

HTPO.001

Presentation type:

Session:

The Adiposity expressed measured through among body impedance, DEXA and abdominal CT

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Introduction

Methods

Results

Conclusion

Conflict of interest

Funding

Presented by: Lee, Kyurae K.R.

ID: 25

HTPO.002

VERY-HIGH-FAT AND ISOCALORIC LOW-FAT DIET INTERVENTIONS IN OVERWEIGHT MIDDLE-AGED MEN – RESULTS FROM A RANDOMIZED TRIAL

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Introduction

Different varieties of low-carbohydrate diets have been explored in randomized controlled trials, but very few have been high in fat. In this intervention we compared effects of a very-high-fat diet (VHFLC) with an isocaloric low-fat-diet (HCLF) for fat loss.

Methods

Thirty-eight healthy overweight men were randomized to a VHFLC (73% fat) (n=20) or a LFHC (30% fat) (n=18) diet for 12 weeks. The diets were isocaloric, with moderate energy restriction (2090 kcal/day) and equally balanced in protein (17%). Body composition was assessed by bioelectrical-impedance-analysis, and biochemical measures were collected at baseline, 4, 8, and 12 weeks of

follow-up. Paired t-tests were used for calculating differences between baseline and 12 weeks follow-up whereas ANOVA was used for differences between groups.

Results

Both groups showed highly significant reduction from baseline to 12 weeks follow-up in most biochemical measurements and BMI (kg/m²) (VHFLC, 34.1±2.4 to 30.6±1.9 (p<0.001); LFHC, 33.6±3.6 to 29.9±3.3 (p<0.001)), %body-fat (34.0±4.8 to 28.0±5.3 (p<0.001) and LFHC, 33.3±5.4 to 26.73±6.1 (p<0.001)) and visceral adipose tissue (in cm²) (VHFLC, 196.3±10.7 to 138.7±6.0 (p<0.001) and LFHC, 197.4±13.4 to 141.0±11.4 (p<0.001)), whereas no significant differences between groups were found, except for total-cholesterol and LDL-cholesterol that decreased significantly only in the LFHC-group, leading to significant between-group differences (p=0.033 and p=0.019 respectively). Only VHFLC increased HDL cholesterol significantly (p=0.02), but the between-group difference was not significant.

Conclusion

We found similar reductions in BMI, %body-fat and visceral adipose tissue in both groups after 12 weeks. There were no significant between-group differences in biochemical analyses except for total- and LDL-cholesterol.

Presented by: Veum, Vivian V.L.V

ID: 481

No conflict of interest

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HTPO.003

BROWNING EFFECTS OF THE COLD RECEPTOR TRPM8 ACTIVATION IN HUMAN WHITE ADIPOCYTES

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Introduction

The uncoupling protein 1 (UCP1) is a hallmark of brown adipocytes and the pivotal player for cold-induced thermogenesis in these cells. Recently "browning" of white adipose tissue (WAT), with massive up-regulation of UCP1, has been confirmed after physiological and pharmacological manipulations. We investigated the expression of the cold-sensing receptor TRPM8 in human WAT and the effects of its activation by natural and synthetic agonists.

Methods

The stromal vascular fraction from human WAT was isolated and pre-adipocytes were differentiated to mature adipocytes in adipogenic medium. We investigated the expression of TRPM8 receptor in human adipocytes together with the effects of its activation by natural (menthol) and synthetic agonists (icilin) on adipocyte cytoplasmic calcium concentrations, UCP1 expression, genes regulating mitochondrial biogenesis, glucose uptake, heat production, mitochondrial potential and cell ultrastructure with TEM.

Results

TRPM8 receptor is expressed in human white adipocytes and its activation induces a rise in $[Ca^{2+}]_i$ along with the induction of UCP1 expression, increased glucose uptake, mitochondrial potential and heat production with no changes in the expression of the master genes regulating mitochondrial biogenesis. The induction of a “brown-like” phenotype in human white adipocytes after TRPM8 activation is supported by ultrastructural morphological changes of mitochondrial morphology and intracellular localization around lipid droplets.

Conclusion

Our findings provide evidence that human white adipocytes express the cold receptor TRPM8 which activation induces a cellular phenotype resembling that of brown adipocytes thus suggesting a role for this cold-sensing receptor in the control of WAT metabolism and whole body energy balance in human.

Presented by: Rossato, Marco R.M.

ID: 487

None disclosed.

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HTPO.004

CARBON MONOXIDE DECREASES ADIPOSE TISSUE INFLAMMATION UPON LOSS OF OVARIAN FUNCTION

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Introduction

Carbon monoxide (CO) has been shown to have remarkable therapeutic value at low dosage by suppressing inflammation.

Methods

To elucidate the role of carbon monoxide in metabolic disturbance due to loss of ovarian function, ovariectomy (OVX) was induced in mice.

Results

OVX increased fat mass and infiltration of highly inflammatory CD11c cells in adipose tissue (AT) which was analyzed by flow cytometry, resulting in disturbance of glucose metabolism, which was attenuated by treatment of CO. Administration of CO reduced the expression of CD11c in bone marrow-derived macrophages, resulting in polarization of macrophages to M2. CO generated cGMP in BMM upon M-CSF stimulation. CO with guanylate cyclase inhibitor abolished the effect of CO on reducing CD11c, whereas permeable 8-Br-cGMP alone reduced CD11c, suggesting that the effect of CO on decrease of CD11c is at least partly due to activation of guanylate cyclase to produce cGMP. CO plays a protective role against OVX-induced AT inflammation via down-regulation of CD11c.

Conclusion

CO could be used as a therapeutic target for treatment of postmenopausal syndrome by reducing AT inflammation.

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Presented by: Choi, HS

ID: 650

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HTPO.005

INTESTINAL PERMEABILITY IN HUMAN MORBID OBESITY: FROM TIGHT JUNCTIONS TO METABOLIC COMPLICATIONS

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Introduction: The intestinal permeability (IP) is controlling paracellular movement of solutes and immune cells. An increased IP correlated with impaired metabolic function in rodent obesity. We aimed to assess markers of passive IP (PIP) in obese (Ob) and type 2 diabetic patients (Obd) before and after gastric bypass (GBP). Methods: In vivo PIP was measured by lactitol/manitol excretion ratio (L/M) in 25 Ob and 15 Obd, serum Zonulin and fecal calprotectine by ELISA. Jejunal tissues from surgical waste of GBP (31 Ob, 18 ObD) and lean surgeries (n=7) were collected and analyzed for ex vivo PIP assay in Ussing chambers using small sized FITC-Dextrans. Results: L/M values did not differ between Ob and Obd subjects ($1.2\% \pm 2.1$ vs $2.1\% \pm 2$; $p=0.80$) as compared to the 3% healthy standard, indicating no increase in PIP to small molecules. Zonulin levels were decreased in obese as compared to lean subjects (30.6 ± 23 vs 58 ± 2 ng/ml; $p=0.02$) and did not change after BPG (n=10). Fecal calprotectine levels were within normal ranges ($<100\mu\text{g/g}$), indicating no microinflammation. Ex vivo PIP was lower in the obese versus lean subjects. The PIP was comparable between Ob and Obd whatever the size of molecules: 0.4, 4 or 10 kDa. High PIP values were found in subjects with good metabolic status and reduced systemic inflammation ($p < 0.05$). Conclusion: In morbidly obese subjects, PIP to small molecules is low, and Type 2 diabetes does not further affect the PIP. However PIP to large molecules of bacterial origin has to be further studied.

Presented by: Genser, Laurent LG

ID: 683

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HTPO.006

A 45-BP INSERTION/DELETION POLYMORPHISM OF UCP2 GENE IS ASSOCIATED WITH CENTRAL OBESITY

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Introduction

Obesity is an important public health problem worldwide with its increasing prevalence resulting from interaction of genetic and environmental factors. UCP2 gene variants have been associated with obesity and obesity-related phenotypes in various populations. The aim of this study was to investigate the association between 45 bp Ins/Del polymorphism of UCP2 gene and obesity in a population from Turkey.

Methods

A case control survey was carried out to investigate the association of 45 bp Ins/Del polymorphism with obesity. A total of 138 obese cases (70 women and 68 men) and 75 non-obese control subjects (28 women and 47 men) were included in the study. Polymerase Chain Reaction (PCR) technique was used to genotype the UCP2 gene 45bp Ins/Del variant.

Results

There was no significant difference between obese cases and non-obese controls in terms of genotype distribution and allele frequencies in the population studied. When anthropometric measurements were analyzed in accordance with genotypes (DD, ID ve II), there was no significant difference in terms of many parameters such as BMI, waist and hip circumferences, body fat percentage, etc. However, a significant difference was observed among waist to hip ratios (WHR) in obese cases having Ins/Ins genotypes (0.81 +/- 0.13) versus Ins/Del and Del/Del (0.87 +/- 0.09) ve Ins/del (0.90 +/- 0.10) genotypes respectively ($P < 0.046$). This difference was particularly more obvious in female cases ($P < 0.036$).

Conclusion

In conclusion, this study appears to support the role of UCP2 gene 45bp Ins/Del polymorphism in obesity and the first report performed in our adult population. However, further studies with greater sample sizes might confirm the role of this polymorphism on obesity.

Presented by: Sözen, Mehmet Ali M.A.

ID: 695

None

Scientific Research projects (BAP)

HTPO.007

HYPOXIA ALONE IS SUFFICIENT TO STIMULATE THE RELEASE OF LEPTIN, VEGF AND IL-6 FROM ADIPOCYTES

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Introduction

The increasing burden of diabetes is shaping the way in which future healthcare is to be delivered. The World Health Organization estimates the number of diabetics in the to be 347 million with more than 1.4 billion overweight individuals of which approximately 500 million men and women are obese. The social and financial burdens are staggering. Chronic low grade inflammation underlies the molecular aetiology of the disease. The source of this inflammation is still largely elusive. However, a number of reports suggest that macrophages infiltrating the adipose tissue may be the major culprit. In this work we test the hypothesis that the adipocytes alone under hypoxic conditions may be the source of the low grade inflammation.

Methods

Human subcutaneous preadipocytes were differentiated into adipocytes and placed under normoxic (21% O₂) or hypoxic (05-1.0 % O₂) environment for 24 and 48 hours. Conditioned media were collected and secreted adipokines/cytokines were measured. In addition cells were lysed and the message levels of these inflammatory mediators were measured.

Results

We found that leptin, VEGF and IL-6 were induced significantly by hypoxia. This augmented release was paralleled by an hypoxia induced increase at the mRNA levels. Interestingly however, the HIF-1 alpha inhibitor YC-1 caused a statistically significant inhibition of mRNA levels of leptin, VEGF and IL-6 that was not mirrored by inhibition at the protein levels.

Conclusion

Hypoxia is a sufficient stimulus for the release of leptin, VEGF and IL-6 from adipocytes in the absence of any other stimulus.

Presented by: Alanazi, Azizah A

ID: 697

HTPO.008

A HIGH CARBOHYDRATE-LOW PROTEIN DIET DOES NOT LEAD TO A MORE NEGATIVE WHOLE-BODY PROTEIN BALANCE WHEN COMPARED WITH A HIGH PROTEIN-LOW CARBOHYDRATE DIET

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Introduction

A higher dietary protein intake has been shown to positively contribute to body weight regulation. Besides the impact on fat mass it could be speculated that a higher dietary protein intake may improve net protein balance, thereby supporting fat free mass accrual. However, few data are available on the impact of changes in habitual protein intake on whole-body protein metabolism. Therefore, changes in post-absorptive whole-body protein balance in response to 12 weeks of a high or low dietary protein intake were assessed.

Methods

A 12-weeks randomized parallel study was performed in 7 men and 8 women (BMI: 22.8±2.3 kg/m², age: 24.3±4.9 y) who followed either a high protein-low carbohydrate (HPLC) or high carbohydrate-low protein (HCLP) energy-balanced diet (30/35/35% or 5/60/35% energy from protein/carbohydrate/fat). Immediately after the diet, continuous infusions with L-[ring-²H₅]phenylalanine, L-[1-¹³C]-leucine and L-[ring-²H₂]tyrosine were applied, and blood samples were collected to assess whole-body protein synthesis and breakdown rate and net protein balance in a post-absorptive state. Compliance to the diets was checked by urinary nitrogen.

Results

After 12 weeks, the whole-body protein balance was more negative in the HPLC-group compared with the HCLP-group (-0.069±0.01 vs -0.046±0.01 mmol phenylalanine/kg; P<0.001). Whole-body protein breakdown (0.72±0.07 vs 0.63±0.06 mmol phenylalanine/kg; P<0.001), synthesis (0.65±0.07 vs 0.58±0.06 mmol phenylalanine/kg; P<0.01) and phenylalanine hydroxylation rates (0.069±0.01 vs 0.045±0.01 mmol phenylalanine/kg; P<0.001) were significantly higher in the HPLC-group vs HCLP-group.

Conclusion

Adaptation to a high-protein/low carbohydrate-diet leads to a more negative whole-body protein balance when compared to a low-protein/high-carbohydrate diet, due to a substantial increase in whole-body protein breakdown.

Presented by: Hursel, R

ID: 698

None Disclosed

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HTPO.009

INFLUENCE OF FTO RS9939609 AND MC4R RS17782313 POLYMORPHISMS

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Introduction

Given that leptin, ghrelin and thyrotropin play a major role in the regulation of resting energy expenditure (REE) and that the *FTO* rs9939609 and the *MC4R* rs17782313 polymorphisms have been proposed to affect energy homeostasis, we hypothesized that both polymorphisms are associated with REE and that these relationships can be mediated by leptin, ghrelin and thyrotropin in obesity. Therefore, the present study aimed to examine the relationships between *FTO* rs9939609 and the *MC4R* rs17782313 with REE, leptin, ghrelin and thyrotropin levels in obese women.

Methods

The study comprised 77 obese (body mass index: $34.0 \pm 2.8 \text{ kg/m}^2$) women (age: 36.7 ± 7). We measured body composition by Dual-Energy-X-ray-Absorptiometry and REE by indirect calorimetry. We analysed fasting leptin, ghrelin and thyrotropin levels and the ratio of leptin to fat mass was calculated. Genotype distributions of the polymorphisms did not deviate from Hardy-Weinberg expectations ($P_s > 0.2$).

Results

Women carrying the A allele of the *FTO* rs9939609 had lower REE (1580 ± 22 vs. 1739 ± 35 kcal/day, $P < 0.001$) and higher leptin to fat mass ratio (1.33 ± 0.05 vs. 1.13 ± 0.08 ng/ml*kg, $P < 0.05$) and thyrotropin levels (1.93 ± 0.10 vs. 1.53 ± 0.16 mU/mL, $P < 0.05$) regardless of age and BMI. We found no significant influence of the *MC4R* rs17782313 on energy metabolism or biochemical variables.

Conclusion

Our findings confirm that the A allele of the *FTO* rs9939609 is associated with lower REE and increased plasma leptin levels. We also found an association between the *FTO* rs9939609 and thyrotropin, suggesting the possible influence of *FTO* in the hypothalamic-pituitary-thyroid axis as a potential mechanism of the increased adiposity.

Presented by: LABAYEN, IDOIA I.L.

ID: 719

no conflict of interest

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HTPO.010

ASSOCIATIONS BETWEEN FAMILY MEALS AND WEIGHT STATUS IN EIGHT EUROPEAN COUNTRIES - THE ENERGY CROSS-SECTIONAL STUDY

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Introduction

Recent research shows that energy balance-related behaviors are relevant for obesity prevention among children. The aim of this study was to assess the association between family meals and weight status of children across Europe.

Methods

7915 children (mean age: 11.5 years) in eight European countries (Belgium, Greece, Hungary, the Netherlands, Norway, Slovenia, Spain and Switzerland) completed a questionnaire at school. Data on family meals; i.e. how often parents ate breakfast, lunch, dinner together with their child were collected. Height and weight of the children were objectively assessed. Binary regression analyses were conducted to test for associations of eating family meals (adjusted for gender and ethnicity) with overweight including obesity.

Results

The children who ate breakfast together with their parents 5-7 times per week (OR = 0.6 (95% CI 0.5-0.7)) and dinner together with their parents 5-7 times per week (OR = 0.7 (95% CI 0.6-0.8)) had lower odds of being overweight compared to those who ate the respective meals with their parents 2-4 times or less per week. The children who ate lunch together with their parents 5-7 times per week (OR = 1.2 (95% CI 1.1-1.4)) had higher odds of being overweight compared to those who ate lunch with their parents 2-4 times or less per week.

Conclusion

The odds of being overweight was lower for children who ate breakfast and dinner together with their parents 5-7 times per week, but higher for children who ate lunch together with their parents compared to those who did not.

Presented by: Vik, Frøydis F.N.

ID: 670

No

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HTPO.011

OBESITY, DIET, PHYSICAL ACTIVITY AND QUALITY OF SURVIVAL IN ENDOMETRIAL CANCER SURVIVORS: A SYSTEMATIC REVIEW

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Introduction

Endometrial cancer is the most common gynaecological cancer in the UK, with most survivors overweight or obese. The study aimed to systematically assess the associations between obesity, diet and physical activity with quality of survival (i.e. health-related quality of life (HRQoL) and length of survival) after cancer treatment.

Methods

We searched PubMed, Medline, PsycInfo, conference abstracts, reference lists, and relevant reviews on the topic from inception to 2014 in all languages. Studies included if they reported an association between the aforementioned variables. Effect sizes were calculated and data were synthesised narratively.

Results

From the 4385 retrieved reports, 29 met the inclusion criteria. 7/12 studies assessing HRQoL were cross-sectional and 16/18 assessing survival were retrospective. Meeting the WHO recommendations for maintaining normal weight, being physically active, eating a diet high in fruit and vegetables, and abstaining from smoking was positively associated with overall HRQoL in 2/3 studies and physical function in 6/6 studies, while negatively associated with fatigue in 3/4 studies. No association was found for body mass index (BMI) with disease-free survival in 10/10 studies, disease-specific survival in 4/4 studies, and overall survival in 8/11 studies. Physical activity was not significantly associated with survival in 2/2 studies.

Conclusion

Associations between obesity and not meeting the lifestyle guidelines with HRQoL are predominantly inverse. Obesity may influence long-term survival, primarily due to cardiovascular disease. However, robust data on the lifestyle effects on survival are lacking. Future trials need to test interventions designed to promote adoption and maintenance of healthy lifestyle behaviours.

Presented by: Koutoukidis, Dimitrios D.K.

ID: 653

None declared

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HTPO.012

EXPLORING EATING BEHAVIOUR USING THE THREE FACTOR EATING QUESTIONNAIRE (TFEQ) IN OVERWEIGHT AND OBESE WOMEN

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Introduction

Obesity is a leading cause of death, yet it is preventable. Interventions which fail to address behavioural contributors to weight gain may contribute to increasing obesity rates. The aim was to investigate obesity related eating behaviours in overweight or obese women and those with high body fat percentage (BF%) compared with normal weight and BF%.

Methods

Women (n=116), aged between 20 and 45 years, were recruited. Quetelet's body mass index (BMI) was calculated (kg/m^2) from height and weight measurements, and BF% was measured using air displacement plethysmography (BodPod). Women completed the validated Three Factor Eating Questionnaire (TFEQ) to assess their eating behaviours. The three main eating factor scores (Restraint, Disinhibition and Hunger) and their sub-categories were calculated. The TFEQ data were analysed for associations with BMI and BF%, as well as categorisations based on high BMI (≥ 25 and $\geq 30 \text{ kg/m}^2$) and high BF% ($\geq 30\%$).

Results

The whole group had a median (IQR) age of 34 (27, 40) years, BMI (23 (21, 25) kg/m^2), and mean \pm SD BF% (30 \pm 8%). Disinhibition was positively correlated with both BMI ($p < 0.001$) and BF% ($p < 0.001$). Emotional Disinhibition appeared to be the most important sub-categorisation, as the only sub-category that differed significantly between women with high versus normal BMI and BF%. No significant correlations were found between Restraint or Hunger and BMI or BF%.

Conclusion

Intervention strategies which educate overweight or obese women on how to counteract *Disinhibition* should be a key target area for prevention of further weight/fat gain.

Presented by: Kruger, Rozanne R.

ID: 684

None disclosed.

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HTPO.013

ASSOCIATIONS BETWEEN DISORDERED EATING BEHAVIOUR AND CHRONIC CARE TREATMENT IN OBESE CHILDREN

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Introduction

The aim of this study was to assess the prevalence of disordered eating behaviour in obese children and its associations with the degree of obesity at baseline and the response to treatment.

Methods.

One thousand four hundred and ten children (633 boys) were treated at the Children's Obesity Clinic from January 2008 to January 2014. At the first visit, all children were asked if they experienced either one of four kinds of disordered eating behaviours: overeating, emotional eating, meal skipping, and rapid eating. Anthropometric measures were obtained at baseline and at subsequent visits.

Results

Median age at inclusion was 11.5 years; median BMI SDS was 3.24 in boys and 2.82 in girls. Boys decreased their BMI SDS by 0.35 and girls by 0.21 during up to 3.5 years of treatment. Forty-two percent had more than one item of disordered eating behaviour, 21% had one item of disordered eating behaviour, while 37% did not present with disordered behaviour. Children with emotional eating behaviour were more obese (BMI SDS 0.08 higher, $p=0.02$) at baseline, though the change in BMI SDS during treatment was not significantly different. None of the other disordered eating behaviours nor having more than one disordered eating behaviour were associated with BMI SDS at baseline or the change in BMI SDS during treatment ($p>0.05$).

Conclusion

Disordered eating behaviours were highly prevalent in obese children, but showed no association with the response to treatment.

Presented by: Mollerup, Pernille Maria P.M.M

ID: 691

All authors declare no conflict of interest.

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HTPO.014

INVESTIGATION OF RESTING METABOLIC RATE, DAILY PHYSICAL ACTIVITY, PULMONARY FUNCTIONS, PHYSICAL FITNESS AND BODY COMPOSITION IN PATIENTS WITH CHOLELITHIASIS

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Introduction

It is known that the life style changes affect characteristics of patients with cholelithiasis. In this study, investigation of differences of physical fitness parameters (maximal aerobic capacity, muscle strength, flexibility), daily physical activity, resting metabolic rate, pulmonary functions, body composition, arterial stiffness, dietary intake, health related quality of life as well as the associations among these parameters was aimed in patients with cholelithiasis versus healthy controls.

Methods

The patients were diagnosed as cholelithiasis by a specialist in general surgery clinic. A total of thirty female patients with cholelithiasis and thirty healthy female controls were included in this study. Maximal aerobic capacity was determined by Astrand submaximal exercise protocol. Handgrip strength and back-leg strength were measured with dynamometers; spinal flexibility was measured with flexion meter; daily physical activity was measured with metabolic holter; resting metabolic rate determined with indirect calorimeter; pulmonary function tests were measured with portable spirometer. Body composition was determined by using bioelectric impedance analysis system; arterial stiffness determined by using pulse wave analysis method. Skinfold thickness was measured by skinfold caliper, and body circumference measurements were carried out by tape measure. Quality of life questionnaires (SF36) and dietary intake record were applied to all participants. Statistical analyses were done using t-test and Pearson correlation tests of SPSS 18.0 computer program.

Results

The mean maximal aerobic capacity, spine flexibility, daily total energy expenditure, resting metabolic rate, daily moderate activity time, daily vigorous activity time, daily active energy expenditure, pulmonary function tests, stiffness index, body mass index, body fat percentage, lean body mass, daily dietary intake values, and all SF36 scores did not differ significantly between the patients with cholelithiasis and the healthy controls. Vascular age and daily sleep time values were higher in patients with cholelithiasis than the ones in healthy controls, whereas daily step number, handgrip strength and back-leg strength values were lower in cholelithiasis group compared to the control group. Vascular age value showed negative correlations with physical activity parameters, aerobic exercise capacity and pulmonary functions values, while it showed positive correlation with daily sleep time value in patients with cholelithiasis.

Conclusion

In conclusion, it was found that vascular age and daily sleep time were increased, daily energy intake and expenditure were not different, but muscle strength and daily physical activity were impaired in patients with cholelithiasis compared to healthy controls. We suggest that the exercise therapy which includes the aerobic exercises together with strengthening exercises might be more beneficial to increase well being in patients with cholelithiasis.

Presented by: GENÇ, Abdurrahman A.

ID: 699

non

scientific research Project (B.A.P.)

HTPO.015

NUTRITIONAL COMPOSITION OF MEALS OFFERED TO YOUNG ADULTS

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University of Glasgow

Introduction

University students are prone to unwanted weight gain. A proportion of them live in catered halls where meals are not subject to any nutritional evaluation. The aim of this study was to analyse the nutritional composition of those meals in relation of nutrient provision and targets.

Methods

Ingredients for recipes of a 5-week menu cycle were sought from the catering staff and the menu was analysed with a nutritional software (WinDiets) and calorie and overall nutrient provision was identified.

Results

210 potential meal-combinations were available: 105 meal-options with a dessert other than fruit (meal-option 1) and 105 with fruit as dessert (meal-option 2). The median (IQ) nutritional contents of meal-option 1 were 1124(320)kcal, fat 52.0(25)g, saturated fat 24(16)g, protein 38(33)g, carbohydrate 114.0(31)g, vitamin C 44(80)mg, iron 6.2(8)g, calcium 190(146)mg. Proportional energy contents were carbohydrate 39%, protein 14%, fat 39%, sat fat 18%. Mean nutritional contents of meal-option 2 were; 925(293)kcal, fat 25.0(20)g, saturated fat 9.0(7)g, protein 30.0(21)g, carbohydrate 129.0(35)g, vitamin C 52(82)mg, iron 6.2(2.7)g, calcium 173(42)mg. Proportional energy contents for meal-option 2 were carbohydrate 56%, protein 16%, fat 29%, sat fat 10%. The proportion of meal-options which exceeded 50% DRV for energy for young men and women, respectively, were 48% and 90% for meal-option 1, 9% and 18% for meal-option 2.

Conclusion

Current meal provision revealed excessive energy, carbohydrate, fat and saturated fat, and variable micronutrient contents compared to current recommendations. Excess energy content is hard to identify and may promote unwanted weight gain and consumption of nutritionally unbalanced diets.

Presented by: Nikolaou, Charoula CK

ID: 705

None declared

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HTPO.016

THE COHERENCE BETWEEN SENSORY-SPECIFIC SATIETY AND OBESITY IN CHILDREN

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Introduction

The knowledge in regards to sensory-specific satiety (SSS) is limited in obese children. The present study quantitated how SSS, external eating, intake pace, and hunger influence food consumption in obese and normal weight children.

Methods

Seventy-seven children (30 obese and 48 girls) completed a half hour meal test consisting of alternation between food consumption and questionnaires in order to quantitate their SSS and the influence of external eating, intake pace, and hunger on food consumption. Furthermore, anthropometric measurements were obtained and body mass index (BMI) standard deviation score (SDS) adjusted for age and gender was calculated. Children with a BMI SDS above the 95th percentile (BMI SDS ≥ 1.65) were classified as obese. Afterwards, all values were evaluated in linear regression analyses and in a multivariate linear analysis.

Results

The linear regression analyses showed a coherence between BMI SDS and SSS ($p=0.043$), external eating ($p=0.009$), and intake pace ($p=0.001$), but no coherence was found between BMI SDS and hunger ($p=0.163$). In addition, the multivariate linear analysis showed an association between BMI SDS and all the examined factors: SSS ($p=0.009$), external eating ($p=0.027$), intake pace ($p=0.003$), and hunger ($p=0.002$).

Conclusion

This study found coherence between SSS and BMI SDS in obese children. Furthermore, external eating, intake pace, and hunger differ concurrently with BMI-SDS. In order to strengthen the results, more obese participants will be included in this study.

Presented by: Holm, Jens-Christian J-C.

ID: 709

All authors declare no conflicts of interest.

This study was funded by Sparekassen Sjælland in Ringsted, Denmark.

HTPO.017

DRIEF FRUIT (PRUNE) CONSUMPTION DOES NOT UNDERMINE ACTIVE WEIGHT MANAGEMENT OR PRODUCE ADVERSE GASTROINTESTINAL EFFECTS

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Introduction

Consumption of dried fruit has been advised against during weight loss despite evidence it enhances satiety. This study examined whether (i) incorporating prunes into a weight loss intervention undermined weight control; (ii) low fibre consumers could tolerate the inclusion of prunes in their diet for a 12-week period, and (iii) prunes induced chronic beneficial changes in appetite.

Methods

100 overweight and obese low-fibre consumers (74F, 26M; age 43(SEM1.3) y; BMI 29.8 (SEM0.3) kg/m²) completed a randomised between-subjects study with two groups (intervention and active control) to assess the effects of prunes (140g/day F, 171g/day M) on weight and appetite in comparison to control (advice on healthy snacks) over a 12-week period of active weight loss.

Results

The study showed that taking prunes as part of a healthy life-style intervention produced significant changes in body weight (1.99kg/2.4%; p<0.000) and waist circumference (2.5cm/2.3%; p<0.000) from baseline. These were slightly greater than in the active control but did not reach statistical significance. Weight loss between the groups diverged during the last 4 weeks with a trend for greater weight loss in the prune group (p=0.07). Moreover, despite the high daily doses, prunes were well tolerated. These are the first data to demonstrate both effects. Enduring effects on appetite were also observed with AUC analysis demonstrating increased fullness in the prune group after week 8 (p=0.05).

Conclusion

This study clearly demonstrates no negative consequences of including prunes into weight control diets with some indication of benefit to long-term success. This may relate to chronic appetite effects. Presented by: Halford, Jason J.C.G.

ID: 711

Payment received from the California Prune Board

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HTPO.018

EFFECTS OF A 4 WEEKS EXERCISE TRAINING ON BODY COMPOSITION AND IMPLICIT/EXPLICIT ATTITUDES TOWARDS HEALTHY/UNHEALTHY FOOD IN GOAL-NAÏVE LEAN AND OVERWEIGHT/OBESE FEMALES

Alabduljader, et al.

Bangor university

Introduction

Methods

Results

Conclusion

Exercise is prescribed for weight loss in overweight/obese people with various successes. It is suggested that the reasons can be found in response sensitivity (over-compensators of energy expended), or eating restraint being informed about intervention goals, or personal goals in weight loss. Moreover, exercise could influence explicit and implicit attitudes towards food leading to diet alterations. Therefore, we conducted a 4 weeks circuit training intervention (3d/wk, 60min/d, 70-80%HRmax) in sedentary overweight/obese and lean females blinded to the objectives of the study and people interested in weight loss excluded. Sedentary females (age: 25.2±4.3); lean (n = 10, BMI: 22.7±2.1kg.m⁻²) and overweight/obese (n = 7, BMI: 31.1±5.6kg.m⁻²) finished the exercise intervention, while two matched control groups (lean n= 10, BMI: 22.7±2.1; overweight/obese n=7, BMI: 30.67±1.94) performed assessments only. Pre and post measures included peak oxygen uptake, weight, body-composition, explicit and implicit attitude towards healthy/unhealthy food. Post intervention, no significant alterations were observed in weight and fat mass in both exercise and control groups. Analysis of psychological measures revealed that lean participants had a significant higher explicit and implicit attitude towards healthy food than overweight/obese, while no effect of exercise training was detected. In summary, 4 weeks exercise training did not lead to weight/fat loss in female participants naïve to the purpose of the study suggesting that weight-set-point regulation is not impaired in overweight/obese females. Additionally, implicit and explicit attitudes towards food were not influenced by training showing that any attitude alterations contributing to weight loss are based on factors other than exercise.

Presented by: Alabduljader, Kholoud

ID: 715

HTPO.019

PSYCHOLOGICAL AND PHYSIOLOGICAL CHARACTERISATION OF LOW AND HIGH 'SATIETY RESPONSIVENESS' IN FEMALES

Dalton , Hollingworth , Caudwell , Blundell , Finlayson

University of Leeds

Introduction

The strength of satiety generated by food varies between individuals, with some demonstrating weak satiety responsiveness to food, which may lead to increased susceptibility to overeating (Drapeau et al. 2013). We systematically categorised individuals as low or high in satiety responsiveness using the satiety quotient as a measure of the satiating efficiency of food, and characterised these phenotypes in relation to body composition (BC), metabolism (RMR), energy intake (EI), Disinhibited eating (DE), food craving and food reward (FR).

Methods

In a counterbalanced, crossover design, 30 female participants (BMI: 23 ± 3 ; Age: 28 ± 11) recorded sensations of hunger in the post-prandial period following four breakfasts that were calibrated to provide graded levels of resting energy requirements (achieved using different doses of almonds). BC was measured using air plethysmography and RMR was measured via indirect calorimetry. FR was measured using the LFPQ and EI was assessed using an ad-libitum lunch.

Results

The low satiety phenotype (LSP) was reliably identified across study conditions. LSP had a higher RMR, greater DE and reported experiencing more intense food cravings over the previous seven days. Furthermore, LSP consumed more energy and exhibited a greater wanting for high-fat food. The opposite pattern of characteristics was observed in the high satiety phenotype (HSP).

Conclusion

HSP responded sensitively to ingested nutrients and exhibited greater appetite control compared with LSP who were characterised by distinct behavioural, psychological and physiological risk factors associated with overeating and obesity.

Presented by: Dalton, M

ID: 717

None

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HTPO.020

EFFECT OF FOOD CONSUMPTION VARIETY ON BONE MINERAL DENSITY OF POLISH WOMEN. PILOT STUDY

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Introduction

The Food variety is one of the most important dietary recommendation that favors adequate nutritional status and it is also reflected in the mineral bone density. The purpose of this research was to analyze the food variety in relation to bone mineral density of Polish women.

Methods

The study population included 71 women in the aged 25-75. Food consumption variety was determined with the use of a validated Food Intake Variety Questionnaire and expressed by the Food Intake Variety Index (FIVel), calculated as the number of food groups consumed per week (max 63) in amounts exceeding trace quantities. Bone mineral density (BMD) of the total body was measured with dual-energy x-ray absorptiometry (DXA) (Lunar Prodigy, GE Healthcare, UK). The subjects were divided into groups according to FIVel.(insufficient, sufficient, good, very good) Odds ratios and their 95% confidence intervals (OR, 95% CI) were used as the measure of association between increased variety of food consumption and bone mineral density.

Results

Significant correlation between BMI levels and T-score in studied population was observed. There were no correlation between the occurrence of the risk of lower T-score and variety of food consumption. However reduced odds ratios (OR: 0,71; 95% CI:0,27;1,90) ($p > 0,05$) in women at risk of lower T-score compared with women with higher ($>Me$), obtained for variety of food consumption at minimum good level.

Conclusion

Found in women at risk of lower T-score tendency to less variety of food consumption needs confirmation in a larger sample size.

Presented by: Mierkiewicz, Joanna J.M.

ID: 721

none

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HTPO.026

WHO ARE THE OBESSE? A CLUSTER ANALYSIS OF SUBGROUPS OF THE OBESSE

Green , Strong , Bissell, et al.

University of Sheffield

Introduction

Identifying individuals as obese classifies them based upon their weight, however such a distinction fails to account for the variation within this group across other factors such as health, socio-economic characteristics and behaviours. Current research is therefore constrained in its understanding of obesity, ignoring how factors are inter-related within the group.

Methods

Data were collected from the South Yorkshire Cohort (2010-2012) including information on demographic characteristics, health status, wellbeing, health- and obesity-related behaviours. Only individuals with a body mass index of greater than or equal to 30 were considered. A two-step cluster analysis was used to explore the existence of individuals with similar characteristics within the data.

Results

The cluster analysis showed six distinct groups of individuals within those classified as obese. These subgroups included a cluster of males with high alcohol consumption, two groups of healthy individuals which varied by age, two poor health clusters that differed by the types of long-term conditions found in each and a final cluster which displayed the worst health, exercise and social characteristics.

Conclusion

There are clear subgroups of individual types within the obese BMI group, showing that studies which assume the obese to be similar are at risk of committing an ecological fallacy. It is important to account for this variation in experiences to help tailor or develop interventions to improve their effectiveness.

Presented by: Green, M.A.

ID: 208

None disclosed

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HTPO.021

IS THE INTAKE OF SWEETENED BEVERAGES ASSOCIATED WITH WEIGHT LOSS IN A CHILDHOOD OBESITY TREATMENT PROGRAM?

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Introduction

Increased consumption of sweetened beverages has been linked to the degree of childhood adiposity. The aim of this study was to assess whether the size of the intake of sweetened beverages at baseline in a multidisciplinary childhood obesity treatment program was associated with the change in BMI-SDS during treatment.

Methods

The study included 1349 overweight children (BMI-SDS ≥ 1.28) enrolled in treatment at the Children's Obesity Clinic. The median age at initiation of treatment was 11.5 years and the median BMI-SDS was 3.22 in boys and 2.79 in girls. At their first treatment consultation, anthropometric measures were obtained as well as information about weekly consumption of sweetened beverages. The study population was divided into three groups based on the size of the intake (group 1: ≤ 0.75 liters/week: n = 502; group 2: 0.76-2.24 liters/week, n = 415; group 3: ≥ 2.25 liters/week, n = 434) and after a median of 1.3 years of treatment the change in BMI-SDS in each group was assessed.

Results

Both boys and girls decreased their BMI-SDS during treatment with a 0.58 decrease in boys and 0.29 in girls during a treatment period of up to 3.5 years ($p < 0.0001$). There were no associations between the baseline size of the intake of sweetened beverages and BMI-SDS at baseline or the change in BMI-SDS during treatment.

Conclusion

We observed no associations between a higher intake of sweetened beverages when entering a childhood obesity treatment program and the degree of obesity at baseline or the degree of weight loss during obesity treatment.

Presented by: Trier, Cæcilie C

ID: 677

None.

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HTPO.022

CHILDHOOD OBESITY CHRONIC CARE TREATMENT

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Introduction

Childhood obesity is a pandemic challenge both in development and treatment. In this study, a long-term chronic care obesity treatment in a large unselected group of children was investigated.

Methods

The Children's Obesity Clinic treatment (TCOCT) protocol engaged all relevant advices at entry with subsequent follow up in the period January 2008 to December 2013. Pediatricians, nurses, dieticians, and psychologists staff this tertiary treatment center. 1,657 overweight or obese children and adolescents were referred to treatment.

Results

At entry, 924 girls, with a median age 11.5 years (range 3-25), had a median body mass index standard deviation score (BMI SDS) of 2.8 (range 1.4-5.5) and 733 boys, with a median age 11.9 years (3-21), had a median BMI SDS of 3.2 (1.4-9.7). In girls, mean BMI SDS was reduced by 0.29 (CI: [0.21; 0.37], $p < 0.0001$) and 0.55 (CI: [0.42; 0.67], $p < 0.0001$) in boys, irrespective of degree of obesity at baseline and social class, in up to 4 years of treatment. Elder children (age above 11.7 years) exhibited a lower degree of weight loss, though still with a significant weight loss ($p < 0.0001$). After 4 years 56% of children had stopped children but 80% of these children reported a maintained lowered BMI SDS after a median of 15 months (4-40 months).

Conclusion

In a large group of unselected obese children and adolescents good results were achieved with high rates of weight loss at a cost effective level.

Presented by: Holm, Jens-Christian JCH

ID: 710

None

The Danish Strategic Research Council, TARGET and BIOCHILD grants.

HTPO.023

URINARY MARKER OF NUCLEIC ACID OXIDATION IN DANISH OBESE CHILDREN AND YOUTHS

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Introduction

Objectives:

To investigate whether there is an association between the level of urinary markers of nucleic acid oxidation and the degree of obesity or the glucose metabolism in obese and lean children.

Background:

Urinary excretion of RNA and DNA oxidation markers 8-oxo-7,8-dihydroguanosine(8-oxoGuo) and 8-oxo-7,8-dihydro-2'-deoxyguanosine(8-oxodG) in newly diagnosed adult type 2 diabetic have shown to be a long term predictor of mortality independently of conventional risk factors. Here we hypothesized that 8-oxoGuo and 8-oxodG associate to glucose metabolism in obese children and adolescents.

Methods

Methods:

The 45 (26 female) obese and 39 lean (21 female) children were recruited from the Children's Obesity Clinic, Holbæk. The median age was 12.9 yrs in the obese children and 11.4 yrs in lean. Baseline parameters: body mass index standard deviation score (BMI SDS), waist circumference for height ratio (W/ht). Glucose metabolism was assessed by an oral glucose tolerance test. 8-oxoGuo and 8-oxodG were measured from a urine sample.

Results

Differences between obese versus the lean children: BMI SDS median 2.9 vs 0.14 ($p < 0.001$), W/ht 0.58 vs 0.45 ($p < 0.0001$), HOMA-IR 3.26 vs 1.88 ($p = 0.0005$), WBISI 8.46 vs 12.66 ($p = 0.004$), HbA1c 34.0 vs 34.5 mmol/mol ($p = 0.92$), 8-oxoGuo 2.14 vs 1.99 nmol/mmol creatinine ($p = 0.75$), 8-oxodG 1.37 vs. 1.43 nmol/mmol creatinine ($p = 0.77$). Multivariate regression showed no significant association between the two urinary markers and BMI SDS, HbA1c, HOMA IR, or WBISI.

Conclusion

In this study no association could be demonstrated between the degree of obesity or glucose metabolism parameters in this cohort.

Presented by: Kloppenborg, Julie Tonsgaard JTK

ID: 713

No conflict of interest to declare

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HTPO.024

THE METABOLIC SYNDROME AND ECTOPIC FAT IN LIVER AND MUSCLE AMONG DANISH OBESE AND LEAN CHILDREN AND ADOLESCENTS

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Introduction

Childhood obesity is associated with development of the metabolic syndrome (MetS) and ectopic lipid accumulation in liver and muscle. We examined the relationship between the number of components of MetS and the lipid content in liver and muscle.

Methods

We evaluated the baseline characteristics of 162 obese children and adolescents (73 boys), ages 6-19 years, at enrolment in a multidisciplinary childhood obesity treatment program, and 50 age and sex matched controls (28 boys).

A MetS score was calculated based on waist/height-ratio (W/ht), blood pressure, fasting blood values of glucose, HDL cholesterol, and triglycerides. Lipid content in the liver and muscle tissue was assessed by magnetic resonance spectroscopy.

Results

The obese group had a median body mass index (BMI) standard deviation score (SDS) of 3.0 (range 2.3-4.5) and 0.2 (-1.0-1.2) in the control group. Among the obese children 32% had MetS, 40% exhibited hepatic steatosis, and 38% exhibited steatosis in their psoas muscle. In the control group 2% had MetS, none exhibited liver steatosis, and 4% exhibited muscle steatosis.

The MetS score was associated with accumulation of lipid in the muscle ($p=0.016$) but not in the liver ($p=0.08$), when adjusting for sex, height SDS, BMI SDS, and W/ht. Both BMI SDS and W/ht were associated with liver fat ($p<0.0001$ and $p=0.019$) and muscle fat ($p=0.0013$ and $p=0.0032$).

Conclusion

The MetS score is associated with accumulation of lipid in the muscle but not in the liver. BMI SDS and W/ht are better determinants of lipid accumulation in these tissues than the MetS score *per se*.

Presented by: Fonvig, Cilius CEF

ID: 714

None of the authors declare any conflict of interest.

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Presented by: Kloppenborg, Julie Tonsgaard J.T.K

ID: 716

No conflict of interest to declare

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HTPO.025

PREDIABETES IN DANISH OVERWEIGHT AND OBESE CHILDREN AND YOUTHS AT ENROLLMENT IN A MULTIDISCIPLINARY CHRONIC CARE TREATMENT

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Introduction

Background:

Childhood Obesity is a major risk factor for developing insulin resistance, which potentially leads to prediabetes and type-2 diabetes.

Aim:

To investigate the prevalence of prediabetes and describe the metabolic profile in Danish overweight and obese children and youths at enrollment in a childhood obesity treatment programme.

Methods

This retrospective study included 942 children and youths (415 boys) from The Children's Obesity Clinic. Data were collected at treatment initiation and comprised body mass index (BMI) standard deviation score (SDS), blood pressure, sex, and fasting concentrations of plasma glucose, serum insulin, glycosylated hemoglobin(HbA1c), and serum lipids. The BMI SDS was median 2.77 (range 1.40-5.76) and the age was median 11.6 (range 3.42-24.8) years. Prediabetes was classified as impaired fasting plasma glucose (IFG:BGL) ≥ 5.6 and < 6.9 mmol/L. The Mann-Whitney-Wilcoxon test was used for the analyses.

Results

Prediabetes was present in 169(90 boys) patients. Prediabetic children were older (age median 12.59 vs. 11.60 years ($p=0.0003$)), had higher BMI SDS (median 3.04 vs. 2.94 ($p= 0.007$)), increased HbA1c (median 36 vs. 34 mmol/mol ($p<0.0001$)), increased fasting serum insulin levels (median 117.0 vs. 73.6 pmol/L ($p<0.0001$)), increased HOMA-IR (median 4.50 vs 2.32 ($p< 0.0001$)), higher systolic BP z-score (median 2.12 vs. 1.56 ($p<0.0001$)) and were in a higher stage of puberty, respectively, compared to children with a fasting plasma glucose <5.6 mmol/L.

Conclusion

Prediabetes is common among overweight and obese children and youths. It seems important to identify and clinically follow-up obese children with prediabetes in order to prevent the development of diabetes.

HTPO.027

VALIDATION OF A FOOD-FREQUENCY QUESTIONNAIRE ASSESSMENT OF METHYL-GROUP DONORS USING ESTIMATED DIET RECORDS AND PLASMA BIOMARKERS: THE METHOD OF TRIADS

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Introduction

The validation of a food-frequency questionnaire (FFQ) is usually done by the comparison with a reference method, for example diet record. Biomarkers of nutritional intake might provide a more objective measure in dietary validation studies, since the errors of the biomarker are independent of those of the FFQ and reference method.

Aim

To estimate the intake of methyl-group donors (methionine, folate, betaine, and choline) in Flemish women of reproductive age (n 30) assessed by a 7-day estimated diet record (7d EDR) and FFQ and compared with plasma S-adenosylmethionine (SAM), S-adenosylhomocysteine (SAH), and SAH:SAM ratio.

Methods

Pearson correlation coefficients were calculated between each of the dietary methods and the validity coefficient was calculated using the method of triads. The 95% confidence intervals for the validity coefficients were estimated using bootstrap sampling.

Results

Correlations were higher between intake assessed by the FFQ and plasma biomarkers than between 7d EDR and plasma biomarkers. The validity coefficients of the FFQ, when using SAH as the biomarker, were high (0.86 for methionine to 0.94 for folate), when the SAH:SAM ratio was used as the biomarker the validity coefficients ranged from 0.63 to 1.00. When SAM is used as the biomarker, most of the validity coefficients could not be calculated, due to negative correlations. The validity coefficients for the FFQ were higher than those of the EDR and the biomarkers.

Conclusion

These data indicate that the FFQ is a reliable tool to estimate the intake of the methyl-group donors in women of reproductive age.

Presented by: Pauwels, Sara S

ID: 448

None

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HTPO.028

BEVERAGE CONSUMPTION AND BODY WEIGHT OF ADULTS AGED 18 TO 25 YEARS

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Introduction

Beverages may positively affect energy balance and contribute to higher risk of overweight and obesity.

Examination of beverage intake structure according to BMI among people between 18y and 25y in Poland

Methods

In the study participated 158 subjects aged 18- 25years. Mean age was 23years. 78 of participants had proper body weight (BMI 18,6 -24,9), 53 were overweight (BMI 25- 29,9) and 16 were obese (BMI >30).

Results

Mean fluid consumption was 1,77 liters per day. Subjects with obesity consumed significantly less water (452 vs. 584ml) and flavoured water (46 vs 85 ml), and more carbonated soft drinks (286 vs 223ml) comparing to subjects with normal body weight. The same relationship was found according to hot beverages with added sugar (eg. coffee, tea, and hot chocolate) consumption (744vs 759 ml), like also with alcohol intake and energy drink.

Conclusion

Obese and overweight subjects consumed higher amounts of sweetened beverages and less water and flavoured water. That kind of intake structure can impact weight gain and development of overweight and obesity.

Presented by: Jarosz, Agnieszka A.J.

ID: 685

Authors certify that there is no conflict of interest.

HTPO.029

PREVENTING WEIGHT GAIN WITH CALORIE-LABELLING

Charoula Nikolaou , Catherine Hankey , Michael Lean

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Introduction

Early adulthood is a critical period for rapid weight gain. This is especially evident in first-year University students, known as the 'Freshman 15' phenomenon. Calorie-labelling has been suggested as a way of altering food environment and thus help individuals to regulate their energy intake and prevent weight gain.

Methods

Calorie information for the evening meal components was provided at the point of choice for young adults residing in a university hall. The study was conducted over two years; first year included a calorie-labelling period of 5 weeks at the end of a 36-week period and second year included a calorie-labelling period of 30 weeks in a 36-week period. Residents' body weight was recorded at the start and end of the two 36-week periods for both years. Weight changes were then calculated.

Results

By the end of the year one, mean weight change of residents (n=64) was 3.4 (SD2.6)kg, $p < 0.001$ while in the second year that calorie-labelling was present for most of the year, there was no weight change among the residents (n=87), -0.15 (SD0.8)kg, $p = 0.535$. Young adults in year one were ten times more likely to have gained weight than those in year two (odds ratio=10.5, 95% CI=3.8-28.7, $P < 0.0001$).

Conclusion

Providing calorie information proved successful in abolishing the weight gain usually observed in young adults. This is the first evidence of the effect of calorie-labelling on body weight.

Presented by: Nikolaou, Charoula CK

ID: 702

None declared

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HTPO.030

INFLUENCES OF PHYSICAL INACTIVITY AND VITAMIN D DEFICIENCY ON CHANGES IN BODY ANTHROPOMETRIC MEASURES – A PROSPECTIVE STUDY

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Introduction

Physical inactivity leads to weight gain and development of obesity. Low body vitamin D status is also associated with high body mass index (BMI). However, it is not known if the influences of physical inactivity and vitamin D deficiency on changes in body anthropometric measures are additive.

Methods

A random sample of 2165 Norwegian adults aged 19-55 years who participated in the second and third surveys of the Nord-Trøndelag Health Study (HUNT2 (1995-97) and HUNT3 (2006-2008)) were included in the study. Physical inactivity was defined as physical activity <1 hour/week; vitamin D deficiency was serum 25(OH)D levels <50 nmol/L at HUNT2. Body weight, height and waist circumference (WC) were measured at HUNT2 and HUNT3. Multiple linear regression was applied to determine the associations of physical inactivity and vitamin D deficiency with anthropometric measures after adjustment for sex, age, smoking habit and socio-economic status.

Results

Physical inactivity and vitamin D deficiency were associated with weight change depending on BMI at baseline. In participants who had a normal BMI at baseline, those who were inactive and vitamin D-deficient had a much higher weight gain during the 11-year follow-up than those who were not physically inactive or vitamin D-deficient (difference in weight gain $\beta=1.22$ kg, $p=0.07$; difference in BMI gain $\beta=0.49$ kg/m², $p=0.04$), and the influences of physical inactivity and vitamin D deficiency tended to be additive, which was demonstrated by a non-significant interaction between two exposures. We found no such associations in those who were overweight or obese at baseline. There were no significant associations of physical inactivity and vitamin D deficiency with WC change.

Conclusion

Physical inactivity and vitamin D deficiency had an additive effect on weight gain in adults with normal weight at baseline and the effect was not observed in overweight or obese adults.

Presented by: Mai, Xiao-Mei X-M

ID: 703

No

The Research Council of Norway (project 201895/V50)

HTPO.031

Calorie-labelling in catering outlets; effect on sales and customers' acceptability

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University of Glasgow

Introduction

Calorie labelling has been suggested as a way of changing the architecture of an 'obesogenic' environment without limiting choice for customers. This study aimed to explore 1) the effects of posting calorie labels on the number of sales and 2) customers' opinions on the use of the calorie labels.

Methods

Calorie labels were posted beside sandwiches for a two-week period in two retail catering outlets of a university. A third outlet one was used as a control site. Sales data for the month before and during the calorie labelling period were collected for all three sites. Consumers' views on their use of the calorie labels along with their demographic data were sought using a questionnaire.

Results

Total sales of all the sandwiches reduced significantly ($p > 0.001$) during the labelling period in the intervention sites compared to the control site (-17% vs -2%). Sales of the high-calorie items reduced more compared to the low-calorie items (-30% vs -18%). Sales of unlabelled hot food did not change between the two periods. 1166 students and 646 staff members evaluated the calorie-labelling (97% on-line). More female students of normal Body Mass Index (BMI) ($n=384$, 61%) used the labels when choosing their meals compared to male students ($n=121$, 41%).

Conclusion

Calorie-labelling led to substantially reduced consumption of high-calorie labelled items, with a lesser reduction in lower-calorie items and no compensatory change in unlabelled alternative items. Customers valued labelling, even if not actively using them.

Presented by: Nikolaou, Charoula CK

ID: 707

None declared

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HTPO.032

RELATIONSHIP BETWEEN BODY COMPOSITION AND BONE MINERAL DENSITY OF PRE- AND POSTMENOPAUSAL POLISH WOMEN. PILOT STUDY

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Introduction

In perimenopausal period there are many significant changes in the nutritional status expressed by increased body fat content and decreased bone mineral density. The purpose of this study was to compare the body composition and bone density of pre- and postmenopausal Polish women.

Methods

The study population consisted of 71 women in the aged 25-75 years. Subjects were divided into two age groups (25-54; $n=39$; ≥ 54 ; $n=32$) according to the age of natural menopause. Body composition

and bone mineral density was evaluated by dual energy X-ray absorptiometry (DXA). Women's Health Questionnaire (WHQ) was used to assess symptom perceptions during menopause transition. Bone mineral density (BMD) and soft-tissue composition of the total body were measured with dual-energy x-ray absorptiometry (DEXA).

Results

According to BMI level, 38% of subjects (n=33) had a normal weight (18,5-24,9 kg/m²), 46,5% (n=27) were overweight (25-30 kg/m²) and 15,5% (n=11) were obese (≥30 kg/m²). T-score index >-1 was observed in 95,8% of women, while 4,2% (n=3) had lower results (-1 to -2,5) which confirmed osteopenia. Statistical analysis indicated the significant differences (p<0,05) between pre- and postmenopausal women in percentage of fat mass (FM%), total bone mass (TBM), T-score and WHQ results. Age was correlated with FM% and negatively with TBM and T-score (p<0,05), while TBM and T-score correlated positively with weight (p<0,05). WHQ results were positively correlated with T-score (p<0,05).

Conclusion

The study confirmed more unfavorable symptoms and lower bone density of postmenopausal Polish women compare to premenopausal. Simultaneously it indicated higher bone density among obese women compared to subjects with normal weight.

Presented by: Czlapka-Matyasik, Magdalena M.C-M.

ID: 722

none

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HTPO.033

BIOETHICS AND THE OBESITY – INTEGRATIVE THERAPEUTICAL APPROACH

Adorata Coman , Gabriela Traian , Elena Popa

Introduction

Ethics is the science of morality. Define "ethics" is a complex issue in view of pluralism in which we live, the multitude of views and the variety of moral norms, legal, cultural and social concept that includes them.

Methods

Bioethics should act both at individual and population level, in order to avoid social isolation. Such educational programs would target not only weight decrease, but also the reintegration into the society, decisive moral support in the initialization and success of treatment.

Results

Changing the behavior seems to be the most effective therapeutic tool because it gives long term results, targeting:

- the identification of behavioral obesity factors;
- the changing the way of life, reducing or even eliminating of the conditions that generated weight gain.

Obese patient is a patient with a fragile moral condition. Obesity is not always the result of an uncurbed pleasure, but more commonly a disease, which in turn generates other diseases. The contribution of the discussion with the patient to make him understand the extent of the problem can be over 50% of successful treatment. Efficiency increases when behavioral therapy is applied to the whole family. Patient awareness is important for their food behavior.

Conclusion

Nutritional behavior has a constitutional-genetic component and an environment– psycho-social one.

Satiety regulation neuroendocrine system connects the central nervous system to digestive tract.

The obesity treatment endorses the nutrition behavior too and the therapeutical approach is holistical, from this point of view.

Presented by: COMAN, ADORATA E

ID: 635

NONE

NONE

HTPO.034

ANALYSIS ABOUT CORRELATION BETWEEN SAGITTAL ABDOMIANL DIAMETER AND CORONARY ARTERY STENOSIS IN ASYMPTOMATIC PATIENTS

CHO

The Korean Academy of Family Medicine

Introduction Today, screening for coronary heart disease is difficult, because it is invasive, expensive, or dangerous due to its complications. We studied to determine the usefulness of sagittal abdominal

diameter, which can be measured easily in doctor's office, for screening of coronary heart disease by comparing with coronary artery stenosis on 128-slice MDCT

Methods

This is a cross-sectional study by 403 patients who visited a Health Promotion Center of national university of Busan from 1 January, 2009 to 1 September 2010 and are scanned by MDCT. Coronary artery stenosis group is consisted of 107 patients, no stenosis group is consisted of 296 patients. We determined correlation of sagittal abdominal diameter and whether coronary artery stenosis on MDCT is present or not.

Results Significant differences in sagittal abdominal diameter were found between coronary artery stenosis group and no stenosis group but after adjustment for age and sex, there was no more statistical signification. High BP, another risk factor of coronary heart disease, had significant relation with coronary artery stenosis on MDCT after adjustment for age and sex but there was no statistical signification for patients who had 50% or more coronary artery stenosis on MDCT.

Conclusion Our study shows that there is no association between sagittal abdominal diameter and coronary artery stenosis on MDCT.

Presented by: CHO, A.R.

ID: 678

HTPO.035

DECAFFEINATED GREEN COFFEE BEAN EXTRACT ATTENUATES DIET-INDUCED OBESITY AND INSULIN RESISTANCE IN MICE

SU JIN SONG , SENA CHOI , TAESUN PARK

YONSEI UNIVERSITY

Introduction

Coffee, one of the most widely consumed beverages in the world, has recently received scientific attention for its health benefits against obesity and metabolic disorders. In this study, we investigated

whether decaffeinated green coffee bean extract prevents high-fat diet (HFD)-induced adipogenesis and insulin resistance in the visceral adipose tissue of mice and to explore its mechanism of action.

Methods

Male C57BL/6N mice (N=48) were divided into six different dietary groups (n=8 each group): a chow diet, a HFD, a HFD-supplemented with 0.1%, 0.3%, and 0.9% decaffeinated green coffee bean extract, and a HFD-supplemented with 0.15% 5-caffeoylquinic acids (CQA).

Results

0.3% green coffee bean extract was the minimum effective dose which attenuated HFD-induced increments in body weight gain and plasma levels of lipids, glucose, insulin, and pro-inflammatory cytokines when compared with the HFD. Mice fed 0.15% 5-CQA exhibited similar effects against obesity and insulin resistance as those fed 0.3% green coffee bean extract, which is estimated to contain 0.05% 5-CQA. Based on our results, we suggest that polyphenols other than 5-CQA contained in green coffee bean extract may also exert additive effects against obesity and insulin resistance. In addition, green coffee bean extract resulted in down-regulation of genes involved in WNT10b- and galanin-mediated adipogenesis and TLR4-mediated pro-inflammatory pathway in white adipose tissue. It also increased phosphorylation of insulin-signaling molecules and stimulated GLUT4 translocation to the plasma membrane in white adipose tissue.

Conclusion

Decaffeinated green coffee bean extract significantly decreased visceral fat-pad accumulation and improved insulin resistance by down-regulating the genes involved in adipogenesis and inflammation in visceral adipose tissue of mice fed the HFD.

Presented by: SONG, SU JIN S.J.S.

ID: 692

None disclosed.

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HTPO.036

OLIVE LEAF EXTRACT ATTENUATES OBESITY IN HIGH-FAT DIET-FED MICE BY MODULATING THE EXPRESSION OF MOLECULES INVOLVED IN ADIPOGENESIS AND THERMOGENESIS

YING SHEN , SU JIN SONG , NARAE KEUM , TAESUN PARK

YONSEI UNIVERSITY

Introduction

Olive (*Olea europaea*) leaf has been widely used in traditional remedies as well as in human diet in the European and Mediterranean countries. Olive leaf extract (OLE) is marketed as a natural nutraceutical with wide-ranging health benefits. This study was to investigate the weight-reducing effect of a well-defined OLE by supplementation in HFD-induced mice and to investigate the underlying mechanisms of this effect, with a particular focus on the expression of molecules involved in adipogenesis and thermogenesis.

Methods

Male C57BL/6N mice were divided into the following 4 groups matched for body weight (n = 8 in each group): the chow diet (CD), high-fat diet (HFD), 0.15% (w/w) OLE-supplemented diet (OLD), and 0.01% (w/w) sibutramine-supplemented diet (SD) group.

Results

After 8 weeks of feeding, OLD-fed mice showed significantly reduced body weight gain, visceral fat-pad weights, and plasma lipid levels as compared with HFD-fed mice. OLE significantly reversed the HFD-induced upregulation of WNT10b- and galanin-mediated signaling molecules and key adipogenic genes (PPAR γ , C/EBP α , CD36, FAS, and leptin) in the epididymal adipose tissue of HFD-fed mice. Furthermore, the HFD-induced downregulation of thermogenic genes involved in uncoupled respiration (SIRT1, PGC1 α , and UCP1) and mitochondrial biogenesis (TFAM, NRF-1, and COX2) was also significantly reversed by OLE.

Conclusion

OLE exerts beneficial effects against obesity by regulating the expression of genes involved in adipogenesis and thermogenesis in the visceral adipose tissue of HFD-fed mice.

Presented by: SHEN, YING Y.S.

ID: 693

None Disclosed.

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HTPO.037

THE EFFECT OF BODY MASS REDUCTION ON LIPID CONCENTRATION FOR PEOPLE WITH FH

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Introduction

Familial hypercholesterolemia (FH) leads to premature cardio-vascular complications. People with FH require pharmacological treatment. A diet is treated as a secondary treatment.

Objective: assessment of lipid concentration for people with FH with LDLR gene mutation after body mass reduction.

Methods

10 people, aged 40 – 50 with BMI 28,4(± 1,4) and the LDLR gene mutation took part in the study. 14 day menus were prepared with a 1200 kcal. Before and after the dietary intervention a 3 day interview was carried out assessing how closely the diet's rules had been followed. Blood was taken twice before and after utilising the diet to assess the lipid concentration. The nutritional intervention went on for 6 weeks.

Results

The product consumption assessment determined after 6 weeks: increase in the consumption of vegetables, fruits and grain products and increase in the amount of fish consumed and reduction of meat. Body mass had been reduced for all participants. The average mass reduction was 4 kg. The greatest mass reduction was 5 kg, the least 3kg. The average BMI was 26,1. The average cholesterol concentration before intervention was 364 mg/dl. The lowest concentration was 268, the highest 435. After 6 weeks of the intervention the average concentration was 300 mg/dl. The highest concentration was 400, the lowest 248.

Conclusion

Body mass reduction for patients with FH and obesity/overweight have a role in the improvement of total cholesterol concentration.

Presented by: Jarosz, A.J.

ID: 694

Authors declare no conflict of interest

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HTPO.038

KIDNEY INJURY MOLECULE (KIM)-1 AND OSTEOPONTIN (OPN): LINKAGE BETWEEN RENAL SINUS FAT AND CHRONIC KIDNEY DISEASE

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Introduction

Chronic kidney disease (CKD) is associated with cardiovascular disease and increased mortality in addition to diabetes, hypertension, smoking, and obesity. As an increase in body weight is directly associated with an increased risk for developing CKD, there is significant interest in the link between obesity and renal dysfunction. We hypothesised that renal sinus (RS) fat volume may be associated with increased level of OPN and KIM-1.

Methods

The study included 100 subjects (55/45 F/M; age of 38.8±4.3). CT images were captured and RS fat accumulation was measured using the 3D-Doctor software. Volumetric RS fat was measured separately within the right and left kidneys and averaged to produce a single value. Retroperitoneal (RP) fat volume was measured starting at the upper edge of the left kidney and continuing until the lower edge of the right kidney. We defined RP fat using anatomical boundaries. OPN and KIM-1 serum levels were measured by Luminex xMAP technology.

Results

RS fat averaged 5.1±2.2cm³ (range 0.0-18.9cm³; median and interquartile range of 5.7 and 2.8-7.9cm³) and RP fat averaged 45.2±23.5cm³ (range 20.1-88.2cm³, median and interquartile range of 49.5cm³ and 35-78cm³). RS fat volume correlated with RP fat volume (r=0.32, p<0.05). Increased level of serum OPN and KIM-1 were significantly associated with RS fat volume gain (p<0.01). The correlation of RP fat volume with OPN and KIM-1 did not reach statistical significance (p=0.19).

Conclusion

These results suggest that serum KIM-1 and OPN may play a key role in linking obesity (RS fat increase) to the development of CKD.

Presented by: Krievina, G.

ID: 720

None Disclosed

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HTPO.039

THE LINK BETWEEN OBESITY, DIET DIVERSIFICATION AND CARBOHYDRATE METABOLISM DISORDER PREVALENCE - BIOACTIVE FOOD PROJECT

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Introduction

Obesity, excess body fat and high body circumferences can lead to carbohydrate metabolism disorders. Human health is strongly associated with diet and its greater diversification can prevent diet related diseases. The aim of this study was to determine if too high anthropometric indicators can lead to carbohydrate metabolism disorder including Food Intake Variety Index (FIVel).

Methods

The study group consisted of 67 patients in average age of 43 years with average body mass index (BMI) of 36,7 km/m². The body mass, anthropometric indicators, body composition were measured and blood biochemical parameters were determined. The diet diversification was estimated using validated Food Intake Variety Questionnaire (FIVeQ)) and expressed by the FIVel which was calculated on the basis of number of food groups consumed per week (max 63) in amounts greater than trace.

Results

Study showed that 39% of population had too high blood fasting glucose level ($p < 0,05$) and 13% had too high glucose level in 120 minute of Oral Glucose Tolerance Test using 75 g glucose ($p < 0,001$). Almost half of the population with risky body fat level was associated with too high blood glucose level. Subjects with correct fasting glucose level were characterized by higher level of fruits and vegetables. Patients with correct glucose levels in OGTT had higher FIVel.

Conclusion

Diet diversification and greater consumption of fruits and vegetables, which are the sources of bioactive food compounds, such as glucosinolates, alkaloids, anthocyanins, phenolic acids showed the tendency to blood glucose stabilization.

Presented by: Mierkiewicz, Joanna J.M.

ID: 723

none

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HTPO.040

EXCESS BODY MASS AND LITTLE DIET DIVERSIFICATION LEAD TO IMPAIRED LIPID METABOLISM - BIOACTIVE FOOD PROJECT

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Introduction

Diet diversification and high consumption of unprocessed food rich in vitamins, minerals, fiber and bioactive compounds can prevent us from dyslipidemia, atherosclerosis or hypertension, which are related to obesity. The aim of this study was to determine if high anthropometric indicators lead to lipid metabolism disorder including Food Intake Variety Index (FIVel).

Methods

The study group consisted of 67 patients in average age of 43 years and mean body mass index (BMI) of 36,7 km/m². The body mass, anthropometric indicators, body composition were measured and blood biochemical parameters were determined. The diet diversification was estimated using validated Food Intake Variety Questionnaire (FIVeQ) and expressed by the FIVel, which was calculated on the basis of number of food groups consumed per week (max 63) in amounts greater than trace.

Results

Study showed that 1/2 of population had too high blood cholesterol level ($p < 0,05$) and LDL cholesterol level ($p < 0,001$). FIVeQ analysis showed that near 2/3 of subjects with too high LDL-cholesterol level was characterized by higher sweets and salty snacks intake and 46% by higher dairy products consumption. About 87% of subjects with correct HDL-cholesterol levels had satisfactory and good diet diversification which is mainly associated with higher fruits, vegetables, dairy and non-alcoholic beverages intake.

Conclusion

The results showed that more varied diet, rich in essential nutrients especially such as phenolic acids, anthocyanins, vitamin C can help to normalize HDL-cholesterol level.

Presented by: Mierkiewicz, Joanna J.M.

ID: 724

none

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HT.PO.041

COMPARISON OF A VERY LOW-CALORIE-KETOGENIC DIET WITH A STANDARD LOW-CALORIE DIET IN THE TREATMENT OF OBESITY

Felipe F. Casanueva, Basilio Moreno, Diego Bellido, Ignacio Sajoux, Albert Goday, Dolores Saavedra, Ana B. Crujeiras

Introduction: The global prevalence of obesity has significantly increased in most industrialized countries. Anti-obesity drugs are scarce, and indications to change their life style are impractical.

Therefore, to identify diets able to produce significantly and maintained weight loss is mandatory. The present work evaluated the efficacy of a very low-calorie-ketogenic (VLCK) diet in obesity.

Methods: A group of obese patients were randomized into two groups: the VLCK diet group and a standard low-calorie diet (LC group). The follow-up period was 12 months. Both groups received external support, counseling, to perform physical activity and adhered to the diet.

Results: The VLCK diet induced a 30-45 days of mild ketosis and significant effects on body weight within 15 days. At 2 months, the weight reductions in the VLCK diet and LC diet groups were 13.6 ± 3.9 and 4.8 ± 2.7 kg, respectively ($p < 0.0001$). At 12 months, the weight reductions were 19.9 ± 12.3 and 7.0 ± 5.6 kg, respectively ($p < 0.0001$), and more than 88 % of patients in the VLCK diet group lost more of 10 % of their initial weight.

Conclusions: The VLCK diet was well tolerated and the side effects were moderate and transitory. In a group of obese patients, the VLCK diet was significantly more effective than a standard LC diet. At one year follow-up in the group with VLCK diet, most of the patients loss more than 10 % of their initial weight and lean mass was well preserved.

HTPO.042

THE EVALUATION OF NUTRITIONAL AND PHYSICAL ACTIVITY STATUS IN LEAN WOMEN WITH POLYCYSTIC OVARY SYNDROME

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Introduction

Lifestyle modification of diet and exercise has been established as the preferred method to treat polycystic ovary syndrome (PCOS) and to prevent possible complications of chronic diseases. This research was conducted to determine the nutritional and physical activity status of new diagnosed, non-obese and young patients with polycystic ovary syndrome (PCOS), and to compare them with healthy control.

Methods

We conducted a case-control study in a university practice. Eighteen lean PCOS patients and 18 healthy control women matched for age and body mass index. General characteristics, anthropometric measurements, 3 day consecutive food-record, exercise status and biochemical findings were recorded. Body weight, height, waist and hip circles, skinfold thickness, upper mid arm circumference and waist-to-height ratio (WHtR) were measured. Daily total energy and nutrient intake were analyzed by BEBIS program (Nutrition Data Base Software).

Results

Vegetable protein intake was found significantly different in PCOS group versus control group. Both groups had equivalent results in all anthropometric measurements ($p > 0.05$). Energy and other nutrient intake were identical as well ($p > 0.05$). PCOS group had more attention in consuming vegetable protein. PCOS and control group consumed 31.24 ± 9.80 g and 26.25 ± 7.12 g vegetable protein, respectively ($p = 0.05$). Total energy intake, animal protein intake, total fat, carbohydrate, cholesterol and other micronutrient intake were identical in both groups ($p > 0.05$). Physical activity status were identical in both groups ($p = 0.357$). Aerobic and fitness were main types of exercise. Weekly activity were changing between 30 and 300 minutes in both groups ($p = 0.357$).

Conclusion

Lean PCOS patients were not different from healthy control, except for a higher vegetable protein consumption response. PCOS patients should be educated about healthy body weights and consuming enough nutrients and the right types of foods. It is necessary for dietitians to intensify their efforts to provide nutritional information to PCOS patients.

Presented by: Arusoglu, Gulcan G.A.

ID: 663

Nutrition and Dietetics

Yes I need urgent