South Asian community: cultural and religious perspectives
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Background: Low participation in activity has been identified in UK South Asian communities. This study aimed to explore barriers to participation especially religious influences in this Muslim community.
Methods: 37 men and 43 women participated in lay focus groups. They were purposively selected through GP’s, community centres and mosques to give maximum variety by generation, age and BMI. Views were summarised in vignettes and discussed during focus groups with 31 religious leaders. Groups were conducted in Sylheti or English, recorded & transcribed. Data were analysed by thematic content analysis using the constant comparative method.
Results: The health benefits of exercise were well recognised but many barriers to participation were cited. Religious scholars gave evidence from the Quran supporting increased activity. Many lay people believed namaz (prayer) was sufficient exercise but religious leaders disagreed and wished to promote alternative exercise in their community. A minority of lay people suggested any exercise in public was inappropriate for women but many cited jogging on the streets as prohibited. Religious scholars agreed that Islamic law allows women to exercise in public provided modesty is maintained but agreed that women jogging in public even with hijab (veil) could compromise modesty and recommended alternative activities. Female activity sessions were considered only a partial solution as some practising Muslim women wouldn’t feel confident attending.
Conclusion: Greater understanding of cultural and religious obstacles to activity will allow appropriate tailoring of future initiatives. Community based partnerships with religious leaders are a potentially powerful mechanism to take this forward.
Conflict of Interest: None disclosed.
Funding: Research relating to this abstract was funded by a project grant from Diabetes UK and an educational grant from the British Diabetic Association.

T4:PO.80
The reach of an online healthy lifestyle program for pregnant women
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Background: To prevent overweight among children, the Dutch ministry of health initiated an internet-based intervention program for pregnant women that involves monthly e-mails referring to healthy lifestyle information tailored to the stage of pregnancy. This paper describes the reach of the program in the target population and user satisfaction.
Methods: From March to August 2006 a pilot implementation was carried out in collaboration with 25 midwifery practices in Amsterdam. In total, the midwives provided information about the program to over 1000 potential participants.
Results: About 20% (n=238) of the pregnant women who received information subsequently registered themselves on the program website. Preliminary results show that in the first half year 6 participants withdrew from the program. At first registration, the women had a mean ± SD age of 30 ± 5 y, 13% had a low degree of education and 14% was overweight. We will further explore the reach of the program by assessing which proportion of participants actively participated in the program. We will also present program reach over time and explore which individual characteristics influence program reach. Preliminary results show that about 50% of respondents agreed with the statements that the lifestyle information provided was interesting and useful.
Conclusion: The pilot program mostly reaches pregnant women with a high degree of education and a healthy weight. Additional ways to reach more disadvantaged pregnant women should be explored.

T4:PO.81
Food portion size and child overweight in France
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Background: Portion sizes of many foods have been increasing in industrialized countries and are suspected to be one of the risk factors of child overweight.
Objective: (1) To describe dietary intakes by French children aged 3-11 in each food category, and (2) to assess the relationship between child overweight and portion size of each food group, taking into account energy intake, energy density of foods, physical activity, and socioeconomic status.
Design: A representative sample of French children aged 3-11 (n = 748) taken from the 1996-1999 cross-sectional French INCA (Enquête Individuelle et Nationale sur les Consommations Alimentaires) food consumption survey. Dietary intakes were assessed using a 7-day food record. Portion size (in g) and energy density were estimated for 23 food groups. Weight and height, physical activity, and socioeconomic status were reported by parents or children in questionnaires.
Results: In logistic regression adjusted models, overweight in children aged 3-6 was positively correlated to portion sizes of ‘Viennese pastries’ and other ‘sweetened-pastries’, and ‘meat’. Conversely, portion size of ‘liquid dairy products’ was inversely associated with overweight. Similar results were observed in children aged 7–11 for ‘Viennese pastries’ and ‘liquid dairy products’.
Conclusion: The increase in childhood overweight may be partly due to the shift in eating patterns toward larger portion size of energy-dense and nutrient-poor foods. At very early ages, ‘sweet/fatty snack foods’ are replacing child consumption of other more nutritious and less energy-dense foods.

T4:PO.82
Having a health policy at a central level in municipalities does not create environments more supportive for healthy food habits at school level
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The aim was to develop and apply indicators measuring contextual environmental factors at the municipal level and the school level supportive for physical activity and healthy eating habits among children. A survey was conducted in all 24 municipalities and in all 809 elementary schools in Stockholm County. Employees responsible for the physical environment in the municipalities responded to a questionnaire about policy, planning and the management of the work influencing children’s abilities to be physically active and make healthy food choices. Additionally, four questionnaires were sent to each school, one to the principal, the school nurse and the teachers in physical education and home economics, covering the same aspects as the questionnaire answered at the central level. The results showed that schools located in municipalities that had developed policy documents and plans did not have more supportive environments for healthy food habits than schools in municipalities without such policies and plans s. These results are based on indicators of allocating resources in the school budget for improving food habits, providing healthy school lunches, the ability of school children to buy snacks, soft drinks and other unhealthy food, etc. Factors that might explain differences at a school level might instead be a lack of resources, the frequency of social or learning problems among the school children, attitudes and priorities among principals, teachers and personnel responsible for school lunches. In conclusion, having a health policy at the central level in the municipality did not pay off at a school level in Stockholm County.
Children are being ‘bombarded’ by propaganda everywhere and spend approximately 40-h/week involved with media. TV and food advertisement stimulate the sedentarism and a nutritionally inadequate feeding, forerunners of intermediate risk factors for main chronic diseases such as hypertension, cardiovascular diseases, type 2 diabetes and some types of cancer.

Objective: to quantify the number of TV commercials relating the duration of programs with the duration of food advertisement. To tape and analyze critical ly, in nutritional and financial terms the food products shown on TV as factors that contribute to the development of inadequate eating habits.

Methods: tapping TV morning transmission for children shown by the two most seen Brazilian open channels, during five working days of twelve alternate weeks, totaling 450 hours in 2006. Following by data tabulation for quantitative analysis and selection of typical commercials for qualitative analysis.

Results: From the total time taped 12.6% were commercials. From a total of 1739 commercials, 173 (10%) regarded to foods, from which, 50% about goods (delicacy) and 13% on fast food. This means that approximately 63% of all food advertisements are about foods with high contents of sugar, fat, sodium and little fiber. The qualitative analysis is available at: http://www.unifesp.br/eped/disciplinas/nutricao/anal.html

Conclusion: It is expected that the publication of results promotes the multiplication of similar initiatives from other educational and research institutions aiming at educating and promoting changes in Brazilian children’s life styles and consequently decreasing the impact of chronic diseases as cause of death and incapacity for future generations.

T4.PO.85

Body mass index evolution over 10 years in Belgian army men

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Introduction: Obesity becomes a major problem in all parts of the population. In general, military health standards to enter the army are strictly determined (body mass index (BMI) below 25 kg/m²). This means that, in the beginning of their career, all army men have a normal body weight. The long-term evolution of body mass index over the study period in rather age-dependent. However, since weight increases significantly, also in this group of Belgian army men, there is an important place for a preventive weight-management program.

Competing interests: The authors declare that they have no competing interests. No funding received for this project.

T4.PO.86

Incidence of overweight among adolescents in Macon county Alabama schools

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Poor diet and a lack of physical activity are contributing to the overweight and obesity crisis in the United States. Obesity and its resulting complications are now likely to become the second leading cause of preventable death in the United States. An estimated 129.6 million Americans (64 percent) are overweight or obese, a condition which can lead to an increase in the risk of developing preventable medical condition such as heart disease, type 2 diabetes, certain cancers, asthma, joint-related problems, and psychological conditions. According to the Centers for Disease Control and Prevention, Alabama leads the country in the number of overweight individuals. This study assessed diet quality and physical activity and their relationship to the indices of childhood obesity. During the fall and spring of the 2002 -2003 school year, fourth and fifth graders in a rural Macon County, Alabama were given Three Day Diet Records, Kid’s Food Questionnaire (Block Dietary Data Systems, Berkeley, California), and a Self-Administered Physical Activity Checklist (SAPAC). Of the 650 students ages 9 – 13, approximately 60 percent returned parental consent forms. Parents also completed Kid’s Food Questionnaires. Children’s heights and weights were taken by professional dietitians and nutritionists to determine BMI’s. The results of the study showed that a third of all children assessed were at risk of becoming overweight. Thirty percent of the female participants, twice the national average, were overweight; twenty percent of the males were overweight. The percentage of obese females decreased as they aged while males became more at risk of being overweight as they aged. Overweight or obese participants reportedly consumed fewer calories than those who were not overweight. The results of this study clearly indicate that the solution to the childhood overweight and obesity crisis is far more complex than dietary intake and physical activity. Drastic family lifestyle changes must be made to reverse this trend.
Experiences of obese children who attended a residential weight-loss camp

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Background: The lack of effective treatment programmes for childhood obesity necessitates a greater understanding of successful lifestyle change. This research aimed to uncover detailed qualitative accounts on if, and how, participants implement healthy lifestyle changes post intervention. Unlike most expert-led evaluations, this research focused on participant experience.

Method: With parental approval, 44 children were interviewed towards the end of their stay at Carnegie International Camp, an 8-week residential weight loss camp based in Leeds, UK. After 3 months of returning to the home environment, 12 information-rich participants were re-interviewed. Five further case studies were invited to a third interview after 8 months conducted in their home environment.

Results: Data analysis is ongoing. Preliminary analysis of over 800 p ages of A4 transcripts suggests that like most children, obese children are seeking normalcy. This requires extraordinary effort given that social exchanges recurrently emphasise discontinuities between current (‘healthy’) behaviour and current (‘unhealthy’) appearance. The obese child lives in a ‘world of extremes’ where they must go beyond ‘normal healthy’ behaviours to lose weight, yet their appearance is ‘subnormal healthy’. This recurrent ambiguity undermines motivation for sustained healthy living.

Discussion: Few studies detail the trajectories of residential camp effects, particularly from the participants’ point of view. A high level on engagement with the children has led to unprecedented detailed accounts. This research contributes to a better understanding of successful lifestyle change and how it can be promoted in the treatment of obese children.

Factors associated with participation and reasons for non-participation in health checks for cardiovascular risk factors

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Lifestyle interventions must reach their target population to be effective. We therefore studied personal and health-related characteristics associated with participation in health checks for cardiovascular risk factors – including overweight – and subsequent lifestyle advice, and reasons for non-participation. This was done in an intervention study in which participants were recruited via a random sample (n=1000) of 59-75 year old persons drawn from the population registry. Reasons for non-participation could be indicated on a reply card, and a selection of those who did not reply were contacted by telephone. ‘Responders’ were the ones who returned the reply card or were reached by phone, and participants were the ones who wished to attend a health check. Responders (81%) were on average older than non-responders (66.5 vs. 65.7 year; P<0.05), and more often had a partner (77% vs. 67%; P<0.05). The latter difference was mainly observed among men. Fifty percent of those invited agreed to participate in the health checks. Participants were on average 0.6 years younger than non-participants (66.1 vs. 66.7 year; P<0.05). No differences were found with respect to sex and marital status. The three most frequently mentioned reasons for non-participation were that someone already attended regular medical checkups, had no interest, or was healthy and did not have a reason to attend a health check.

The above findings suggest that health checks for the elderly more often reach those who are relatively young. Reasons for non-participation frequently were health related, either because someone already received regular medical checkups or perceived oneself as healthy.
T4:PO.91

Echocardiographically assessed left and right global ventricle function is impaired in young persons with morbid obesity

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Obesity may cause various abnormalities of cardiovascular system, e.g. left ventricular (LV) diastolic dysfunction and pulmonary hypertension which may lead to right ventricular (RV) function impairment.

Aim: to examine heart rate (HR), blood pressure (BP) and echocardiographic (ECHO) parameters reflecting LV and RV global (systolic and diastolic) function in persons with morbid obesity.

Material and methods: The study group (O) consisted of 22 otherwise-healthy, non-symptomatic persons (18 women; age 22–40, mean 32.2) with morbid obesity (BMI >40kg/m²; mean 44). The control group (C) included 18 healthy persons (13 women; age 22–40, mean 29.9) with BMI<25; mean 23. Clinical data: HR, systolic BP (SBP) and diastolic BP (DBP) were assessed. ECHO: To reflect LV and RV global function the myocardial performance index (MPI) was measured, defined as the sum of ventricular isovolumetric contraction and relaxation times (msec) divided by the ejection time (msec) dependent on the HR. Additionally LV ejection fraction and wall thickness were assessed.

Results: HR was higher in O than in C (86.6±70.1;7; P<0.02) and BP was higher in O than in C (SBP: 135.6±5 vs. 111.1±8; P<0.01; DBP: 82.5±7.5 vs. 71.2±8.7; P<0.02). LV MPI was higher in O than in C (0.48±0.1 vs.0.42±0.05; P<0.05), also RV MPI was higher in O than in C (0.38±0.1 vs.0.27±0.09; P<0.01). LV ejection fraction and wall thickness did not differ significantly.

Conclusion: Abnormal myocardial performance indexes of both ventricles present in nonsymptomatic persons with morbid obesity indicates negative influence of severe obesity on heart muscle function.

T4:PO.92

Lifestyle of Hungarian school children - a representative survey in metropolitan elementary schools

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The prevalence of overweight and obesity among children is increasing dramatically. Obesity is a multifactorial disease and depends on lifestyle as well as genetic components. The purpose of this representative survey was to investigate the lifestyle of 7-14 year-old children in elementary schools in Budapest. The research was questionnaire-based. Children were asked to answer questions about their leisure activities, physical exercise, eating habits and nutrition. The main findings are: 1. Many children live a sedentary life and consider their physical condition inadequate. 2. 20% of boys and 30% of girls have been on a slimming diet at least once. 3. About two thirds of the children regularly consumed vitamin and/or mineral supplements. 4. School children have inadequate knowledge of nutrition. 5. In the lower classes (7–10 years old children) only one in five pupils had appropriate eating habits. 6. More than 5% of the 11–14 year old boys and more than 10% of the girls smoked regularly. According to our results, the unfavourable lifestyle of the great majority of Hungarian school children may have implications for their health during adulthood.

The technical background for this study was provided by Nestlé Hungária Ltd.

T4:PO.93

NHF-NRG In Balance-project: prevention of weight gain in young adults

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Introduction: Despite expanding interest in weight gain prevention, little is known about the effectiveness of weight gain prevention programs, as few studies have been designed for this purpose. The aim of the present study is to test the effectiveness of the NHF-NRG In Balance-project, a worksite-based intervention aimed at the prevention of weight gain in young adults, a group which has been identified as being susceptible to weight gain. The intervention is directed at both the environmental and individual factors.

Methods: A quasi-experimental pre-test-multiple post-test control group design was applied in 12 worksites. For all participants (n=570) anthropometric (weight, height, skinfold thickness, waist/hip circumference) and behavioural (diet and PA) factors were measured at baseline, and 1 and 2 years after baseline.

Results: After 1 year there was a significant greater decrease in the sum of skinfolds in the intervention group (-7.4±11.5mm) then in the control group (-4.7±9.1mm; P<0.01). Waist circumference also decreased more in the intervention than control group (-1.2±4.9cm and 0.3±3.3cm respectively, P<0.001). These differences were sustained over 2 years. Additional analyses showed that individuals receiving the intervention were approximately 1.5 times more likely to maintain (equal to baseline) or decrease their weight, sum of skinfolds and waist circumference over a period of 2 years then individuals in the control group.

Conclusions: The results of the NHF-NRG In Balance-project are promising with respect to weight gain prevention, with all effect -indicators changing in favour of the intervention group. No conflict of interest declared Research relating to this abstract is part of the NHF-NRG project. NHF-NRG (Netherlands Research program weight Gain prevention) is funded by the Netherlands Heart Foundation (2000T204).

T4:PO.94

Dietary habits of Hungarian school children - a representative survey in metropolitan elementary schools

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As part of a representative nutrition and health survey in primary schools in Budapest, authors investigated the eating habits and the nutrient intake of 11-14 year old school children. Food frequency questionnaire of 875 school children (449 boys and 426 girls), aged from 11 to 14 was recorded and evaluated. Energy- and nutrient intake of 235 children (124 boys and 111 girls) was calculated in parallel by 3-day dietary record.

The energy intake in average was appropriate (boys: 10.40±1.89; girls 9.18±1.50 MJ), protein and fat intake was somewhat higher than the Hungarian Recommended Dietary Allowances. Sodium intake was alarmingly high (5343±1507 mg for boys, 4839±1910 mg for girls). The intake of calcium (798±288 and 696±237 mg for boys and girls respectively) and vitamin D was inadequate. The intakes of zinc, chromium, retinol, folate for both genders, and iron in the case of girls were insufficient as well. The daily consumption of milk and dairy products was deficient in the case of slightly more than 40% of the children, that of vegetables and fresh fruits was rather low, while the frequency of consumption of sugar-sweetened beverages, chips, sticks and fast foods was high. The conclusion is that nutrition intervention programs should be launched among Hungarian school children.

The technical background for this study was provided by Nestlé Hungária Ltd.
**Abstracts**

**T4:PO.95**

Assessment of body composition in school aged children and adolescents

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It has been accepted that excess body fat (BF) constitutes risk factor for future cardiovascular events. The aim of this study was to investigate the fatness of children and adolescents (aged 7-18 y) using an eight-polar BIA (InBody 3.0 Biospace, Korea). Altogether 3187 subjects were involved in the protocol. The cut off points of fatness were ≥25% BF for boys and ≥30% for girls. On the basis of body fatness 17.9% of boys and 12.7% of girls aged 7-14 were obese, that of was 5.0% for boys and 14.2% for girls aged 15-18 y, respectively. When the subjects were categorized according to the body mass index (BMI) and BF% was calculated, 49.5% of boys and 28% of girls aged up to 14 and 11.5% of boys and 76.1% of girls aged 15-18 y were obese in spite of that there were only overweight, in the same category. However when subjects were categorized as obese according to BMI, 95% and 74% of boys aged up to 14 and between 15-18 y and 92% and 63% for girls were obese according to BF%, respectively. The BF% were strongly correlated with abdominal circumferences.

**Conclusion:** BF% seems to be more sensitive than BMI for the evaluation of obesity.

The technical background for this study was provided by Nestlé Hungária Ltd.

**T4:PO.96**

Overweight and obesity in teenagers (Val de Marne, France) in 1998 and 2005 according to social and economical characteristics

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**Aims:** to describe overweight and obesity prevalence trends between 1998 and 2005 in high school adolescents through a health nutritional program.

**Method:** Two cross-sectional surveys have been led on representative samples of school children aged 10-18 years. Overweight and obesity prevalence were calculated using international Body Mass Index cut - off (weight and height measured).

**Results:** The analysis was led on 1014 students in 1998 and 960 in 2005. The average prevalence of overweight, including obesity, didn’t evolve (16.4% and 17.0%). It increased among manual workers’ children (16.3% to 31.1%) and artisan/trades people (14.3% to 26.0%), when parents came from a North-African country (35% to 30.1%), or from ‘others’ countries (13.1% to 23.3%), i.e. non-European and non – African countries.

Between 1998 and 2005 and after adjustment on the professional category of the parents, the odds of overweight bound to migratory matter, kept going; aOR varied from 1.6 [CI : 1,1 -2.3] for North-African countries of origin to 1.7 [CI : 1.2-2.6] for “others” countries of origin.

**Conclusion:** The average prevalence of overweight staid stable between 1998 and 2005. Nevertheless, as in other European studies, they were persistent and even increasing inequalities in nutritional health status related to the socioeconomic status of the parents and especially to their country of origin.

**T4:PO.97**

Relationship between anthropometric parameters and fat tissue mass (FM) by electrical bioimpedance (BIA) according to BMI. Preliminary study

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**Objectives:** To establish correlation between BMI and waist circumference (Ws) with FM by BIA. To determine percentage of patients with BMI<30 with altered FM and Ws.

**Materials and methods:** We reviewed 161 BIA: 112 women (W), median of age 49.0 (rg15-80), and 49 men (Mn), median of age: 60.0 (rg15-80), from January 2004 to September 2006.

**Variables:** Age, Ws, BMI, FM and Total Lean Mass (LM) determined by BIA of 4 derivations MALTRON BF-906. Patients were grouped according to sex and BMI. We considered group A: BMI 18–24.9; B: 25–29.9; C: ≥30. Altered Ws: >88cm for W and >102 for Mn.

**Results:** Group A: 19 W (M:43.0, rg20-80), 7 Mn (M:59.0, rg20-72); Group B: 34 W (M:44.5, rg15–71), 9 Mn (M:44.0, rg15–79) and Group C: 59 W (M:54.0, rg15-69), 33 Mn (M:61.0, rg19–74).

**Significant correlations:** Group B: BMI vs FM (rho:0.58; P=0.001); BMI vs Ws (rho:0.42; P=0.001) and BMI vs LM (rho:-0.51; P=0.001); Group C: BMI vs FM rho:0.64; P<0.001; BMI vs Ws (rho:0.72; P<0.001) and BMI vs LM (rho:-0.64; P<0.001). Group A no significant correlations. 23.1% and 7.7% of patients of Group A had an increased FM and Ws respectively; for Group B: 55.8% and 34.9%.

**Conclusions:** Good correlation was evident between BMI and FM only in obese and overweight patients, probably due to almost 25% of lean patients had an excess of fat mass by BIA. For overweight patients there were not a good correlation between BMI and Ws, probably because near 35% of them had altered Ws.

**T4:PO.98**

Association between mother’s reported infant eating behavior, mode of feeding and early weight gain (WG).


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**Objective:** To determine the association between infant’s eating behavior (EB), mode of feeding and early weight gain (WG).

**Subjects and methods:** Of the first 784 women included in the EDEN study, 628 answered the 4-m follow-up questionnaire. Newborn weight was measured at birth and 286 mothers reported at 4 months infant’s weight measures, made by health care services, as well as infant mode of feeding. Two aspects of infant’s EB were evaluated at 4 months by the mother: intensity of sucking and appetite (i.e. always hungry, normal for age, need to be stimulated to eat). Associations between infant’s EB or mode of feeding and infant’s WG were tested by linear regressions adjusted for centre and infant’s sex and age.

**Results:** At 4 months, infant weight was not significantly related to mode of feeding. Infants with poor appetite (2%) tended to be lighter at 4 months than those with normal (94%) or high (4%) appetite (P<0.098). Those with vigorous sucking (44%) were heavier than those with normal sucking (P<0.001). WG during the 4th month was lower in infants with exclusive breast-feeding during both the 3rd and 4th month, and higher in infants who were switched from exclusive breast-feeding during the 3rd month to exclusive bottle-feeding during the 4th month (P<0.001). Frequent hunger crying was associated with higher WG during the 4th month (P=0.012) whereas intensity of sucking was not (P=0.17).

**Conclusion:** These preliminary results suggest that investigating early EB may be helpful in understanding the determinants of early WG.
T4:PO.99
Plasma homocysteine concentrations in Brazilian overweight and non-
overweight adolescents

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Objective: To test the hypothesis that overweight adolescents have higher
plasma tHcy concentrations than non -overweight adolescents and to explore
the association between plasma tHcy concentration with folate, vitamin B 12
and some risk factors for CVD in both groups.

Methods: A study conducted with 239 adolescents aged 15 -19 years enrolled
in a public school of São Paulo City, Brazil; 86 overweight and 153 non
overweight with same pubertal and socioeconomic status. tHcy, folate,
vitamin B 12, lipid profile, glucose, insulin and insulin resistance were
measured.

Results: No significant differences were found in tHcy, folate and vitamin B 12
centrum between overweight and non -overweight groups. The tHcy
geometric means were elevated in both groups (over weight: 11.8 µmol/L;
non -overweight: 11.6 µmol/L) higher for boys than for girls (P < 0.001).
Folate deficiency was identified in 68.6% of total studied population.
Tracyglycerol, LDL -c, insulin resistance were higher and HDL -c was lower
in overweight th an non -overweight adolescents. In the multiple linear
regression model, in overweight group, tHcy was independently associated
with age (P = 0.041), sex (P = 0.004) and folate (P = 0.022) and in non -
overweight group, with age (P = 0.049), sex (P < 0.001), folate (P = 0.018)
and vitamin B 12 (P = 0.030).

Conclusions: Obesity was not a determinant factor of tHcy concentrations.
Age, sex and folate were independent determinants of plasma tHcy
concentrations. The high prevalence of folate deficiency may have been
responsible for the elevated tHcy concentrations in these adolescents,
increasing the risk for future development of CVD.

T4:PO.100
Preventing childhood obesity: EPODE, a successful long term integrated
community approach

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EPODE is a whole-of-community prevention program set up early 2004 to
counteract childhood obesity. It involves 500 000 people among which 50
000 children in 10 French pilot towns and is now expanding to other French
towns as well as Spain, Belgium and other European countries.

It is within the family that main lifestyle determinants (diet, physical
activity,...) are being decided. The EPODE concept is to use local
stakeholders like teachers, health professionals, shop keepers, local
producers, caterings, media... to deliver the same health message
simultaneously to families in order to help them adopt a healthier lifestyle.
EPODE keys to success are the project engineering – conceptualised with
a social marketing company, Protéines – with concrete, visible, sustainable
and local actions, the involvement of all local players and stakeholders around
a mobilizing linking theme and continuous communication. EPODE also
involves existing local actions and projects. In each town, a project manager
manages a local team. Such organization can be duplicated in other countries
taking local cultural specificities into account. Since EPODE has been
launched, over 1000 actions have been performed in two years time in the 10
French pilot towns, with a strong participation of all local players and the
population.

EPODE evaluation includes BMI assessment for each child involved in the
program, as well as the study of sociological and behavioural changes.
Compared to 2005, prevalence of overweight (including obesity) decreased in
2006 (18.68% vs 20.6%, P<0.003). We will present the latest results and
analyse the keys to success. Grants from: Assureurs Prévention Santé, Nestlé
France, Fondation Internationale Carrefour.

T4:PO.101
What value does bioelectrical impedance add to the assessment of obesity in
Childhood? Data from the Avon longitudinal Study of Parents and Children
(ALSPAC)

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Background: As body mass index (BMI) cannot discriminate between fat
and lean tissue, it has been suggested that proper assessment of overweight
and obese children requires measures of body composition. We have used
bioelectroal impedance ( BIA) data from the ALSPAC study, a large
population based cohort including over 500 obese children, to explore
the extent to which BMI relates to body composition in overweight and
fat -individuals.

Method: Growth and BIA data were available for 7609 and 5740 subjects at
ages 7 and 11 years. The impedance data were expressed as lean and fat SDS
adjusted for height, gender and age; BMI was also internally standardised.
Children were categorised as: BMI SDS>95th centile (obese), 85-95th
(overweight), Fat SDS>95th and 85-95th. 

Results: There was a high level of agreement between fat and BMI categories
at both ages (Kappa >0.7). At 7, of 356 children with fat SDS>95th, 81% were
also obese and only 10 (3%) had fat <85th. Of the obese children at 7, 83%
had fat >95th. At 11, 80% of those with fat >95th were also obese and none
had fat <85th. Of the obese children at 11, 87% had fat >95th. Change in BMI
SDS between 7 and 11 in children obese at 7 was explained mainly by change
in fat SDS (R = 0.85), whereas only 61% of the variation in children with
BMI I SDS>85th (at 7) was explained by change in fat SDS.

Conclusion: Bioelectrical impedance contributes little additional information
to the clinical assessment of obese children.

Conflict of Interest: None Disclosed.
Funding: Research relating to this abstract was funded by British Heart
Foundation.

T4:PO.102
Tracking of overweight and obesity through mid-childhood: Data from the
Avon Longitudinal Study of Parents and Children (ALSPAC)

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Objective: We have used body composition data from the ALSPAC data set,
a large population based study, to explore the relative tracking of BMI and fat
mass between ages 7-11 years.

Method and subjects: Growth and bioelectrical impedance data were
available for between 7774 and 5740 subjects at 7 and 11 years. The
impedance data were expressed as lean and fat adjusted for height, gender and
age. All values were internally standardised.

Results: Limits of agreement for BMI and fat SDS between the two ages
were relatively wide, with only 60% and 53% respectively having
measurements at 11 within 0.5 SD of measurements at 7, compared to 73%
for height. Of the 5453 children with measurements at 7 and 11 yrs, 218 were
obese (BMI >95th centile) at 7; of these 44% boys and 36% girls remained
obese at 11, while 12% and 9% were <85th. For body fat, 223 children were
>95th at 7; of these 46% boys and 61% girls were still >95th while 18% and
11% were <85th. Of 416 children overweight (BMI=85-95th) at 7, 12% had become
obese at 11, but 40% were normal weight. Of 438 children with fat
85 -95 aged 7, 13% had fat >95th at 11, but 49% dropped <85th. The Kappa
statistic for agreement of BMI or fat categories over time was only moderate
(BMI 0.48, Fat 0.46).

Conclusions: While BMI and body fat tend to track though mid childhood,
more for girls than boys, there is substantial intra -individual variation over
time.

Conflict of Interest: None Disclosed.
Funding: Research relating to this abstract was funded by British Heart
Foundation.
Long term outcomes of a successful childhood obesity prevention program in France: FLVS (Fleurbax Laventie Ville Sante).

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Obesity is a big public health challenge of the 21st century and there is a crucial need for efficient programs to counteract this epidemic. The objective of FLVS study was to measure the effectiveness of a whole-of-community prevention program on the prevalence of overweight including obesity over 12 years. Children aged 5-12 were assessed in Fleurbax Laventie (FL) and two comparison towns (CT) between 1992 and 2004, using serial crosssectional studies (n=804, response rate 81%). Interventions were performed in two steps: a first step (1992-2000) focused on nutrition education in schools and a second step (2000-2004) involved the whole FL population (families and children) in community actions targeting physical activity and nutrition. Baseline obesity prevalence was 11.4% and 12.6% (FL and CT respectively; P = 0.6). In FL, during the first step prevalence of children obesity first stabilized (11.4 % to 14.3 %; P = 0.7). It decreased during the second step (14.3% to 8.8%; P = 0.012). Prevalence of children obesity in CT increased: 11% in 1992 to 17.8% in 2004 (P < 0.0001). In 2004, difference in the prevalence of children obesity between FL and CT became significant (8.8 % vs 17.8 %; P < 0.0001). The FLVS initiative successfully reduced childhood obesity, although it took over 8 years for the decline in prevalence to become apparent. Interventions targeting schools only are thus not efficient enough and the whole community must be involved in order to reduce the prevalence of childhood obesity. Grants from Cedus, Laboratoire Fournier, Go sport, Lesieur, Nestle France and Roche.

Patterns of Nutrition in a Public vs. a Private School in Rosario, Argentina

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Childhood overweight and obesity is a worldwide public health problem.

Objective: To determine patterns of nutrition in a private (PRS) and a public (PBS) schools (Rosario, SF, Argentina), with markedly socio-economic-cultural opposed characteristics.

Methodology: Observational study on a random sample: PBS, n=79, PRS, n=58, 1st-6th degree scholarization, both sexes. Nutritional assessment (enCNHS): Weight(kg)/height(cm) (W/H). Cut-offs: Normal weight (NW): <-1, -1SD; Low weight (LW): <-1SD; Overweight (OW): >-1 to -2SD. Obesity (O): >2SD. Height/Age (H/A): Normal (NH): >= percentile (P10); Low (LH): <P10; Very Low (VLH): <P3. Calorie intake (CI), macro - micronutrients, additives (MSG), consumption frequency (CF), physical activity (PA), sedentarism (S). Results: Prevalence (% NW, LW, OW, O); PBS: 74.7; 10.2; 11.4; 3.7; PRS: 76.2; 9.9; 10.4; 3.5, n.s. NH, LH, VLH: PBS: 90.1; 7.4; 2.5; PRS: 91.5; 8.8; 3.5, n.s. Significant differences (P<0.05): PBS/PRS, CI, Carbohydrates (CH) and biological high value protein (BHVP). Total protein (TP) high intake, both schools: 3 gr/kg b.w. BHVP (middle %): PBS: 55.6; PRS, 63.7. High Fe intake, both schools, greater in PBS. Significant correlations (P<0.05): WH vs. CI; CI, PRS males; [CH,TP,Fat] vs. CI, both schools. Significant differences (P<0.05) : CF, PA, S between males, both schools. Additives: Higher MSG’s CF (canned food, snacks) in PBS (χ²=11.94; P<0.03).

Conclusions: High TP could damage health due to renal overcharge. PBS children show lower BHVP intake. PBS children show higher Fe intake due to non -hem iron. Higher Additive content (MSG) was detected in PBS. Inadequate feeding behavior was observed, e.g. high CH, fat intake, snacks, associated with high sedentarism, particularly in PBS.

Patterns of Physical Activity and Physical Fitness levels in normal and overweight children and adolescents

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There’s scientific consensus that Physical Activity (PA) and Physical Fitness (PF) plays an important role in the treatment and prevention of overweight and obesity. But is there any difference in the amount of moderate to vigorous PA (MVPA) and in the levels of PF of normal and obese children?

Purpose: To compare the amounts of MVPA and the PF among normal weight, overweight and obese children.

Methods: A random sample of 210 (12-18 years) boys (n=80) and girls (n=130) was evaluated. Body Mass Index (BMI) was calculated, the measurements of the FITNESSGRAM® protocol were carried out and also PA levels (MTJ Artiographs) evaluated. The activity monitor was used as instrument to objectively measure daily PA. The study was conducted during 7 consecutive days.

Results: Our results reveal that there’s a difference in the contribution of MVPA between groups of weight (P<0.05). Obese adolescents present lower amounts of minutes of MVPA in all days of the week (P<0.05). The results also suggest that, in both genders, normal weight adolescents presents higher results in most of the Physical Fitness tests when compared to obese individuals (P<0.05).

Conclusions: Obese adolescents spent significantly less time in MVPA, when compared to normal and overweight children, obese children present also in all PF test lower results than normal weight children, and there’s a positive correlation between the total time of MVPA and the different tests of PF. Many of these children are below the Healthy Levels of PF according to the F FITNESSGRAM®.

Conflict of Interest: None Disclosed.

Funding: Research relating to this abstract was funded by Fundação Calouste Gulbenkian.
Factors associated to Iranian childhood obesity

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Objective: Increase in childhood and adolescence obesity prevalence in recent years, has caused many investigations to be held on childhood obesity associated factors. Fetal and early infancy, dietary and behavioral factors are studied in many studies worldwide. Childhood obesity prevalence has been shown to be high in Iranian children too. This study aimed to determine some of these factors in Iranian primary school children.

Materials & methods: Using two stage cluster sampling from 7 Iranian cities (Alhwar, Kerman, Kazeroun, Yazd, Urmia, Tehran, Neishabour), about 20,000 school children were studied. Children who had a BMI 95th percentile of Iranian (Hosseini et al., 1999) reference, were identified as obese and same number pupils having same age and gender and having 15< BMI< 85 percentile, were chosen as controls. Demographic, dietary and physical activity questionnaires were completed by asking mothers and pupils.

Results: Analyzed data indicated that birth weight, season of birth, age of complementary foods introduction, sleep duration, TV viewing, physical activity, high food intake, consumption of chips, chocolate, and fast foods, regular fizzy drinks and fruit juice drinking, maternal age, parental occupation, parental education, parental obesity, number of people per household were associated to childhood obesity.

Conclusion: While some factors like race, gestational age, birth order, breastfeeding duration, sleeping regularity had no significant differences between obese and non-obese students, the above mentioned factors were identified to be associated to Iranian primary school pupils obesity.

Changes in prevalence of overweight (OW) and obesity (OB) in Algerian children and adolescents between 1996 and 2006

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Algeria is facing nutritional and lifestyle changes with 40 % of the population less than 20 yrs. The prevalence of OW and OB (IOTF criteria) in 10 regions of the country was evaluated between 1996 and 2006 in a total of 52167 children and adolescents (girls (G) = 26066, boys (B) = 26101), aged 5 to 18 yrs. Prevalence of OW+OB varied from 9.2 to 10.6 % in the whole group (P = 0.145). Prevalence of OB shifted from 1.7 to 2.1 % (P = 0.306). Prevalence of OW+OB remained stable (10.6 to 10.0 %, P = 0.69) in G, increased in B from 7.9 to 11.3 %, (+ 43 %, P = 0.0115). OB varied from 1.9 to 1.2 % in G (P = 0.175) and in B from 1.3 to 3.0 % (+ 130 %, P = 0.012). The highest increase for OW+OB in both sexes (8.1 to 11.7 %, + 44 %, P = 0.025) was observed at 8 to 10 yrs and in the Northern part of the country. Our study shows that the prevalence of OW and OB is increasing in Algeria with G and B and regions being unequally affected. This situation deserve major attention and analysis of the underlying risk factors.

Association between occupation and obesity in 22,753 Mexican professional truck drivers

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In Mexico, obesity rate has increased. Recent estimations indicate that for the year 2010 between 8 and 14 million Mexicans will be obese. Life style has a fundamental role in the development of obesity. Occupation is a main variable in this area; stressful and sedentary occupations like professional drivers have a larger risk of obesity.

Objective: Identify the possible association between obesity and occupation in a group of Mexican professional truck drivers (MPTD).

Methods: Data from 22,753 men applying for driver license (expedion or renovation) registered at the Ministry of Communication and Transportation was included. There are three main types or license: passengers, general load and hazard products. High and weight were measured and body mass index (BMI) was calculated. Applying logistic regression analysis, we calculated the Odds Ratios (OR) for obesity by type of application (revalidation or expedion), controlling for age, and type of license.

Results: The average of age, weight, height and BMI was: 35.1 years (DS 9.6), 77.8 kg. (DS 11.8), 167.7cm (DS 6.0) and 27.6 (DS 3.7), respectively. 25.9% of the subjects applied for license expedion and 74.1% for revalidation. The MPTD applying for revalidation had a higher likelihood of obesity compared with the expedion group. (OR=1.23, IC95% 1.14, 1.33), controlling by age. The drivers who transported hazard products had the highest BMI.

Conclusion: Close to 80% of the subjects studied were overweight or obese. It is possible that the life style impose on the MPTD by their job increases their risk of high BMI.
T4:PO.111

Low lifestyle related health among adolescents with mild learning disability
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Introduction: A reduced capacity to comprehend health messages may be associated with lifestyle related health problems. The aim of the present study was to evaluate lifestyle related health parameters among adolescents and to compare adolescents with learning disabilities (LD), and adolescents from theoretical and practical school programmes. Participants and methods: The study involved 156 students from different upper secondary schools, one special school for LD students (n=66, 18.6±1.3 years), one school with handicraft/food programmes (n=34, 17.8±1.0 years) and one school with social/natural sciences programmes (n=56, 17.8±0.6 years). Weight, height, waist, hip, blood pressure and body composition with densitometry were measured. Results: Students with LD were the most inactive and had significantly lower VO2 max (ml/kg/min), higher triglyceride, insulin and glucose levels and were more often overweight (BMI >25; P=0.001) than were the other students. All measured parameters followed the same pattern with the lowest health risk levels among adolescents at theoretical programmes and highest among LD students. Conclusions: The prevalence of unhealthy lifestyle factors was found to be high in the LD population and relatively high for students from handicraft/food programmes.

Conflict of Interest: None. Disclosed.

Funding: Research relating to this abstract was funded by Public Health Grant, Stockholm County Council.

T4:PO.112

Physical inactivity and metabolic risk are unrelated to socio-economic status in children
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Background and Aims: Interventions to increase children’s physical activity increasingly target lower socioeconomic (SES) groups, on the assumption that those living in areas of relative deprivation are most at risk of inactivity, obesity and metabolic disorder. We tested this assumption objectively in children.

Methods: 1. Total physical activity (TPA), by accelerometry, averaged from four 7-day measures at 5,6,7 and 8y in 224 healthy children (125 boys), attending 53 primary schools representing a wide socio-economic range. 2. SES by a multiple deprivation index using individual home postcode (Home-SES) and by percentage of pupils in school attended entitled to free school-meals (School-SES).

Results: Boys - TPA tended to be higher in children of lower SES (Home-SES r=0.14, P=0.13, School SES r=0.26, P=0.01). BMI tended to be lower among children of lower Home-SES (r=-0.16, P=0.07), but not School-SES (r=0.04, P=0.64). Metabolic risk was unrelated to either Home-SES (r=0.12, P=0.20) or School-SES (r=-0.03, P=0.77), even after adjustment for BMI (r=0.01, P=0.94 and r=-0.04, P=0.66). Girls - Neither TPA (for both indices of SES r=0.05, P=0.66), BMI (both r=0.08, P=0.43) nor metabolic risk (both r<0.01, P=0.70, even after adjusting for BMI), were related to SES.

Conclusion: There is little evidence of social inequality in either physical activity or metabolic health of children today. Total activity depends largely on unstructured play and where opportunity for structured activity may be lacking, children seem more than able to compensate.

T4:PO.113

Efficiency of different walking prescription durations on the increase in physical activity in women
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Introduction: Fast mass loss and improvement in cardiovascular health may be promoted by extra physical activity, such as brisk walking. Different durations of daily walking prescription have been proposed. However, little is known about the effectiveness of these prescriptions on total daily physical activity.

Methods: After a 2 week baseline period, 56 women were randomly assigned to 3 groups of walking prescription: 30 (A), 60 (B) or 90 (C) minutes. During 4 consecutive weeks (divided into 2 periods), subjects were asked to add their assigned amount of walking to their normal activity 5 times per week. Physical activity was measured inconspicuously by accelerometry.

Results: Students with LD we re the most inactive and had significantly lower VO2 max (ml/kg/min), higher triglyceride, insulin and glucose levels and were more often overweight (BMI >25; P=0.001) than were the other students. All measured parameters followed the same pattern with the lowest health risk levels among adolescents at theoretical programmes and highest among LD students. Conclusions: The prevalence of unhealthy lifestyle factors was found to be high in the LD population and relatively high for students from handicraft/food programmes.

Conflict of Interest: None. Disclosed.

Funding: Research relating to this abstract was funded by the "Sport and Movement" grant of the Swiss Federal Office of Sports, Magglingen.

T4:PO.114

Looking to the future: indigenous Fijian and IndoFijian adolescents’ predictions for future patterns of eating, physical activity and body size
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Background: Recent surveys indicate that the prevalence of obesity in Fiji increased rapidly in the 10-15 years after leaving school. Adult rates of overweight and obesity are high (67.2% and 42.1% for indigenous Fijians and Indo-Fijians, respectively). One way to arrest increases in obesity is to identify adolescents’ predictions of, and explanations for, their patterns of eating, physical activity and body size at four life-stages: as school leavers, employees, spouses and parents.

Method: Semi-structured interviews were conducted with 48 indigenous Fijian and 48 Indo-Fijian adolescents by same-sex interviewers from the same cultural group. Researchers from each cultural group analysed the data separately, then together to ensure cultural validity.

Findings: Fifty eight percent of participants predicted weight increases as school-leavers; many attributed this to increased food consumption and/or decreased physical activity. More Fijians than Indo-Fijians predicted increased food consumption as school-leavers when they had money to purchase food. Fifty percent of participants expected decreased physical activity once they were employed, primarily because of long working hours. Forty two percent of participants anticipated further weight increases after marriage; more Fijians than Indo-Fijians predicted decreased physical activity once family commitments reduced opportunities for recreational sport. Males expected decreased physical activity after they had children, while females anticipated that domestic tasks and child care would increase their physical activity. About half of the participants indicated that they would control future weight changes.

Conclusions: Adolescents’ predictions of future patterns of eating, physical activity are important for planning appropriate and relevant interventions to effect lifelong changes that support a healthy body size.

Funding: Funding for the research relating to this abstract was provided by the Welcombe Trust (Fiji and Tonga) and the National Health Medical Research Council (Australia).
T4:PO.115

Do young adults with higher adolescent body sizes recall themselves as having been fat?

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Background: Obesity prevention programmes are unlikely to succeed unless individuals perceive their weight to be a problem. We investigate young adults’ recalled body size at ages 11 and 19, and the characteristics of those with higher BMIs whose recalled size was smaller.

Methods: A cohort, originally schools-based, completed a postal survey at age 22. This included a 9-category figure rating scale (FRS) for recall of body size at ages 11 and 19. BMIs based on physical measurements at these ages were also available (Ns=593 at 11, 515 at 19). FRS ratings were collapsed into 3 categories, approximating 50%-20%-30% (‘lower’-‘medium’-‘higher’) splits for each sex and age group. BMIs were also categorised in the same proportions.

Results: Kappa levels (agreement between recalled and actual size), were ‘poor’ - ‘fair’, ranging from .34-.44. Overlapping 95% CIs indicated no significant sex differences, or between recall of age 11 compared with 19. Approximately 12% of those in each group whose BMIs had been ‘higher’, provided ‘lower’ FRS ratings. Analyses, controlling for sex, found ‘lower’ ratings were not related to social class. However, those making ‘lower’ ratings tended to have been less worried about their weight since age 11, dieted recently or currently distressed.

Conclusions: A significant minority of young people with adolescent BMIs in the upper third of the distribution perceive their body sizes to have been smaller. Such misperceptions are likely to reduce the success of obesity prevention programmes.

Conflict of Interest: None.

Funding: This analysis forms part of a larger study, funded by the UK Medical Research Council.

T4:PO.116

Overweight is strongly associated with parents’ educational level and nationality in Swiss children

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Objective: To assess the association between children’s overweight and parents’ educational level and nationality.

Methods: Weight and height were measured in all children of the 6th school grade in the Canton of Vaud (Switzerland). Parents were asked about their highest educational level (primary, secondary, tertiary), nationality and current weight and height through a mailed questionnaire. Overweight (this includes obesity) was defined according to the criteria of the International Obesity Task Force (IOTF). Parents’ nationality was defined as Swiss, mixed or foreign if both, one, or none of the parents were Swiss nationals, respectively.

Results: The survey included 5’207 children (participation rate: 76%; 2621 boys, 2586 girls; mean age (SD): 12.3 (0.5); 15.0% (SE: 0.7) of boys and 12.4% (0.6) of girls were overweight (or obese). The prevalence of overweight was 9.1% (0.7), 14.5% (0.7), and 24.1% (1.8), among children whose parents had tertiary, secondary, and primary education; 10.2% (0.5), 16.3% (1.5) and 22.0% (1.3) in children with parents of Swiss, mixed and foreign nationality. Parents’ educational level and nationality were independently associated with childhood overweight after adjustment for child’s age and sex and parents’ BMI.

Conclusions: The strong association of ‘foreign’ and ‘lower education’ of parents and children’s overweight may relate to an underlying association between overweight, socioeconomic status and cultural factors. These findings need to be studied further as well as being considered when addressing prevention and control of children’s overweight.

Conflict of interest: None to declare.

Funding: Grant of the Swiss National Science Foundation (No 3200BO-10999/1).

T4:PO.117

Obesity - Biopsychological and social determinants. A study among discordant twins

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Background: The risks of obesity are manifold. Recent studies have demonstrated that other determinants may be relevant e.g. parental care in childhood, being bullied during childhood, perceived stress and coping competencies. In order to understand the aetiology of obesity it is thus necessary to view it as a product of a dynamic combination of physical, psychological and social factors.

Study design: In the Danish Twin Registry 144 pairs of twins (monozygotic as well as dizygotic) are discordant for obesity, i.e. one twin has a normal BMI (between 20 and 25) and the other has a BMI over 30. These twin pairs will be interviewed individually about their experiences in childhood, with special focus on parental care, eating patterns, being bullied in childhood, perceived stress and coping behaviour. The interviews will be supplemented with blood samples and anthropometric measures.

Results: The interviews began in April 2006 and the total number of persons to be contacted is 288. The response rate has so far been 89. We expect to accomplish the interviews in the end of December 2006. Preliminary results will be presented at the conference.

Perspectives: Successful prevention of obesity requires broad knowledge and documentation based on both physical, psychological and social studies, to which we hope this project can contribute.

T4:PO.118

Food choices and characteristics of normal weight women discontent with their body weight

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The aim of this study was to investigate the frequency of discontentment as well as food choices and characteristics of normal weight women discontent with their body weight. Normal weight 15 to 80-year-old women recruited for the national dietary survey 2002 (n=355) were included in the analysis. Diet was assessed by 24 -hour interviews by telephone and lifestyle questions. Body weight and height were self reported. Despite being normal weight 33% of the women were discontent with their body weight and/or were trying to loose weight. The discontent women had a higher body mass index (BMI, 22.9±1.3 vs 21.8±1.7 kg/m², P<0.001) compared with women who were content with their body weight, and they had more frequently gained weight during the last 12 months (39 vs 19%, P<0.001). There was a non-significant trend towards lower intake of fibres and a higher frequency of high added sugar intake. 6% from alcohol was significantly higher and the total amount of β-carotene from the diet lower among those discontent compared with those content. Furthermore, discontent women consumed multivitamin- or cod liver oil supplements less frequently (62 vs 73%, P=0.033), but protein shakes or other dietary supplement drinks (14 vs 5%, P=0.004) and diet sodas (42 vs 25%, P=0.001) more frequently. They were also more likely to often read nutrient labeling (46 vs 34%, P=0.006). Among Icelandic women of normal weight every third woman is discontent with her body weight and wants to be thinner. This may be associated with recent weight gain. Differences between the groups may reflect a preoccupation with nutrition and body weight.
T4:PO.119

Factors influencing the weight percentile change between 1st grade and 6th grade of elementary school

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Obesity in children and adolescence is one of the most important health problems, both physically and psychologically. To explore proper health guidelines for obese children, we studied percentile change of body mass index over five years. The first grade elementary students were categorized as low(<15%), normal(15-85%), over(>85%) weight according to body mass index percentile. Each group of the students were re-tested in sixth grade and also checked for body image dissatisfaction, psychosocial features, living habits, and self-esteem. 1082 students (590 male and 492 female) were selected to be part of the study. First of all, comparing body mass indexes between the first and the sixth graders, 37.3% of the total students continued to maintain low body weight, 15.7% students moved from normal weight to over weight group, and 69.2% of the overweight students remained in overweight group. Secondly, 40% of overweight students in the sixth grade were within normal or low weight groups when they were first graders. Both overweight students and those who were not, had distorted body contour images. Day-time television watching, duration of computer use and low self-esteem were the only statistically significant factors in the students who shifted from normal to overweight groups. (P<0.05) An adequate intervention in the first graders may reduce the incidence of moving into the overweight in the sixth grade.

T4:PO.120

Assessment of free-living physical activity using the activPAL activity monitor

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Aim: The study aimed to evaluate the measurement of free-living upright activities, using the activPAL.

Methodology: For three days, 20 volunteers recorded daily activity into an activity diary and wore two activity monitors (the activPAL and the RT3). Daily energy expenditure and time spent in upright posture reported by each method were compared. Sensitivities of the methods in detecting day-to-day variations in physical activity were compared. Comparison between methods were by repeated measures ANOVA and Bland-Altman method.

Key Results: Mean daily energy expenditure reported by the diary was 8 MEI’s greater than reported by the activity monitors. Mean daily time spent upright estimated from the activity diary was 2 hours greater than reported by the activator monitors. These differences were statistically significant (t= 5.950, P =< 0.001). There was weak but significant correlation between the diary and the monitors (r = 0.382 to 0.492, P <0.01); but a high correlation between the monitors (r = 0.826 for energy expenditure and 0.684 for time in upright posture, P < 0.001). Repeated measures ANOVA showed, only the activPAL detected significant differences (P = 0.02) between the working days and the rest day.

Discussion: Correlations and agreement were higher between the activity monitors for both time in upright posture and energy expenditure. The diary clearly over-estimated both parameters. The working days were expected to be different from the day off work. This difference was only detected by the activPAL.

Conclusions: The activPAL is useful for measuring free-living upright activities.

T4:PO.121

The objective assessment of free-living physical activity in determining cardiovascular risk factors

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Background: Current on physical activity is beyond the capability of many people, difficult to sustain and may not be necessary for health benefits (Lee, et al 2001) for current sedentary population. Physical activity is determined by posture and movement. The activPAL activity monitor classifies the activity into the three primary activities – sitting, standing and walking. It also reports sit/stand transitions, cadence, step count, and energy expenditure. Information provided by the activPAL on free-living activity could be related to risk factors for diseases caused by inactivity.

Research objective: To establish, whether a minimum level of upright physical activity could be used to reduce CHD risk.

Method: Two participant populations- matched for age, sex and BMI- are recruited. These populations are 40 walking delivery postmen and 40 administrative staff. Participants wear the activPAL for seven days. They also fill a diary and the monitors (LFCT) and an advert recall task. In the control condition, overweight and obese children showed significantly greater preference for branded high carbohydrate (P<0.01), high fat (P<0.05) and total number of food items chosen (r=0.497, P<0.05) after food advert exposure. After the food adverts, the lean children selected more branded (P<0.05) and non-branded (P<0.012) food items than after toy adverts. The results of this study suggest that obese and overweight children are indeed more responsive to branding. Moreover, exposure to food adverts increases the same ‘obsessive’ food preference response in lean children.

Results: We are currently in the process of data collection.

Research questions: Is there a difference in physical activity level and pattern between delivery postmen and administrative staff? What are the relationships between free-living physical activity and HD risk factors? Can differences in risk between the two groups be attributed to and addressed by, changing upright posture?

Hypothesis: It is hypothesised that time spent upright, when major leg and trunk muscles are in constant use to maintain posture as well as to move, may be an alternative way to protect against CHD.


T4:PO.122

Children’s preferences for branded and non branded foods: Effects of weight status and television food advertisements (commercials)

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The effects of TV advertisements on children’s brand preference are clear; however, their impact on food preferences are not. Moreover, it is unclear if obese children are more susceptible to branding per se. A within-subjects, counterbalanced design was used to investigate the effects of weight status and exposure to food and non-food adverts on children’s preference for branded and non-branded foods. 38 children aged 11 to 13 (mean 11.6yrs) took part in control (toy advert) and experimental (food advert) conditions. Three groups were defined; lean, overweight and obese children, using age related BMI norms. Participants were shown adverts (toy/food) followed by a cartoon, then completed three food preference measures; the Leeds Food Preference Measure (LFPF), the Adapted Food Preference Measure (AFPM) and the Leeds Forced Choice Test (LFCT) and an advert recall task. In the control condition, overweight and obese children showed significantly greater preference for branded high carbohydrate (P=0.034), branded high fat (P=0.05) and total branded foods (P=0.05) than lean children. In addition, for the obese and overweight children, food advert recall correlated with the number of high carbohydrate (r=0.621, P<0.01), high fat (r=0.500, P<0.05) and total number of food items chosen (r=0.497, P<0.05) after food advert exposure. After the food adverts, the lean children selected more branded (P=0.05) and non-branded (P=0.012) food items than after toy adverts. The results of this study suggest that obese and overweight children are indeed more responsive to branding. Moreover, exposure to food adverts increases the same ‘obsessive’ food preference response in lean children.
Impact of early weight gain on insulin resistance in later childhood: a longitudinal cohort study

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Background: Early weight gain (0-5y) is thought to be an important contributor to childhood obesity. Although insulin resistance (IR) is thought to drive the cardio-diabetic syndrome, there is a scarcity of longitudinal studies in childhood reporting the impact of early weight gain on IR.

Aim: To assess the impact of early weight gain on insulin resistance.

Method: Subjects: 204 healthy children (93G, 111B), gestational age>37wk.

Measures: Age/gender-specific weight measured at birth, 5y and 9y.

Outcome: HOMA-IR at 9y.

Results: 1. Excess weight gain was substantial from 0-5y (G: +0.30, P= 0.02; B: +0.28, P< 0.02), but much less from 5-9y (G: +0.02, P= 0.71; B: +0.11, P<0.04).

2. Weight correlated modestly before 5y (0y-v-5y—G:r= +0.15, p=0.14; B:r= +0.43, P<0.001) but closely after 5y (5y-v-9y—G:r= +0.85; B:r= +0.90 both P<0.001).

3. Weight predicted IR9y (G: r2=0.25; B: r2=0.20, both P<0.001) better than weight at 5y (G: r2=0.18, P<0.005; B: r2=0.11; P=0.001).

4. In predicting IR9y, the model improved from G(β): r2=1.2(2%) with birthweight, to 11%(11%) on adding Δweight(0-5y) and to 34%(23%) on adding Δweight(5-9y).

Conclusions: Later weight and weight gain predict childhood IR better than early weight and weight gain. However, most excess weight is gained before 5y and weight at 5y closely predicts weight at 9y. As such, weight (BMI) screening at 5y provides an important reflection of population risk and a pointer to individual risk. Obesity prevention strategies might better focus on pre-school children, as the die appears to be cast by 5y.

Association between Eating Patterns, Eating Frequency and Obesity in school-age children

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Objective: To examine associations between obesity indices and meal patterns, including eating frequency (EF), in school-aged children.

Design: Cross-sectional study (Gene -Diet Attica Investigation on childhood obesity (GENDAI)), 918 school-aged children so far (53.4% girls, 46.6% boys; age: 11.2±2.06 yrs; Body Mass Index - BMI:20.0±3.57 kg/m²).

Measures: BMI, % body fat (estimated by Slaughter skin folds equation), Waist –to- hip ratio (WHR), eating frequency (i.e. number of eating episodes/day), assessment of meal patterns and physical activity.

Results: There was a negative correlation between EF and obesity indices in girls (for BMI r = -0.13, P = 0.006; for % body fat r = -0.14, P = 0.003; for WHR, r = -0.14, P = 0.003), but not in boys. Differences in EF were found between girls and boys (5.0±0.05 and 4.8±0.05 eating episodes/day respectively, P = 0.004) and between normal weight, overweight and obese girls (P<0.001), with obese girls reporting the lowest EF. Following meal patterns analysis, children reporting to consume on a daily basis full breakfast or dinner, or both breakfast and dinner had significantly lower BMI values compared to those who did not. Regression analysis revealed the statistically significant predictors of BMI, namely sex, EF, daily breakfast consumption, daily dinner consumption and minutes of inactivity.

Conflict of Interest: None.

Funding: Research relating to this abstract was funded by COCA-COLA HELLAS.
The relationships between sleep, physical activity and body mass index in Swedish children

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Objectives: To describe the relationships between objectively measured sleep, physical activity and body mass index in 6-10 year old Swedish children.

Methods: The present study is part of a school based prevention programme, STOPP (Stockholm Obesity Prevention Project). Twenty randomly selected children from 10 schools were measured every week for seven school terms (2002-5) and 672 girls and 667 boys (mean age 8.2 y) completed the base line data collection. An accelerometer (Activiwatch2, Cambridge Neurotechnology Ltd) was used to register physical activity and sleep during seven consecutive days. Yearly weight and height were examined and body mass index standard deviation score (BMI SDS) was calculated. A mean value, counts per minute (cpm), for seven days (between 8 am-9 pm) was used to describe total physical activity (>=600 minutes/day). Similarly, a mean value (minutes per day) to describe actual sleep was calculated for seven days. Actual sleep time was the amount of time that was scored as sleep (between 6 pm and 10 am the next day).

Results: Multiple regression analysis was conducted with BMI SDS as the dependent variable. BMI SDS was negatively associated with sleep (R2=0.03; P=0.002) and with physical activity (R2=0.03; P=0.001) after adjusting for sex and age.

Conclusions: The significant relationship between the amount of sleep and body mass index is apparent already in young children suggesting that sleep time may be an important etiological factor for the development of childhood obesity.

Physical activity and changes in subjective well-being and quality of life during behavioral weight control in women

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Aim: To examine changes in subjective well-being and quality of life, and associations with physical activity, during a behavioral weight management program in overweight/obese women.

Methods: We analyzed short (4 months) and long-term (16 months) effects of a behavioral obesity treatment program on body weight, physical activity (PA), quality of life (QoL), depression, body image, and self-esteem. Of 140 starting women (age: 38.1±3.5 years; BMI: 30.1±3.5 kg/m2), 134 completed 4-month assessments and were randomly assigned to one of three maintenance conditions for 12 months (results pooled). Assessments included physical activity (IPAQ), QoL, (SF-36, IWQOL-lite), body image (BSQ, PSSP), self-esteem (Rosenberg), and depression (BDI).

Results: Results showed overall significant improvements on PA (+106±215 min/week, P<0.001) and weight (-4.5±6.7%, P<0.001). Additionally, QoL (physical dimensions, P<0.05) and physical self-worth increased (P<0.05), while depression (P>0.05) and body shape concerns decreased (P<0.05). Effect sizes for subjective well-being and QoL variables ranged between 0.17 and 0.47. Correlational analyses between PA and psychosocial variables showed positive associations for general QoL (role physical, physical function, vitality, mental health, general health), weight-specific QoL (sexual life, total score), and physical self-worth, at both assessment periods. A negative association was found between PA and depression at 4 months (P<0.05).

Conclusion: Participation in multidisciplinary behavioral weight control programs results in positive, significant, and potentially meaningful changes in important psychosocial variables. Exercise adherence may partially mediate these benefits. Additionally to its critical role in energy expenditure, this fact alone justifies including PA as a central target of lifestyle obesity treatments.

Support and Funding: This study was conducted as a part of international study of the IPAQ and IPEN in the Czech Republic by the Czech Ministry of Health.

The Danish national action plan against obesity: Follow-up 2003-2006

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March 2003 the Danish National Board of Health launched a National Action Plan against Obesity.

Aims: To prevent an increase in the prevalence of obesity (BMI >30) and to reduce body weight among persons with obesity.

Methods: The plan presents 66 recommendations specifying actions to be taken at private, community, and public sector level. Target groups: Children/adolescents and adults in general, and children/adolescents and adults with obesity and/or high risk of obesity and/or obesity-associated complications.

Results: The plan has created a common platform for political discussion and prioritisation. A cross-ministerial group coordinates national initiatives. In 2003 1 mio. EUR were allocated to support projects evaluating existing and new prevention and treatment activities. In 2005-2008 10 mio. EUR will be allocated to community-based projects focusing on structured interventions for prevention and treatment of obesity in children/adolescence. Networks, websites, guidelines and practical tools for stakeholders have been developed to professionalize the initiatives. Four information campaigns on physical activity focusing on recommendations and intervention have been launched and in 2006 the project ‘Communities on the move’ focusing on physical inactivity and prevention in general was launched. By 2007 the Ministry of Health will launch the project ‘Denmark on the move’.

Conclusions: The National Board of Health stresses the importance of consensus among and support from experts, collaboration across sectors and specialties, increasing knowledge and attitude changes among professionals, and combining action and research.
The severity of obesity in children is related to parental weight status and early onset of obesity

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Objective: To explore the relationship between age at onset of obesity, relative obesity at age 7 and age 15 and family hereditary factors in obese children.

Design: Partly retrospective, partly longitudinal cohort study.

Methods: Multiple regression analyses were applied with relative obesity (BMI standard deviation score, BMIsds) and onset of obesity as dependent variables. The effect of birth weight, age at onset of obesity, parental weight and socioeconomic status, family history of obesity related co-morbidities and obesity treatment during more than one year was evaluated.

Results: BMIsds at age 7 was strongly correlated to the age at onset of obesity and to prevalence of maternal obesity and these factors explained 54% of the variance in BMI sds. BMIsds at age 15 had significant relationships to BMIsds at age 7, treatment, parental (both father and mother) BMI, gender and at least one of the parents having an academic degree, explaining 38 % of BMIsds variance. Age at onset of obesity was not correlated to any of the independent variables. Children with the highest relative obesity were more likely to have two obese parents.

Conclusions: A higher relative obesity at age 15 was correlated to a higher relative obesity at age 7, which in turn was related to an early onset of obesity. Maternal obesity affected childhood, but not infant, weight development of obese children, whereas the weight status of both parents was related to the relative obesity of adolescents.

Conflict of Interest: None Disclosed.

Funding: Research relating to this abstract was funded by The National Board of Health and Welfare, and Stockholm County Council.

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Beyond-brand effect of television (TV) food advertisements / commercials on caloric intake and food choice of 5 to 7 year old children

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In children aged between 9 and 11 years, weight status and food advertisement exposure were found to be important determinants of caloric intake and food choice (Halford et al., 2004. Appetite, 42; 221-225). However, it is unclear at what age food advertisements impact upon the feeding behaviour of younger children. 93 children aged 5 to 7 years (mean 6.3 years, 27 of whom were overweight or obese, were exposed to 10 non-food adverts and 10 food adverts in a repeated measures design. Their consumption of sweet and savoury, high and low fat snack foods, and of grapes were measured following both sessions. Food advert exposure produced a significant increase in total food intake in young children (P<0.001). In both conditions, young children showed a strong preference specifically for sweet foods over savoury foods (P<0.001) and exposure to food adverts significantly increased intake of sweet foods in all children (P<0.05). A positive correlation was found between BMI and total caloric intake in the control condition (P<0.043). The collection of recognition data was incomplete. However, the number of food adverts correctly recognised correlated with the children’s raw BMI score (P=0.006). These data replicate previous findings in older children that exposure to such cues increases food intake in all children but that heightened awareness of food cues is related to BMI. This is the first time it has been demonstrated that beyond their effects on brand choice, exposure to food advertisements (commercials) promotes over consumption in younger children.
T4:PO.137
Omega-6 and omega-3 fatty acid intake in Hungarian obese patients

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The major interest in the connection between obesity and lipid metabolism is manifested towards cholesterol and triglycerides. Relatively low attention has been paid to the connection between obesity and the omega fatty acids. In the prevention of the co-morbidities of obesity the decrease of omega-6 fatty acid intake and the increase of omega-3 fatty acid intake seem to be essential, in other words, assuring the ideal 4:1 ratio of omega-6 to omega-3 is crucial.

Introduction: Obesity and overweight is now as a major health challenge in the world that is due to the new nutritional habits. Evidence shows that the prevalence of obesity is increasing among children and teenagers in both developed and developing countries such as Iran. Obesity is known as a risk factor for metabolic syndrome and many other chronic diseases. The present study is conducted to estimate the prevalence of obesity among girls aged 11-14 years in Rafsanjan in 2006.

Methods and materials: In this cross-sectional study, 467 female students aged 11-14 years were randomly selected from secondary schools. Information about age, living area, height, and weight of students were recorded on the study checklist. Students with a BMI between 85 and 95 were detected as “at risk” and students with BMI ≥ 95 were defined as ‘overweight’.

Results: About 12% of respondents were at risk of overweight and 4.1% were overweight. Although the proportion of ‘at risk’ and ‘overweight’ students in urban areas (11.9% and 4.5%, respectively) were larger than this proportion in rural areas (10.1%, 2.2%, respectively), there was no significant difference between these proportions.

Conclusion: Comparing with the results of previous studies conducted in different areas of the world, the prevalence of overweight among our study respondents is also a major health problem. It can be suggested that some interventions and improvements in lifestyle and nutritional behavior of secondary school students of the area can prevent the risk of metabolic syndrome and other chronic diseases in future.

T4:PO.138
Comparison of food habits of Brazilian school children and adolescents according to body mass index

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The objective of this study was to assess the possible differences in food habits, during the transition from childhood to adolescence, and according to body mass index. The sample was composed by 2,963 Brazilian school children and adolescents (1,377 male; 1,586 female) from 6-17 years, resident in 10 different cities in São Paulo State-Brazil. Weight and height were measured and a food frequency questionnaire was filled out, including information about the frequency of ingestion of fruits, vegetables, soft drinks, snacks, sweet crackers, chocolate, cakes, and other diet conditions associated to body weight. The classification was made by age group (under 10y; 10-14y; 15-17y), and by body mass index (eutofie-EU, overweight-OW and obese-OB), according to Cole et al.(2000). The comparisons were made by Chi-square test for nominal variables. The results showed differences by sex, age, group, and level of adiposity. For example, 27% of OB boys under 14y, and 30% of OB girls aged 15 -17y never have breakfast, but buy snacks at school every day. Most of EU boys and girls of all age groups eat before sleep, while the OB groups reported do not eat. Eutrophic boys of all age groups and EU girls aged 15 -17y, eat more fruits than the OW and OB counterpart. In conclusion, OB and OW boys and girls of all age groups presents worse food habits than the EU groups. It suggests that it is necessary a better food education approach, according to age and body adiposity, to prevent and control overweight and obesity in these age groups.
T4:PO.139

Factors associated to overweight and obesity in Brazilian school children
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The objective of this study was to assess the possible differences in some indicators of overweight and obesity (OW/OB), during the transition from childhood to adolescence. The sample was composed by 3,130 Brazilian school children and adolescents (1,506 male; 1,624 female) from 6-17 years, resident in 10 different cities in São Paulo State-Brazil. Weight and height were measured and a questionnaire was filled out, including information about physical activity habits, time spent in computer, TV and homework, body self concept, sort of weight control, and other subjects associated to OW/OB. The classification was made by age group (under 10y; 10-14y; 15-17y), and by body mass index (eutoxic and overweight/obese), according to Cole et al.(2000). The comparisons were made by Chi-square test for nominal variables. The results showed that, for both genders, OW/OB children under 10y spend more time watching TV. In all age groups, OW/OB spend more time in computer, practice less physical activity on weekdays and weekends. In all age groups, most of OW/OB boys and girls are not satisfied with their body. However, OW/OB boys of the three age groups and girls over 10y are trying to lose weight, mainly, by exercise alone or by exercise+caloric restriction. In conclusion, several differences were observed in behaviour related to lifestyle from childhood to adolescence, mainly, in OW/OB groups. It suggests the need of different approaches according to sex, age and body adiposity to prevent and control overweight and obesity in these age groups.

T4:PO.140

Weight perceptions, percentage body fat, and diet/exercise practices in adolescent girls from five ethnic groups
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Background/Objectives: The objectives of this study were to compare girls’ perceptions of body size with their engagement in dietary or exercise practices across different ethnic, and body fat groups.

Methods: Participants were 912 girls (39.5% European, 22.7% Pacific Island, 16.8% East Asian, 11.0% Maori, and 10.1% South Asian) aged 10-15 years. Percentage body fat (%BF) was obtained using hand-to-foot bioelectrical impedance analysis. The 85th percentile of %BF for each age group was used to identify girls with high body fat. Body size perceptions and diet/exercise behaviours were assessed by questionnaire.

Results: Overall, 23.1% of participants considered themselves to be ‘overweight’, 68.9% ‘normal weight’ and 8.0% ‘underweight’. The number of girls who reported exercising in the last 30 days for weight maintenance/loss (50.2%) was significantly higher than the number that reported diet modification (27.5%, P < 0.05). Significant differences in both the perceptions of weight status and exercise/dietary practices were observed among age and ethnic groups. Furthermore, 76.3% of participants who believed they were overweight reported dieting or exercising in the last 30 days for weight control, compared with 49.1% of those who perceived themselves as normal weight or underweight (P < 0.05). However, only 51.5% of girls with high body fat correctly identified themselves as overweight.

Conclusions: While dietary and exercise practices are relatively common among adolescent girls who perceive themselves as overweight, nearly half of the girls with high body fat did not recognise their condition. Thus, interventions that improve awareness of excess adiposity in adolescent girls appear warranted.

Funding: Funding for this research was provided by Sport and Recreation New Zealand and the Division of Sport and Recreation, Auckland University of Technology.

T4:PO.141

How much heavier are we? Secular obesity trends in the Republic of Ireland
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Objective: To compare height, weight and BMI data of 4-14 year old children in the Republic of Ireland between 1948 and 2002.

Subjects: Heights and weights of children between the ages of 4 years and 14 years in the Republic of Ireland were recorded in 1948 (n=14,835) and 2002 (n=17,518) as part of the Irish Nutrition Survey (1948) and the North South Survey of Children’s Oral Health (2002).

Results: Comparison of data from 1948 and 2002 show that children were taller and heavier in 2002 and that the increase in weight was disproportionate to the increase in height. On average, 14 year old boys and girls were 23.9cm and 15.6 cm taller respectively in 2002. More dramatic increases are seen in the weights of these children. The average weight of 14 year old boys in 2002 is 65% greater than that of 1948, (37.0 kg and 60.9 kg respectively), while that of girls also increased substantially from 39.2kg in 1948 to 58.7kg in 2002. Mean BMI for 14 year old boys and girls show similar increases from 17 kg/m² and 18 kg/m² respectively in 1948 to 21 kg/m² and 22 kg/m² in 2002.

Conclusion: This increased weight disproportionate to increased height provides compelling evidence on the emergence of the obesity epidemic among Irish children. It is likely that the cost of the obesity epidemic, currently estimated at up to 8% of overall health budgets will increase substantially, thus health systems worldwide face bankruptcy unless a cohesive and multisectoral societal approach is taken.

T4:PO.142

Predictors of maternal perceptions of their offspring’s weight status – evidence from a birth cohort study
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Aims: The aim of this study is to examine the predictors of maternal perceptions and misclassifications on their adolescent offspring’s weight status in a birth cohort study.

Methods: A cross-sectional mother-child linked analysis was carried out using 14 year follow-up data from a population-based prospective birth cohort of 3721 children (52% males) who were participants in the Mater –University Study of Pregnancy in Brisbane (Australia) in 1981. Maternal perception on offspring’s weight was reported when offspring was 14 years old and predictors were prospectively recorded either at first clinical visit of mothers or at 14 years follow-up.

Results: Of 3721 mothers, 14% perceived their offspring were underweight, 18% were overweight and the rest (68%) were perceived to be about the right weight. We found, 40% of mothers of overweight children misclassified their child as normal or underweight, more so in males than females. Fifteen percent of mothers of normal weight children misclassified their child as underweight, again more so in males than females. The main independent predictors of maternal perceptions on child weight were child dissatisfaction on appearance, shape, size and weight, maternal body mass index (BMI) and child sports. Similarly, the main independent predictors of misclassification were child dissatisfaction and maternal BMI and family meals.

Conclusions: Our study conﬁrms that a layperson’s perception of average weight conﬂicts with the clinical deﬁnition of underweight, normal weight and overweight. Though there is strong support that primary prevention of childhood overweight or obesity is unlikely to be successful without parental involvement, this involvement is unlikely to occur if parents, particularly mothers, do not recognize or perceive their overweight children as overweight.

Abstracts
T4:PO.143

Attitudes to public health promotion among adult Danes - results from an internet questionnaire on weight

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Background: Increasing media attention to weight related problems have made newspaper articles aware of the need to understand their readers’ opinions and values. Public health derived overweight prevention methods are now often debated and their effectiveness to curb the obesity epidemic discussed.

Methods: ‘Analys Danmark’ acquired a data collection set via internet for the Danish daily newspaper BT, September 2006. 2,009 Danes aged 18 to 70 participated. Data for relative body weight were self reported, 1,197 subjects were under- or normal weight (N) (60%), and 912 overweight or obese (O) (40%).

Results: Both N and O subjects attributed the present epidemic to the individuals themselves and few to authorities and media. N were about half as likely as O to employ an obese subject. 53% of N subjects saw obesity as the loss of self control, vs. 33% in the O group. About 50% of both N and O found taxation of junk food a good idea and 50–60% of both groups favoured a ban on such food in schools, but not in outlets such as gas stations. Whereas about 20% of both groups were against food advertisement in general, another 50% of both groups favoured a ban on advertising for junk food. Almost everybody was in favour of more physical activity in schools.

Conclusions: Baseline O subjects see stigmatisation related questions differently than the N group. However, there is general agreement about the desired actions which could be suggested to halt the epidemic.

Conflict of interest: None disclosed.

Funding: The study was supported by Danish daily newspaper BT.

T4:PO.144

Metabolic Syndrome in the Hong Kong community – a United Christian Nethersole Community Health Service (UCNCHS) primary care program 2001-2002

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In this cross-sectional observation survey, we aimed to report the prevalence of Metabolic Syndrome (MES) as defined by the National Cholesterol Education Program (NCEP) 2001 and the new International Diabetes Federation (IDF) 2005 criteria in Hong Kong Chinese. A cohort of 7473 subjects (2660 men and 4813 women) from the community of Hong Kong presenting themselves voluntarily from August 2001 to September 2002 for health assessment at the three health centers of the United Christian Nethersole Community Health Service (UCNCHS).

The mean age (±SD) was 50.4 ±10.6 years (range 19-93 years, median 48.0 years). Of these 7473 subjects, 30% had central obesity, 34% had low high-density lipoprotein cholesterol, 20% had high triglyceride, 47% had high blood pressure and 23% had dysglycaemia. The age-standardized prevalence of MES by NCEP and IDF criteria were 18.3% and 13.0%, respectively. In conclusion, there is a tendency of upsurge in the problem of MES in Hong Kong. Further studies on the management and prevention of MES are urgently needed.

T4:PO.145

Impact and correlates of behavioral obesity treatment on quality of life and psychological well-being

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Purpose: To examine changes in psychological functioning, quality of life, and body image during a weight control program and assess the relative impact of weight loss and physical activity (PA).

Methods: 164 pre-menopausal women (37.3±7.6y; 31.7±4.1 kg/m²) were randomly assigned to intervention/control groups. The intervention group attended weekly/bi-weekly sessions for 12 months, aimed at improving eating and increasing structured and unstructured forms of PA. The intervention followed Self-Determination Theory, emphasizing self-regulated motivation. Assessments included general and specific quality of life (QoL), physical self-perception, body shape concerns, body image, self-esteem, depression, and self-report PA (IPAQ).

Results: At 12-months, compared to controls (±2.1±6.7% weight change from baseline, 69% retention), the intervention group (-7.4±6.3%, 88%) increased general (physical, but not mental) and weight-specific QoL, and physical self-perception (P<0.001), while body image dissatisfaction and body shape concerns decreased (P=0.001). Overall (0-12m), psychosocial changes were strongly associated with weight loss. After adjusting for group participation, weight change was positive associated with body image (P<0.001) and body shape concerns (P<0.006), and negatively associated with weight-specific QoL (P<0.004), physical self-worth (P<0.006), and body attractiveness (P<0.002). Defining <5% weight loss as success (40% successful), similar results were observed. Controlling for weight changes, more active women reported better physical QoL (P<0.042), sports competence (P=0.032), and physical condition (P<0.001).

Conclusions: Positive psychosocial outcomes were observed in this 1-year program, which appeared to have a more important impact in subjective well-being and QoL. Success in weight loss and an active lifestyle are both associated with improved psychological well-being.

T4:PO.146

Efficient and comprehensive analysis of accelerometer data to measure physical activity in large populations – the ALPHA project

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Sustained moderate levels of physical activity are known to have positive effects on the health of the population and combat obesity in all age groups. To promote and effect change, it is essential to understand actual population activity levels and their key factors. This requires making available improved comparable information about physical activity levels in all member states. Currently, there is a gap in available data on physical activity due to non comparable assessment methodologies in Europe. The pan-European project ‘ALPHA’ (Instruments for Assessing Levels of Physical Activity and related Health Determinants) aims at developing and feasibility testing a comprehensive set of assessment methodologies for physical activity levels as well as barriers and promoters of physical activity. The project involves 9 European institutions working on health information. The focused methodology involves the International Physical Activity Questionnaire in combination with extended modules, accelerometer, the use of Geographical Information System (GIS) data, health-related fitness tests and further techniques. As an initial project task, efforts have been put on improving current methodologies, such as accelerometer to measure physical activity objectively. Progress has been made in the analysis and interpretation of accelerometer data. Summary variables on continuous activity blocks as well as physical activity bouts (blocks of activity above a certain threshold) are being related to measures of body composition, health-related fitness and cardiovascular disease. This new achievement also makes it possible to analyse data from large study groups, which increases the role of accelerometer as instrument in epidemiological studies.

Conflict of Interest: No conflicts of interest.

Funding: The ALPHA project is co-funded by the European Commission, DG Public Health and Consumer Protection, Luxembourg within the Public Health Programme 2003-2008.
T4:PO.147

Overweight and obesity in a sample of Portuguese Youth: relationships with adiposity, blood pressure and fitness

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Objective: to assess the prevalence of overweight and obesity in a sample of Portuguese schoolchildren and its relationships with adiposity, blood pressure levels and fitness.

Design: transverse study.

Subjects: 6,682 schoolchildren aged 10 – 18.

Measurements: height and weight were measured using scales. Body fat was assessed by bioelectrical impedance or skin fold measurement. Blood pressure was assessed by an automated device. Fitness was assessed using the 20 meter shuttle run.

Results: prevalence of overweight and obesity was 17.1% and 5.5% in boys and 18.4% and 4.8% in girls. (P<0.01), and higher in subjects aged <14 (P<0.001). Body fat measurement techniques were well correlated, but linear regression slopes were significantly different from unity. In both genders, overweight and obese subjects had higher levels of body fat, blood pressure and heart rate (boys only) and lower fitness levels than normal weight subjects. Body mass index (BMI) and body fat were inversely related with fitness (for BMI, r= -0.12 in boys and r= -0.24 in girls; for body fat: r= - 0.52 in boys and r= -0.40 in girls, all P<0.001). BMI was also positively related with blood pressure (boys: r= 0.31 and r=0.29; girls: r=0.17 and r=0.19 for systolic and diastolic, respectively, all P<0.001). Multivariate linear regression showed both BMI and body fat to be related with fitness; BMI was also related to systolic and diastolic pressure in both genders, whereas body fat was only related to systolic pressure in girls.

Conclusion: overweight and obesity lead to higher blood pressure and lower fitness levels. Both BMI and body fat are related to fitness, whereas only BMI is related to blood pressure.

T4:PO.149

Quality of movement in obesity

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There is an imperfect understanding of the biomechanics of obesity. In other groups, subtle changes in movement are associated with activity restrictions. Instability may also play a role. We undertook a small exploratory study to compare quality of movements and balance confidence in obese and non-obese subjects.

Study population: volunteers aged 20 to 55.

Study groups: cases with reported BMI of 30+ and controls with reported BMI within normal range were matched on age and gender.

Assessments: All subjects completed biomechanical assessments, and validated questionnaires on falls, falls efficacy and physical activity. Cases participated in a semi-structured interview.

Results: The mean BMI was 33.3 and 23.3 among the 8 cases and 8 controls respectively. Two cases had fallen in the previous year but none of the controls. The mean falls efficacy score was significantly higher in cases compared to controls (95% CI=0.93 to 5.31,paired t (est=-2.54,df=7, P=0.039). On biomechanical assessment of walking, cases had increased external rotation of the thorax towards the stance leg with flexion of that knee, which appeared to some extent to reduce the impact of the additional load on the medial compartment of the knee. Cases identified specific activities during which pain in hips, knees and ankles was experienced, and associated weight gain with activity limitation.

Discussion: this small study suggests adaptations in movement in obese people which might affect joint symptoms, balance and activity participation, and could have implications for understanding pathological processes and the appropriateness of exercise regimens. Further research is warranted.

Conflict of interest: None.

Funding: This research was part funded by a Nuffield Trust Undergraduate Student Bursary.

T4:PO.150

Food intake and the nutritional status of population in the Russian Federation

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Objectives: to examine trends in food and nutrient intake, overweight and obesity in a nationally representative sample of adults.

Methods: Family budget survey (FBS) covered about 50 000 of family from 94 regions of Russia and Russian Longitudinal Monitoring Survey (RLMS) research on over 11 000 Russians from 38 regions is used to examine related eating patterns during 1994 -2005. Standardized twenty four recalls along and anthropometric measurements are collected in RLMS from all individuals.

Results: Overall, by data FBS and RLMS energy intake changed slightly. Fat, as percentage of energy increased from 31 to 33% and protein – from 12 to 12.5% during last 5 years. Overweight prevalence remained relatively stable (52%) and obesity prevalence increased from 20 to 23% in adult. More them 60% of adult have a one or two risk factors of chronic noninfectious diseases (fat consumption more 35% energy; BMI more 25 kg/m2 ). Underweight have about 2.5% of adult. Vitamin C consumption levels are ( 50-60 mg/day) and the major source of vitamin C was potatoes. The average level of consumption of fruit and vegetables did not exceed 300g. The differences in underweight and obesity prevalence, as food consumption and nutrient intake depending on family income, are also examined.

Conclusion: Typical nutritional disorders for Russian population are - excess of animal fat and sugar, insufficiency of vegetables and fruit. The inadequate intake of micronutrients and food fibres is a consequence it.

T4:PO.151

STEP - Sport, Behaviour Therapy, Diet, Prevention Multi disciplinary Group Therapy for Long Run Weightloss and Health Promotion

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Background: The incidence of overweight and obesity is increasing dramatically worldwide. The concomitant cardiovascular risk factors, diseases and psychosocial impacts are well known. We are establishing a structured, multi disciplinary group therapy for adults according to the guidelines of the German Society of Obesity.

Method: Patients are evaluated following a strict procedure. A medical and psychosomatic examination including laboratory tests and psychometry (SF38, PHQ) is performed. The expected compliance is estimated. Main inclusion criteria are: age > 25 years, BMI from 30 to 40, intrinsic motivation. Main exclusion criteria are: any psychiatric disorder, limiting cardiovascular or orthopedic conditions, poorly controlled diabetes mellitus. The team consists of doctors, psychologists, nutritionists and trainers specialized in the field of obesity. The size of the groups is 10 – 13 participants. Therapy takes place twice a week over half a year, the first quarter being more intensive. After completion of the treatment course and then every six months the same examinations as initially are repeated to assess changes.

Results: The number of participants is still small. Results of the first group (n = 13) show, that the concept is feasible, effective and very well accepted. BMI (M = 7, SD 4.8), waist circumference (M = 5 cm, SD 6.3), metabolic data, body composition, mobility and quality of life improved markedly.

Conclusion: The STEP-therapy meets the requirements set for the treatment of obesity. Further efforts are necessary to convince the insurance companies to reimburse the costs to allow more patients to take part.
**T4:PO.152**

Glucose regulation in childhood obesity
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Alterations of carbohydrate metabolism are frequently found in children with obesity, and their importance is parallelly increasing with increasing prevalence of childhood obesity. This work was aimed to study prevalence of alterations of glucose regulation in childhood obesity and their association with insulin resistance and hyperinsulinemia.

Altogether 250 children, 132 girls and 118 boys, with obesity were involved into the study. Their age was 13.0±6.9 year, body mass index (BMI) was 34.0±5.4 kg/m². Oral glucose tolerance test (OGTT) was performed, serum glucose and insulin were determined at the 0, and 120. minutes of the test (0'BG, 120'BG, 0'INS, 120'INS), and HOMA index was also calculated. Results. Impaired fastig glucose glucose (IFG) was found in 1,2 %, and frequency of fastig insulin (IFI) was found 7.0 mmol/L was also 1.2 %. Impaired glucose tolerance (IGT) was found in 13.6 %, and frequency of type 2 diabetes mellitus (T2DM) was 12.4 %. Increased basal hyperinsulinemia was demonstrated in 70 %, impaired reactive hyperinsulinemia was found in 88 %, and frequency of increased HOMA index was 78 %. Increased 120'INS was found in all cases with abnormal FG, IGT and T2DM, and increased HOMA value was demonstrated in 76 % of patients with IGT and all patients with abnormal FG and T2DM. Significant positive correlations were demonstrated between BMI and 0'INS, BMI and 120'INS, BMI and HOMA. Insulin resistance, basal and reactive hyperinsulinemia are frequent conditions in childhood obesity. Frequencies of abnormal glucose regulations show that hyperinsulinemia can successfully compensate insulin resistance in majority of the obese children. Since IFG is less frequent as IGT there is a need for performing OGTT to demonstrate abnormality of glucose regulation in children with obesity.

**T4:PO.154**

Physical activity and subsequent changes in waist circumference
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Background: Abdominal obesity is a strong predictor of morbidity and mortality, but few studies have investigated factors that may prevent abdominal weight gain.

Objective: To examine, if physical activity in leisure-time was associated with subsequent changes in waist circumference (WC), and subsequent changes in WC given subsequent changes in BMI.

Methods: The study included 2026 men and 2782 women aged 21 -81y selected at random within sex-age strata from the adult population of Copenhagen. Subjects were examined at surveys in 1991-93 (baseline) and 2001-03 (follow-up). Height, weight and WC were measured. Information about overall physical activity in leisure-time, walking, biking and sports activity was collected with self-administered questionnaires at baseline.

Outcome measures: Changes in WC and changes in WC given changes in BMI between baseline and follow-up.

Results: On average WC increased 3.2 cm in men and 3.4 cm in women during follow-up, and with a considerable inter-individual variation (SD 6.8 and 7.5).

Overall physical activity in leisure-time, walking and biking were not significantly associated with the outcomes. Inverse associations between sports activity and the outcomes were observed in both sexes, and these reached statistical significance in some analyses. Associations were not altered by adjustment for several putative confounders or by exclusions of subjects with diagnosed chronic diseases and/or treatment by obesity-inducing medication.

Conclusion: This study suggests that overall physical activity in leisure-time, walking and biking activity have no appreciable effect on changes in WC or changes in WC given changes in BMI, whereas sports activity may have small preventive effects.

Conflict of Interest: None Disclosed.

Funding: The study was supported by the Danish Medical Research Council, The Danish Heart Foundation and the Danish National Science Foundation.

**T4:PO.155**

The important of the soft drinks on Turkish young adults' nutritional status
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Objective: We sought to determine whether non-diet soft drink consumption is associated with consumption of milk, fruit juice, fruit drink, and energy, nutrients concentrated in these beverages.

Design: One-year cross-sectional study. Information on food and nutrient intake was derived from 3 days of food record data collected by three dietitians.

Subjects: The study population included 498 young adults age 17 to 25 years participating in the Ankara city.

Statistical analyses performed: Logistic regression analyses were conducted to predict the odds of low milk, fruit drinks and juice consumption by soft drink consumption level. Intakes were measured as continuous (oz/day) and we also dichotomised milk, fruit drinks and juice at high intakes.

Results: Energy intake was positively associated with consumption of non-diet soft drinks. Mean energy intake was 2,661 kcal/day for subjects who were non-consumers of soft drinks compared with 3506 kcal/day for subjects who consumed an average of 12 oz/day of non-diet soft drinks. Those in the highest soft drink consumption category consumed less milk and fruit juice compared with those in the lowest consumption category. Riboflavin, folate, calcium, phosphorus and the ratio of calcium to phosphorus were inversely associated with soft drink consumption. Logistic regression analyses predicting the odds of low milk and fruit drink consumption by soft drink consumption (adjusted sex, aged and energy) indicated consistent differences in milk and fruit drink consumption by soft drink consumption level.

Conclusion: Nutritional educational messages encouraging limited consumption of soft drinks are needed to counter the rising popularity of this beverages that has minimal nutritional value among young adults.

**T4:PO.156**

Prevalence of overweight and obesity in prepubertal children at Nis (Serbia)
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Introduction: The aim of the study was to estimate prevalence of overweight and obesity in 7- to 9-year-old children in Nišava district (south east of Serbia) in 2004.

Methods: The cross-sectional study encompassed 10274 randomly selected children (5021 boys and 5253 girls) and it was conducted between January 2002 and December 2003 according to the protocol European Childhood Obesity Group. Body height and body weight were measured and body mass index was calculated to define nutritional status. Overweight and obesity were estimated according to International Task Force references with curve for obesity and overweight passing through 30 and 25 kg/m² at age 18, respectively. Overweight was observed in 9.8-10.0 % boys, and in 9.6 -10.11% of girls depending of age. Obesity was determined in 5.0 -5.15 % boys and 5.01 -5.33 % girls. On the basis of BMI the incidence of the overall overweight among the examined children was from 14.3 % (girls age seven years) to 15.19 % (girls age 12 years) and these rates were higher than in previous investigation.

Conclusion: OW and OB are markedly increasing in children in Serbia. Prevalence levels are higher in girls than boys.
T4:PO.157

Effect of age and weight change on metabolic risk profiles in 4378 male workers: four-year follow-up data

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Introduction: This study is to determine in general population whether there are any age-related differences in metabolic responses associated with weight gain.

Methods: Worksite annual health check-up data for 4378 men (19-59 years old in 2001) working in a Tokyo-based company were used for the analysis. Changes in the weight and various metabolic parameters between 2001 and 2005 were determined for each subject using linear regression analysis of the data during this period (average : 4.89 measurements).

Results: When the subjects were divided into four groups according to their age (19-29, 30-39, 40-49, and 50-59 years), weight gain showed decreasing trend with increasing age (0.5 2 kg/yr for 19-29 year-old men, and 0.16 kg/yr for 50-59 year-old men). Subjects who gained weight (equal or more than 1.0 kg/yr, total 1952 subjects) showed larger increase in both systolic and diastolic blood pressure (BP), TG, LDL-C, and fasting glucose (FBS) and larger decrease in HDL-C than subjects who maintained their weight (within ±0.5 kg/yr, 923 subjects) in any age groups. However, in both weight gainers and maintainers, four -year increase in systolic BP and FBS showed positive correlation, where as that in TG showed negative correlation with age; changes in diastolic BP, HDL-C and LDL-C showed no relationship to age.

Conclusion: Age specific deterioration pattern in metabolic profiles was observed irrespective of weight status. Weight gain affects the magnitude of this change. Weight gain is typically associated with an increase in TG in young adult men and an increase in systolic BP and FBS in middle aged men.

T4:PO.158

Motivation to change, self-efficacy and decisional balance in overweight and obese patients

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Introduction: High prevalence of obesity and obesity-related conditions in primary care settings challenges the health care system.

Aim: To examine medical and psychological characteristics of overweight and obese patients.

Patients and methods: Analysis was made on 296 patients (103 males and 193 females) divided in three groups depending on their BMI. Group I included patients with BMI ranging from 25 to 29.9, group II with BMI from 30 to 34.9, and group III with BMI>35. We compared medical (glucose, cholesterol, triglycerides, HDL-cholesterol, systolic and diastolic blood pressure, body fat percentage) and psychological parameters (pros and cons of losing weight, self-efficacy and four stages of change according to transteoretical model) A2(gender) X3(BMI) ANOVA was computed to examine the effect of these variables on four stages of change, pros and cons of losing weight, self-efficacy according to transteoretical model of behaviour change.

Results: Females found more advantages in change of eating habits and life style than males, and males differ significantly in results on pre- contemplation compared to females. Males are higher in self-efficacy, they are more confident in their ability to carry out a desired behavior – losing weight. ANOVA has shown statistically significant difference among obese and overweight patients in goal weight, systolic and diastolic blood pressure, body fat percentage, glucose, and cholesterol serum level. Patients with higher BMI (>30) found more advantages (pros) over disadvantages (cons) of weight loss.

Conclusion: In addition to medical parameters psychological characteristics of overweight and obese patients should be considered in clinical approach to these patients.

T4:PO.160

Children’s family environment: impact on body mass index and waist circumference

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Children’s family environment and their adiposity indices have been shown to be related. However, only few studies have documented a longitudinal impact. Therefore, this study examined how overweight and socioeconomic status of parents as well as their level of education impacted on the evolution of body mass index (BMI) and waist circumference (WC) of school-aged children (n=42). First grade children attending a Quebec City primary school were enrolled in a longitudinal study during which BMI and WC have been collected at baseline and for the three following years. Parents’ weight, height, socioeconomic status and lifestyle characteristics were collected using a self-administered questionnaire. Results showed an association between parents’ BMI and the in crease in girls’ WC (P<0.001), boys’ BMI and WC (P<0.01) over time. Girls whose parents were overweight (BMI>25) tended to have a greater WC (father P=0.09; mother P=0.1). Total family income was also associated with the evolution of girls’ WC, boys’ WC and BMI (P=0.001). Interact ion effect for boys’ BMI and girls’ WC tended to show that the increase of these indices was steeper among children from a lower income family (P=0.08). Parents’ level of education was significantly related with children’s WC and BMI changes (P<0.01), except for mothers’ education and girls’ BMI. Interaction effect between mothers’ education and girls’ WC (P=0.03) showed that the increase in girls’ WC was more dramatic among those whose mother was less educated. Our results reinforce the importance of considering children’s family environment when studying the evolution of their anthropometric indices.
T4:PO.161

Physical activity promotion in insufficiently active adults: a randomised trial based on telephone counseling

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Introduction: Increasing physical activity (PA) is an important component of obesity prevention. We compared two modes of PA promotion in insufficiently active adults from two towns in Northern France.

Subjects and Methods: 1421 volunteers (15-69 y) were screened using the International Physical Activity Questionnaire. Among subjects in the lowest tertile of total PA score, 160 were randomised to a 9-month trial of individually-tailored advice, based on stages of changes for PA behaviour (n=78, 38% men, BMI 24.9±4.3) vs. standard advice on PA benefits (n=82, 36% men, BMI 25.3±3.9). Regular counselling was delivered by trained staff from a local call center. Primary outcomes were habitual PA assessed by accelerometry (Actigraph 7164 worn 7 days) and questionnaire (Modifiable Activity Questionnaire).

Results: After 9 months, both groups displayed similar increases in habitual PA. Considering the groups combined, the mean number of reported minutes/week of leisure-time PA increased (36 min/week, P<0.002), with mainly an increase in moderate-intensity PA. This was paralleled by the objective accelerometer measures with a mean change in counts/min of 25.3±119.6 (P=0.03), and in number of minutes of moderate PA/week of 16.4±45.6 (P=0.001). The proportion of subjects considering to start regular PA (ie contemplation stage) decreased (52.7% vs 89.7%) whereas subjects classified as regularly active increased (37% vs 0%) by design (P=0.0001).

Conclusion: Counselling using a local call centre induced a significant increase in habitual PA in insufficiently active adults. In this study, regular PA counselling based on stages of change led to results that did not differ significantly from standard advice.

T4:PO.162

Predictors of accuracy of self-reported height and weight in schoolchildren in Greece: the CHILDREN Study

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Objective: The purpose of this study was to assess the validity of self-reported height and weight, the accuracy of screening for overweight and obesity using these data, and the predictors of bias in self-reported height and weight in schoolchildren in Greece.

Subjects & Methods: Self-reported height and weight were taken from 1448 schoolchildren aged 10-12 yrs old. Participants’ actual height and weight were subsequently verified. Body mass index (BMI, kg/m²) was calculated separately from reported and from actual measures. Using the IOTF criteria, children were categorized to normal weight, overweight or obese.

Results: Self-reported and measured height and weight were highly correlated but a bias of underreporting of body weight by an average of 1.39 kg contributed to underestimation of the prevalence of overweight and obesity. Based on self-report data, 28.4% of the sample was identified as overweight and 12.0% was identified as obese, but measured data showed rates of 34.2% and 14.2%, respectively. Overweight and obese participants showed greater bias and variability in self-reported weight than normal/underweight participants. BMI and body dissatisfaction predicted bias in self-reported weight.

Conclusions: Self-report bias had significant consequences for the accuracy of estimating overweight and obesity. Actual and perceived body size, each contributes to underreporting body weight. The results have important implications for the use of self-reported data for the scientific measurement of the prevalence of overweight.

T4:PO.163

Effects of the different lifestyle and a single exercise session on biochemical and haemodynamic parameters in university students

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Introduction: The preventive and therapeutic roles of regular physical activity are of great importance in healthy young subjects and in ones with cardiovascular risk factors. Our aims were to determine the effects of a single bout of exercise in young adults and to form a more complex view of the haematologic and haemodynamic alterations due to different lifestyle habits.

Methods: Twenty-one active and 24 sedentary university students performed a 13 min cycling session plus 2 min recovery. Oxidized and reduced glutathione (GSSG, GSH), nitric oxide end-products (NOX) and endothelin-1 (ET-1) were measured before and after exercise, as well as heart rate (HR), blood pressure and HR recovery. On a separate occasion, fasting blood samples were taken, and various haematologic parameters were determined.

Results: In the active subjects, LDL level was significantly lower (P<0.05), haematoctrit was higher (P=0.05), basal HR was lower (P<0.01), and HR recovery was faster (P=0.001). The soluble transferrin receptor level in women was significantly higher than that in men only in the sedentary group (P<0.01). The higher basal NOX level significantly decreased in the active group (P<0.05), and increased in the sedentary group. In the active subjects, the significantly higher basal ratio GSSG/GSH (P<0.05) was not changed after exercise, while in the sedentary group, an increase close to the level of significance was observed.

Conclusion: All haematologic parameters were in the reference range. The changes caused by the different lifestyle are primarily haemodinamic at this age group, but some biochemical and haemalogic alterations have also been observed.

T4:PO.164

The communities' plan against obesity, 2005-2008

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March 2003 the Danish National Board of Health launched a National Action Plan against Obesity. As a follow-up initiative 'The Communities’ Plan against Obesity' was launched in 2005.

Aims: To implement structured interventions in a number of communities for prevention and treatment of obesity in vulnerable children and adolescents. To estimate the effect of different methods and secure gathering of results so that they can be used as future models in Denmark.

Methods: Funds of 10 mio. EUR were allocated to support local initiatives 2005-2008. By 2005 4 mio. EUR were allocated to 11 community-based projects focusing on physical activity, diet, psychological and social aspects. The projects are placed in the communities as they create the framework for children and adolescents while growing up. Additional funds will be allocated by 2007 (4 mio. EUR) and 2008 (2 mio. EUR). The community-based projects will be supported by central initiatives, including a ‘Travel team’ providing consultancy services re physical activity and overweight, and a ‘childhood-package’ directed at vulnerable families.

Results: By 2006 preliminary results show that most of the projects organize their project by employing a co-ordinator, collaborating with general practitioners and health service. The projects apply different intervention methods and ‘tools’, e.g. family-based therapy, health policies and health education in school.

Conclusion: The community is well-qualified to create an organisational framework that ensures coordination of the interventions regarding obesity. Further results will be presented.
T4:PO.165

Childhood obesity prevention policies: from rhetoric to practice. A Portuguese case study

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Portugal has experienced an increase in childhood obesity in the last decades mostly due to social-economical transition as well as nutrition transition. More than 10% of Portuguese children are obese and Portugal is one of the European countries with the highest prevalence of childhood obesity. Controlling children environment at different levels make a key area of focus for implementing an intervention program. In this presentation we describe the ‘Healthy Lifestyle’ school program of Fundação Bissaya Barreto, a Portuguese NGO Institution, following European Nutrition Policies. This school based prevention program is developed in 11 schools to 1000 children aged 3-10 years old. A multi-faceted strategy aimed to promote a healthy environment retaining, at the same time, Portuguese traditions. Combining several components at different levels: continued surveillance of children’s nutritional status; research of knowledge, attitudes and behaviours of the families; individual management of obese ch idren; supervised food service; food caterers well trained, healthy food offer adjusted to cultural and age requirements; free fruit offer; motivation for children’s responsibility in healthy choices by different stimulating approaches regarding diet and physical activity; supporting and interacting with families and establishing community partnerships. In a concomitant process of evaluation, the approach is on promoting healthy lifestyles as soon as the age of 3 years old, bringing all together in a happy and healthy environment developing good habits for life. Based on preliminary evaluation this has shown to be a consistent approach in the prevention of childhood obesity.

T4:PO.166

Overweight and obesity prevalence in children under 5 years old – Tonekabone city, Iran

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Introduction: obesity is associated with a large number of disease states. The aim of the present study was to estimate overweight and obesity prevalence from preschool children in – Tonekabone a city in the north of Iran.

Methods: Participants in this cross – sectional study were 1322 children (685 boys and 637 girls) under 5 years old and were all children attending day care centers in tonekabone that randomly selected by clustered sampling. Subjects were studied in 4 cluster. Weight and height were measured by standard protocols. Body Mass Index (BMI) was calculated as weight (Kg) divided by height squared (m*m). Overweight and obesity prevalence defined as BMI>85th and 95th percentiles respectively. Data on age, birth rank, mothers education and occupation were collected using questionnaire.

Results: The prevalence of Overweight and obesity was 3.5% and 1.4% respectively. The results showed that 4.1%, 2.2% (boys) and 2.9%and 0.5% (girls) were Overweight and obesity respectively. At all obesity prevalence was significantly higher in 1-2 years olds. 18.42% of children were using exclusively breast – feeding (BF) about 16 weeks of life and time of introduction of complementary food(CF) in 66.9% of children was before 6 month. 21.59 % and 82.39%of the mothers were less educated (less than 5 years school) and housewives and 56.82 % of children were one baby. Samples had a relatively normal birth weight (BW) distribution (about 80.5%of them had BW<3 kg). 64.4% of children received complete vaccination.

Conclusion: The promotion of good BF and complementary feeding practices and decrease snacks and increase physical activity is essential in order to improve the nutrition status of children in developing countries.

T4:PO.167

The burden of overweight and obesity related ill health in the UK

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Background: Despite evidence that overweight and obesity are risk factors for a number of diseases, rates of overweight and obesity among men and women in the UK are rising. This paper provides an estimate of the economic and health burden of disease related to obesity in the United Kingdom (UK).

Methods: A systematic review of cost of illness studies was conducted to identify estimates of direct costs of overweight and obesity to the National Health Service (NHS). Secondly we used information from the World Health Organisation global burden of disease project to calculate the mortality and morbidity cost of overweight and obesity in the UK. Diseases attributable to overweight and obesity included diabetes mellitus, ischaemic heart disease, ischaemic stroke, hypertensive disease, breast cancer, colon/rectum cancer, corpus uteri cancer and osteoarthritis. Population attributable fractions for overweight and obesity for each disease were applied to UK Health Service cost data to estimate the financial cost.

Results: One paper was identified which estimated the direct cost of obesity to the NHS was £480 million in 1998. We estimate that the direct cost of overweight and obesity to the NHS was £3.23 billion in 2002.

Conclusion: There are few cost estimates for overweight and obesity in the UK. Differences between this and previous estimates are discussed. It can be concluded that there is a considerable public health burden due to overweight and obesity in the UK. Accurately establishing the financial cost of disease should be the first step in developing national public health strategy.

Conflict of Interest: None Disclosed.

Funding: British Heart Foundation.

T4:PO.168

Family patterns in obese adolescents and obese management

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Purpose: to study the familiar context of obese adolescents.

Methods: the study was a qualitative clinical research. Twenty adolescents (12 girls and 8 boys) and their families were submitted to semi-structured interviews with opened questions. Interview’s findings were classified in thematic categories: (1) the importance of mother-child relationship and the development of eating function; (2) the paternal role in emotional development in childhood and adolescence; (3) the family’s life events; (4) feelings and concepts about obesity.

Results: There were related difficulties in the mother-child relationship which contributed to the development of an interaction pattern related with inadequate eating habits in childhood that were maintained during adolescence. Many fathers were unable to provide an adequate development of the identity and self-esteem in childhood and adolescence. There were observed psychosocial factors like interpersonal family conflicts and affective problems on couple relationship. The adolescents related feelings of loneliness, anxiety and depression, which had been felt since they were children.

Conclusion: The findings highlights that obesity must be prevented earlier since the neighboring. These results cannot be generalized for all obese patients, but they emphasize the need of understanding the whole of the family in set off or maintain the obesity. The author proposes an approach centered in adolescent –family relationship for a better intervention and treatment.
T4:PO.169

Effects of Increased Dietary Calcium Combined with Caloric Restriction on Lipid Profile, LDL Particle Size and Apolipoproteins in Overweight/Obese Postmenopausal Women

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We evaluated the effects of low (LC, ~800 mg/d) and high (HC, ~1400 mg/d) dietary calcium on plasma lipid profile, LDL particle size and apolipoproteins (Apo B, CIII, E) in overweight/obese postmenopausal women (n = 56, average BMI of 33.1± 5.7 kg/m²). The 3-month weight loss program involved caloric restriction (1,400 kcal/d) and macronutrient distribution: 51% CHO, 25% protein (P<0.05), and LDL increased 59.2 ± 15.7 to 63 ± 12.2 mg/dL (P<0.05). For HC, plasma total cholesterol decreased: 218.6 ± 55.3 to 196.5 ± 45 mg/dL (P<0.05), LDL cholesterol decreased: 129.2 ± 53.3 to 103.8 ± 42 mg/dL (P<0.05), and HDL increased 59.2 ± 15.7 to 63 ± 12.2 mg/dL (P<0.104). For LC, plasma total cholesterol did not change, LDL cholesterol decreased: 104 ± 35.9 to 93 ± 30 mg/dL (P<0.05) and HDL increased 60.8 ± 15.9 to 64.8 ± 12.5 mg/dL (P=0.098). Plasma TG, LDL particle size, mean, pattern, and apolipoproteins were not affected by this intervention in either group. LDL peak size was decreased in LC (267 ± 11 to 263 ± 15 nm) and increased in HC (257 ± 9.4 to 259 ± 12.4 nm) with significance between groups (P<0.05). In conclusion, dietary calcium combined with caloric restriction was effective in improving plasma lipids in this population.

T4:PO.170

Genetic determinants of risk factors for cardiovascular disease in a population from rural Brazil

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We investigate here the heritability of and pleiotropic relationships among triglycerides and cholesterol lipoproteins that have long been considered traditional risk factors for cardiovascular disease. Quantitative lipid and lipoproteins phenotypes were determined for a cross-sectional sample of a community in a Jequitinhonha Valley in northern Minas Gerais State. The sample consisted of primarily subsistence farmers. A total of 269 individuals (male: 128, female: 141), aged 18-88 years were sampled. 88% (n=252) of the individuals belonged to a single pedigree which was highly informative for genetic analysis. Data on anthropometrics, high density lipoprotein cholesterol, low density lipoprotein cholesterol, total cholesterol, and triglycerides were available for each study participant. Extended pedigrees were constructed using the software PEDSYS. Univariate and bivariate variance-components analyses adjusted by sex and age were performed using the SOLAR software package. Heritability estimates of lipids and lipoproteins ranged from 29% to 45% (P<0.008). The highest heritability estimated was for HDL-C (R²=44.8%, P<0.00001) and this was the only trait which exhibited a significant household effect (R²=25%). Strong positive genetic correlations were found between triglycerides and VLDL-C (r=0.998), and between cholesterol and LDL-C (r=0.948). Significant genetic correlations were also found between triglycerides and LDL-C, total cholesterol and VLDL, and total cholesterol and LDL-C and VLDDL and finally LDL and VLDDL. There was a significant negative environmental correlation between triglycerides and HDL-C (r=-0.406). The findings confirm earlier reports of high heritabilities for lipids and lipoproteins suggesting that the observed phenotypic correlation between lipoproteins may due to the combination of common genetic effects and shared environmental effects. This project was funded by grants from the National Institutes of Health (NIH-ICID Grant A145451), USA, NCM, FAPEMIG, CNPq and Fogarty Infectious Diseases Training Grant (D43TW6580).

T4:PO.171

Body image of men: from obesity to muscle dysmorphia

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Background: The body image disorders became well-known in the classic forms of female eating disorders, i.e., anorexia nervosa, and bulimia nervosa. However, in the last decade there is a growing evidence that body image disorders may appear also in men. The muscle dysmorphia, a specific form of body image disorder of bodybuilders, was described in 1993 by Pope et al. The subjects suffering from this disorder want to increase the musculature of their body with excessive bodybuilding, and use of anabolic steroids. Another new form of these disorders is the eating disorder body builder type, written by Gruber and Pope in 2000, indicating a fat phobia, and obsessive eating habits.

Methods: A two-step epidemiological study was performed among 140 male Hungarian body builders, with questionnaire screening followed by an interview phase with all subjects.

Results. 13 subjects (9.3%) used anabolic steroid hormones. The mean body weight of steroid users is 93.0±14.1 kg, the body mass index is above the normal range (28.3±4.7 kg/m²). However, their mean ideal body weight of steroid users is 93.0±14.1 kg, the body mass index is above the normal range (28.3±4.7 kg/m²). However, their mean ideal body weight is 105.3±22.4 kg. Among the steroid users six subjects (4.3%) fulfilled the criteria of muscle dysmorphia described by Pope et al.

Conclusion: Our data show that this new syndrome is a frequent and hidden disorder in this special population. The sociocultural meaning of the male body changed in the last few decades, and the aesthetic quality became important on the basis of the athletic body ideal of

T4:PO.172

Relationship between socioeconomic factors, food and drinks intake habits and BMI of hungarian conscripts

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Background: Overweight and obesity are escalating epidemics which now affect most of the developed and developing countries of the world and both of them are the consequence of an energy imbalance where energy intake exceeds energy expenditure over a considerable period. Overweight and obesity are also influenced by socioeconomic factors (SEF), among them the food intake habits (FIH). In order to investigate the relationship among the SEF, FIH and the Body Mass Index (BMI) in the young Hungarian males we analysed the data of a national representative sample (n=6632) of 18-year-old Hungarian conscripts. The sample was taken in 1998.

Methods: BMI was used to assess the nutritional status the conscripts. As SEF, the place of residence (PR) and the educational level of the conscripts’ mother (ELM) were taken into consideration. The food and drinks consumed by the conscripts were divided into ‘healthy’ (HF) and ‘unhealthy’ (UF) types and the odds of frequent (at least weekly) consumption (OC) of the different food and drinks were calculated.

Results: According to the PR the mean value of the BMI was the highest in Budapest (22.40) and in the villages (22.20). By the ELM the highest mean values of the BMI were found in the conscripts whose mother had primary school (22.10) and college or university (21.93) education. The OC of the HF and UF was inversely related to the PR and ELM of the conscripts. For example the OC of the ‘healthy’ vegetables was 1.96 in Budapest and 1.27 in the villages, and 3.41 with higher educated mother and 0.86 with lower educated mother. On the contrary, the OC of the ‘unhealthy’ fat bacon was 0.32 in Budapest and 0.66 in the villages and 0.32 with higher educated mother and 0.86 with lower educated mother.

Conclusions: The nutritional status and the food and drinks intake habits of the Hungarian conscripts are influenced strongly by socioeconomic factors.
T4:PO.173

Ethnicity and obesity—both general and regional

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Background: Obesity, both general and regional, varies significantly from population to population so are co morbidities. Ethnic-specific and country-specific BMI standards for overweight and obesity may be necessary to attain valid prevalence estimates and preventive measures. Since India is a multietnic country, it offers lot of opportunities when it comes to population research.

Methods: The present study was undertaken with an aim to find out the variation in adiposity levels and regional distribution of fat in different ethnic groups. Subjects: Young adult females and males from Manipur (N E India; 26 females and 31 males), Delhi/North India (23 females and 26 males) and Kerala/South India (50 females and 50 males). Their age ranged from 18-25 years. All the subjects were matched for their age, physical activity level and socio-economic status. Each subject was measured for stature, weight, circumferences at waist and hip, skinfold thicknesses at biceps, triceps, suprailiac, subscapular, calf medial and calf posterior sites. Using bioelectric impedance technique, body fat% was measured for NE and Delhi subjects. Anthropometric indices of general and regional adiposity (BMI, WHR and GMT) were computed statistically. The data was analyzed using SPSS 10.0 version. For group comparison one way ANOVA was conducted.

Results: The young women from North India (Delhi) and N E India (Manipur) had similar BMI, 21.5 kg/m² and 2.1 kg/m² respectively, with former group having more fat (19.6%) but less trunkal fat (WHR=0.73) as compared to the latter group (fat=16.8%, WHR=0.74). North Indian males had higher BMI (25.3 kg/m²) and fatness levels (17.8%) along with predominance of trunkal fat(WHR=0.84) as compared to NE males (BMI=22.4 kg/m², WHR=0.80). Both South Indian males and females had lower BMI (19.8 kg/m² and 19.3 kg/m² respectively) and less subcutaneous fat (GMT=9.9 mm and 14.3 mm respectively) as compared to their counterparts from North and NE India. All the inter group differences for BMI (F=26.97, P<0.000), GMT (F=7.61, P<0.000), fat percent (F=0.32, P=0.000) and WHR (F=3.33, P<0.006) were found to be statistically significant among males.

Among females, ANOVA detected inter group differences to be significant for BMI (F=30.61, P<0.000) and for GMT (F=5.52, P<0.005) only. More variability was found among young adult males from different indigenous groups with respect to both general and regional adiposity whereas young adult females differed significantly from each other only for general adiposity. The pattern of fat distribution although differed slightly between females of different ethnic group, it was not statistically significant. The findings have been discussed in light of their habitual activities and life style pattern.

Conclusion: A vivid picture of ethnic and gender difference was observed in the distribution of fat and fatness levels. N E tribal groups differed from those of other caste groups in the pattern of fat distribution despite having less body fat. Validity of phrase like ‘Asians (including Indians) are at more risk of CVD and other metabolic disorders at lower level of BMI’ needs more probing before implementation. This necessitates the evaluation of population based data.

T4:PO.174

Risk of obesity and atherosclerosis depending on the age

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Background: According to the data of WHO Risk of development of non-infectious diseases of mass occurrence correlates with the age of monitored individuals. Nowadays it is noted that not only the life-expectancy is prolonging, but also the number of individuals in higher age groups is increasing in the whole Europe including the Czech Republic. In 1992 there was 17.8% of population older than 60 years. In 2003 it was 19.3%.

Methods: 373 individuals from the study CINDI in the age group of 54 to 65 years were included in the monitoring. They were 576 soldiers at the age of 50 to 60 (52.97 – 1.89 years), 138 firemen at the age of 50 to 60 (53.3 – 2.9 years) and then 58 individuals included in the Health Support Project with the average age of 60 – 13 years. All individuals filled in the medical history form. The weight, height, waist and hip circumference, body fat percentage by HIA, blood pressure, level of glycaemia, ura, Creatinine, lipid spectrum, hepatic tests, lactic acid were measured in all individuals.

Results: AI = atherogen index

AI = HDL / TCHOL

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T4:PO.175

Prevalence of overweight and obesity school children

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Background: Obesity during childhood is a matter of growing concern. Several reports show increasing rates of obesity in developed countries, whereas the extent of the problem in developing countries remains unknown. Obesity is linked to serious complications in childhood and an obese child is at risk of becoming an obese adult with an associated raised likelihood of ill health and premature death.

Methods: The aim of this study was undertaken to define the prevalence of being overweight or obese in a population of children 8–14 years of age, living in Hradec Králové Czech Republic Weight and height were obtained for each child and BMI was calculated according to the formula weight (kg)/height (m)². The prevalence of overweight and obese subjects was then determined using the growth curves of the International Obesity Task Force (IOTF) and percentiles BMI chart for Czech children population.

Results: The data were collected from 10 basic schools (2 – village, 8 – town). From results is shown that at the village schools are more obese (29%) than at town school (22%). The prevalence of overweight show similar trend (village – 18%, town – 15%) in group of gender more obese are girls (22%) than boys (21%) and overweight the higher prevalence is in group of boys (19%) than girls (15%).

Conclusion: In-group of 738 school children (11 ± 3 years) in Hradec Králové was 22 % obese and 17% overweight children. The higher prevalence of overweight or obesity was at village school than at town. The percent of obese is more in group of girls, but of overweight are more boys. Supported by MO FVZ 0000502.