



May 6-9 2015
Prague, Czech Republic

LAST MINUTE POSTERS

T1- Integrative physiology and organ cross-talk

Organ cross-talk

Abstract record ID: 911

LMPO.001

MATERNAL OBESITY IMPAIR CHOLINERGIC ANTI-INFLAMMATORY PATHWAY IN MICE: A POSSIBLE ASSOCIATION TO METABOLIC DISORDERS

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Introduction: The acetylcholine binds to $\alpha 7$ nAChR and reduce cytokines production through cholinergic anti-inflammatory pathway (CAP). The obesity has been associated to inflammatory cytokines and reduced nicotinic acetylcholine receptor ($\alpha 7$ nAChR) expression in white adipose tissue (WAT). Maternal obesity predisposes to obesity in the adulthood. We aimed to evaluate CAP in mice of obese dams.

Methods: Liver and WAT fragments were extracted from male offspring mice (Swiss) (28 days old-d28) from dams fed either control diet (SC-O) or high fat diet (HFD-O). Expression and phosphorylation of $\alpha 7$ nAChR, JAK2/STAT3, and M1/M2 polarization of peritoneal macrophages (PM) were evaluated using qRT-PCR, estern blot, and immunofluorescence. Serum cytokine was evaluated by ELISA method.

Results: HFD-O mice presented higher body weight, WAT mass, blood leptin and TNF α level, and p-JNK1 in liver and WAT than SC-O mice. In addition HFD-O showed reduced expression of M2 markers (Chil3, IL-10, and ARG-1) compared to SC-O mice. $\alpha 7$ nAChR expression, p-JAK2 and p-STAT3 were reduced in liver and WAT of HFD-O compared to SC-O mice. In SC-O mice $\alpha 7$ nAChR protein was observed in both, macrophages (F4/80) and cells that did not express F4/80 protein, likely adipocytes and hepatocytes. However, the $\alpha 7$ nAChR expression was not detected adipocytes of HFD-O mice. HFD-O mice showed reduced activation of CAP after challenger with either LPS (IP) or nicotine (ICV) compared to SC-O.

Conclusion: HFD-O mice presented early inflammatory pathway activation and obesity, and reduced sensitivity of CAP compared to SC-O mice. Impair in CAP can predispose to exacerbated inflammation and metabolic disorders in response to invaders and TLR4 activation.

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Lipid Metabolism

Abstract record ID: 881

LMPO.002**miR33a/b AND miR122 HEPATIC EXPRESSION IN OBESE PATIENTS WITH NON-ALCOHOLIC FATTY LIVER DISEASE**

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Introduction: Recent reports have indicated that miR-33a, miR-33b and miR-122 regulate lipid metabolism in concert with their host genes. Since lipid accumulation in the human liver seems to be a crucial mechanism in the pathogenesis and the progression of non-alcoholic fatty liver disease (NAFLD), we aimed to determine the differential expression of miR-33a/b and miR-122 in liver of patients with different degree of obesity and NAFLD.

Methods: Liver expression of miR-33a/b and miR-122 were assessed by RT-qPCR in 60 morbidly obese (MO) women with normal liver histology (NL, n=20), simple steatosis (SS, n=20) and non-alcoholic steatohepatitis (NASH, n=20); 21 mild obese women with NL (n=6), SS (n=7) and NASH (n=8) histology, as well as in 6 normal weight healthy women.

Results: Hepatic miR-33b expression was significantly higher in MO compared with both normal weight (p=0.044) and mild obesity (p=0.004). However, hepatic miR-122 expression was downregulated in MO compared to mild obesity (p=0.025). When we classified the cohort by liver histology, we observed that miR-33b expression was significantly higher in MO women with NASH (p<0.001) and SS (p=0.014) respect to those with NL histology, while miR-122 expression was significantly lower in mild obese women with NASH compared to those with NL histology (p=0.043).

Conclusion: miR-122 seems to be downregulated in MO and its expression diminishes with the presence of NASH in mild obesity. On contrary, miR-33b seems to be upregulated in MO and its expression is higher with the presence of SS and NASH. Further studies are needed to demonstrate whether differential expression of miR-33a/b and miR-122 contributes to altered lipid metabolism implicated in the pathogenesis of NAFLD.

Acknowledgement: This study was supported by the Ministerio de Ciencia e Innovación of the government of Spain (SAF 2008-02278), the Fondo de Investigación Sanitaria (PI13/0468), by funds from Agència de Gestió d'Ajuts Universitaris de Recerca (AGAUR 2009 SGR 959), Grup de Recerca en Medicina Aplicada URV (2010PFR-URV-B2-14) and by the Fundació Biociència

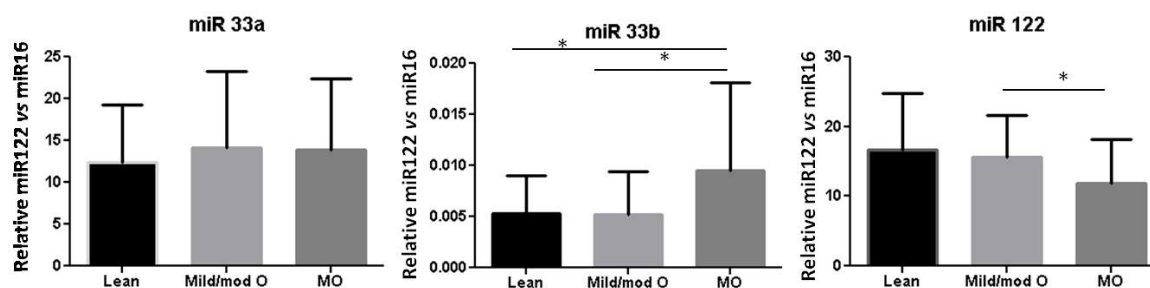


Fig. 1: miR33a/b and miR 122 hepatic expression in lean, mild and morbid obesity group. MO, morbid obesity. ANOVA test was used to compare the miRNA expression in the different groups. *Indicates significance differences at p<0.05.

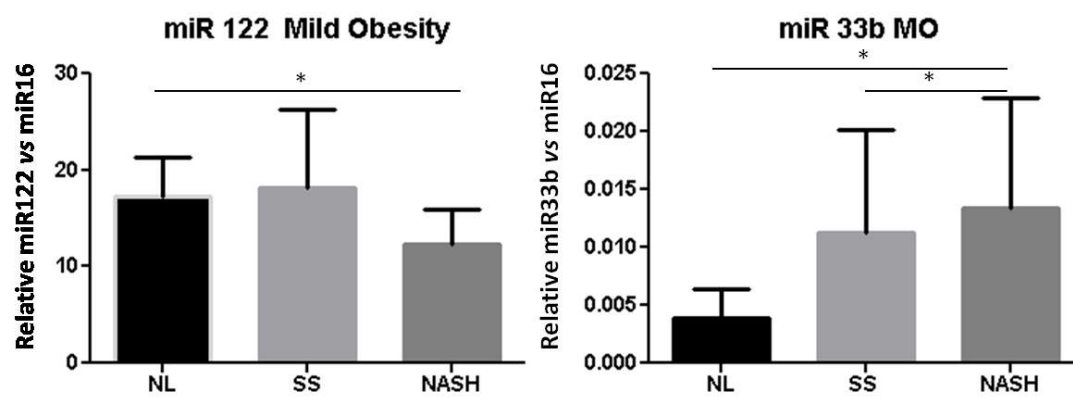


Fig. 2: miR 122 and miR33b hepatic expression in mild and morbid obesity group, respectively. NL, normal liver; SS, simple steatosis; NASH, steatohepatitis; MO, morbid obesity. ANOVA test was used to compare the miRNA expression in the different groups. *Indicates significance differences at $p < 0.05$.

Lipid Metabolism

Abstract record ID: 894

LMPO.003**MATERNAL OBESITY DURING GESTATION AND LACTATION CAN INDEPENDENTLY ALTER HEPATIC LIPID HOMEOSTASIS AND PROGRAM OFFSPRING TO A DELETERIOUS RESPONSE TO A HIGH-FAT DIET EXPOSURE IN LATER LIFE**

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Introduction: Overnutrition during gestation and lactation plays a critical role in metabolic phenotype of offspring and is associated with insulin resistance and NAFLD. However the contribution of the pre- or post-natal period to the metabolic programming of lipid homeostasis in the liver is still controversial.

Methods: At d0, newborn pups of obese Swiss mice (H) and control (C) were evaluated. Some pups were randomly assigned to two conditions: unfostered [pups fostered by their own dams (HH and CC)] and crossfostered [pups C fostered by H dams (CH) or H fostered by C dams (HC)] and after one week (d28) were evaluated. Some pups unfostered remained in a control diet until day 42 and part of them were re-exposed to HFD (HH-HF and CC-HF) until adult life (d82). We used RT-PCR to evaluate miR-122 and Cpt1a, Acadvl, Agpat and Gpam expression and immunoblot to analyze proteins in liver fragment.

Results: At d0, H showed higher fasting glucose, decreased Cpt1a/Acadvl (38.5/5.6-fold), increased Agpat/Gpam (1.3/1.9-fold) and decreased miR-122 hepatic expression (50%), compared to C. At d28, crossfostered HC presented increased body weight, CHOL levels and Agpat/Gpam (1.4/1.2-fold) expression in liver compared to CH. At d82, HFD re-exposure in HH-HF resulted in higher weight gain, caloric intake, CHOL and TAG levels, fasting glucose and hepatic lipid content, besides increased Agpat/Gpam (3.5/2.6-fold) and decreased Cpt1a (1.5-fold) hepatic expression, compared to CC-HF. Conclusion: Gestational overnutrition results in increased triglycerides synthesis from birth to weaning and this scenario seems to be related to miR-122 decrease. Moreover maternal obesity leads to a harmful response of offspring to HFD in adulthood.

Lipid Metabolism

Abstract record ID: 926

LMPO.004**ADIPOCYTES 3D CULTURE IN BIOMIMESYS® A HYALURONIC ACID HYDROGEL SCAFFOLD**Vidal G.¹, Louis F.¹, Souguir Z.¹, Le Cerf D.³, Vannier J.², Deveaux A.¹, Demange E.¹¹ CELENYS, 75 route de Lyons-la-forêt 76000 Rouen France, ² Université de Rouen, Lab. MERCI EA3829 76183 Rouen cedex France, ³ Université de Rouen, Lab. PBS UMR 6270 CNRS, 76821 Mont Saint Aignan FranceEmail of the presenting author: guillaume.vidal@celenys.com

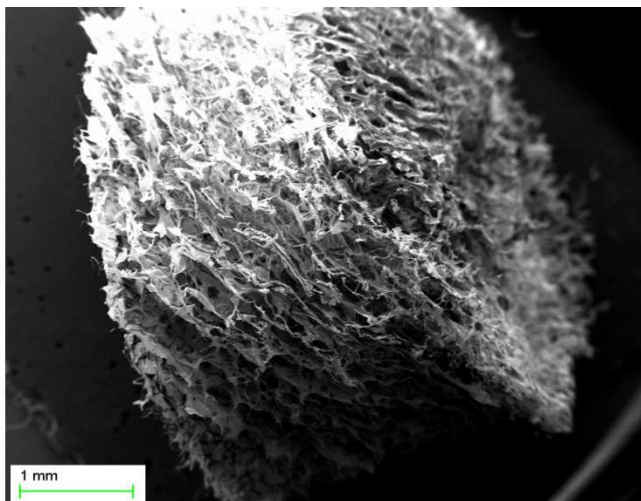
Provide more predictive tools for drug screening, cell-based assay and personalized medicine.

Methods: Hyaluronic acid chains crosslinked with ADH were used to synthesize porous 3D scaffold. Mouse 3T3-L1 and human white preadipocytes (HWP) were cultured in Biomimesys® and analyzed for differentiation. 3T3-L1 and HWP were evaluated and characterized with light and scanning electron microscopy (SEM), Immunofluorescence (IF), Oil Red and AdipoRed staining and gene expression on the mRNA level.

Results: The aim was to engineer and characterize 3D adipocytes culture in vitro exhibiting unilocular cells. Differentiated adipocytes accumulate lipid in 3D using Biomimesys®. After 8 days of nutrition, both undifferentiated (unstained by oil red) and differentiated cells were observed in 2D cell culture while nearly 100% of adipocytes cultured in 3D using Biomimesys® were stained for red oil and AdipoRed, attesting complete differentiation of adipocytes, supported by perilipin positive staining. Furthermore the morphology of HWP multicellular spheroids grown in Biomimesys® closely mimicks the structure of in vivo white adipose tissue (WAT) and were maintained in cultured for more than 7 weeks.

Treatment of HWP multicellular spheroids grown in Biomimesys® with caffeine lead to changes in mitochondrial $\Delta\Psi_m$ and cell redox status, thus confirming the lack of any detrimental effect of Biomimesys® on cell accessibility for anyscreened molecules.

Conclusion: These results highlight the use of Biomimesys® to grow 3D adipocytes as a relevant model for metabolism studies and molecules screening.

**Figure1: SEM image of dried Biomimesys®****Fig. 1:** SEM image of dried Biomimesys®

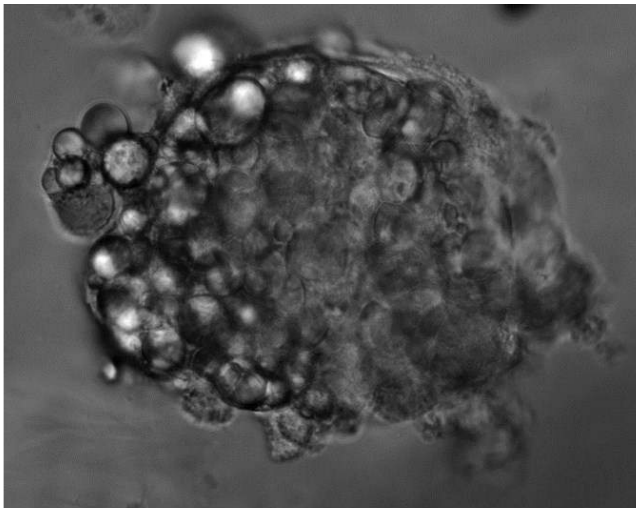


Figure2: bright field microscopy image of HWP grown in Biomimesys® for 8 days.

Fig. 2: bright field microscopy image of HWP grown in Biomimesys® for 8 days.

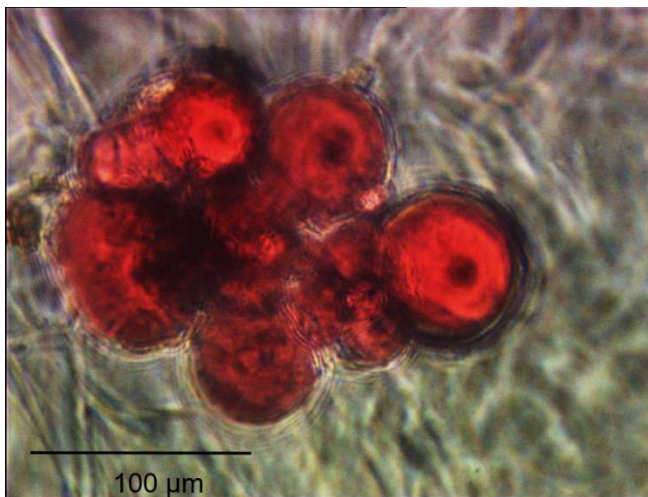


Figure3: oil red staining of HWP grown for 6 weeks in Biomimesys®

Fig. 3: oil red staining of HWP grown for 6 weeks in Biomimesys®

T2- Adipose Tissue Biology

Lipid Metabolism

Abstract record ID: 880

LMPO.005

DOWNREGULATION OF DE NOVO LIPOGENESIS AND FATTY ACID OXIDATION IN SUBCUTANEOUS ADIPOSE TISSUE OF MODERATE OBESE WOMEN

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Introduction: In a previous study, we found that *de novo* lipogenesis and fatty acid (FA) oxidation were downregulated in subcutaneous adipose tissue (SAT) of morbidly obese women (1). These results suggest that, in this type of extreme obesity, SAT works to limit a further development of fat mass, decreasing the expression of lipogenic and FA oxidative genes. The aim of this study was to extrapolate the results in moderate obese women.

Methods: We analysed SAT and visceral adipose tissue (VAT) mRNA expression of genes related to *de novo* synthesis of FAs (ACC1, FAS) and FA oxidation (PPAR α , PPAR δ), in normal weight control (BMI<25 Kg/m², n=35) and in moderate women (BMI 28-39 kg/m², n=70) by RT-PCR.

Results: In SAT, the mRNA expression of the main enzymes involved in lipogenesis and PPAR α were significantly lower in moderate women than those of control group (ACC1, C: 0.038 \pm 0.020, moderate: 0.023 \pm 0.010, p=0.002; FAS, C: 0.050 \pm 0.037, moderate: 0.021 \pm 0.014, p<0.001; PPAR α , C: 0.009 \pm 0.004, moderate: 0.007 \pm 0.002, p=0.017) (Figure 1). In VAT, most of the genes studied showed similar expression levels between both groups, only PPAR δ was significantly higher in moderate than in control cohort (PPAR δ , C: 0.007 \pm 0.004, moderate: 0.012 \pm .003, p=0.002) (Figure 2).

Conclusion: Our results indicate that, in moderate obese patients, lipogenesis and fatty acid oxidation are downregulated in SAT, whereas in VAT these pathways are almost unchanged. It is hypothesized that SAT might have a protective role in moderate obese patients due to the fact that limits a further development of fat mass.

1. Auguet T, Guiu-Jurado E, Berlanga et al. Downregulation of lipogenesis and fatty acid oxidation in the subcutaneous adipose tissue of morbidly obese women. *Obesity* 2014; 22:2032-8.

Acknowledgement: This study was supported by the Ministerio de Ciencia e Innovación of the government of Spain (SAF 2008-02278), the Fondo de Investigación Sanitaria (PI13/0468), by funds from Agència de Gestió d'Ajuts Universitaris de Recerca (AGAUR 2009 SGR 959), Grup de Recerca en Medicina Aplicada URV (2010PFR-URV-B2-14) and by the Fundació Biociència.

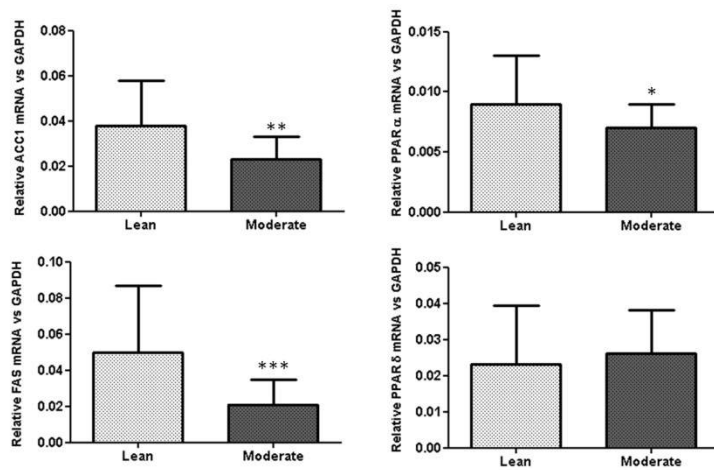


Fig. 1: Subcutaneous adipose tissue expression of genes related to de novo fatty acid synthesis and fatty acid oxidation in lean (n=35) and moderate obese women (n=70).*** indicates statistical significance at $p < 0.001$, ** at $p < 0.01$ and * at $p < 0.05$. The data are means \pm SD.

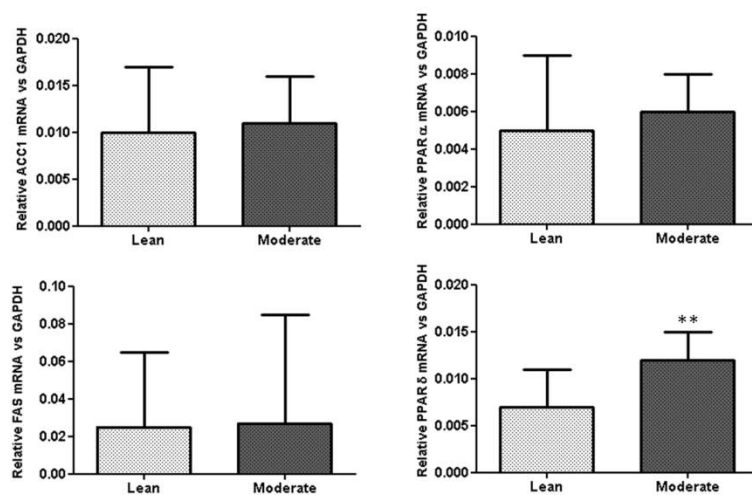


Fig. 2: Visceral adipose tissue expression of genes related to de novo fatty acid synthesis and fatty acid oxidation in lean (n=35) and moderate obese women (n=70).** indicates statistical significance at $p < 0.01$. The data are means \pm SD.

Lipid Metabolism

Abstract record ID: 900

LMPO.006**ANTI-INFLAMMATORY EFFECTS OF TRANSCELLULAR EPA AND DHA METABOLITES IN PREDIABETES**Polus A.¹, Razny U.¹, Sliwa A.¹, Chojnacka M.¹, Gielicz A.², Zapala B.¹, Sanak M.², Calder F.³, Dembinska-Kiec A.¹*¹Department of Clinical Biochemistry Jagiellonian University Medical College, Krakow, Poland, ²Department of Molecular Biology and Clinical Genetics Laboratory, Jagiellonian University Medical College, Krakow, Poland., ³Human Development and Health Academic Unit, Faculty of Medicine, University of Southampton, Southampton, United Kingdom*Email of the presenting author: barbara.zapala@uj.edu.pl

It was postulated that ω -3 polyunsaturated fatty acid (PUFA):EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) have inhibitory effects on low-grade inflammation associated with obesity and prediabetes. The ω -3 PUFAs inhibit synthesis of pro-inflammatory arachidonic acid derivatives, the expression of inflammatory cytokines and endothelial adhesion proteins. Relationship between therapeutic response and modifications of transcriptome expression in obesity or metabolic syndrome remains open for further exploration.

The aim was analysis of the changes in gene expression of whole blood RNA and the associated changes in metabolic pathways following ω -3 PUFA supplementation. Blood of women with obesity was sampled before and after three-month supplementation with low doses of ω -3 PUFA (3x600mg/day DHA:EPA) (5:1)). The erythrocyte ω -3 PUFA concentration and plasma lipoxins A4, A5, resolvins D1, D2, protectin X were measured (LC-MS/MS) and correlated with the inflammatory markers (sE-Selectin, s-VCAM-1, sPECAM-1, hsCRP, IL-6, MCP-1) determined using ELISA kits. In parallel the significant changes of gene expression was estimated using microarray.

Obese women responded to ω -3 PUFA enriched diet with decrease of pro-inflammatory markers and increase of anti-inflammatory DHA-derived eicosanoids. The microarray data indicated ω -3 PUFA activation of the NRF2 and PPAR-alpha target genes related to beta-oxidation pathway, phospholipid synthesis, mitochondria electron transport chain proteins and antioxidant enzymes. The decrease of an expression inflammatory cytokines – (NFkB-target genes) was also found.

The ω -3 PUFA-derived eicosanoids may regulate early inflammation by PPAR-alpha activation, inhibition of NFkB-controlled transcription of pro-inflammatory cytokines and by activation NRF2 signalling resulting in the up-regulation of antioxidant enzymes. Thus the low-grade inflammation in obesity can be inhibited the transcellular ω -3 PUFA metabolites.

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White, beige and brown Adipocytes

Abstract record ID: 903

LMPO.007**SELECTION OF APTAMERS FOR MATURE WHITE ADIPOCYTES BY CELL SELEX USING FLOW CYTOMETRY**Han B. S.¹, Min J. K.¹, Kim W. K.¹¹Functional Genomics Research Center, KRIBBEmail of the presenting author: wkkim@kribb.re.kr

Adipose tissue, mainly composed of adipocytes, plays an important role in metabolism by regulating energy homeostasis. Obesity is primarily caused by an abundance of adipose tissue. Therefore, specific targeting of adipose tissue is critical during the treatment of obesity, and plays a major role in overcoming it. However, the knowledge of cell-surface markers specific to adipocytes is limited. We applied the CELL SELEX (Systematic Evolution of Ligands by EXponential enrichment) method using flow cytometry to isolate molecular probes for specific recognition of adipocytes. The aptamer library, a mixture of FITC-tagged single-stranded random DNAs, is used as a source for acquiring molecular probes. With the increasing number of selection cycles, there was a steady increase in the fluorescence intensity toward mature adipocytes. Through 12 rounds of SELEX, enriched aptamers showing specific recognition toward mature 3T3-L1 adipocyte cells were isolated. Among these, two aptamers (MA-33 and 91) were able to selectively bind to mature adipocytes with an equilibrium dissociation constant (K_d) in the nanomolar range. These aptamers did not bind to preadipocytes or other cell lines (such as HeLa, HEK-293, or C2C12 cells). Additionally, it was confirmed that MA-33 and 91 can distinguish between mature primary white and primary brown adipocytes. These selected aptamers have the potential to be applied as markers for detecting mature white adipocytes and monitoring adipogenesis, and could emerge as an important tool in the treatment of obesity.

Acknowledgement: This work was supported by grants from the Korea Research Institute of Bioscience and Biotechnology (KRIBB) and from the Research Program (grants 2012M3A9C7050101, 2013M3A9A7046301, 2011-0020507, and Global Frontier R&D Program) through the National Research Foundation of Korea.

T3 - Nutrition, Behavior and Lifestyle

Nutrients and diet patterns

Abstract record ID: 878

LMPO.008

CHANGES OF VITAMINS AND MINERALS'INTAKE AFTER A NUTRITIONAL INTERVENTION TO OVERWEIGHT AND OBESE PATIENTS

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Background and Aims: According to World Health Organization, in 2014 there were more than 1.9 billion overweight adults, 18 years and older, of these over 600 million were obese. The aim of our study was to evaluate the impact of a hypocaloric nutritional intervention to overweight and obese patients on vitamins and minerals' intake.

Material and methods: To a sample of 25 overweight and obese patients, using a 7-day food self record questionnaire, we evaluated the nutritional content of food intake: total kilocalories, carbohydrates, proteins, lipids, cholesterol, vitamins A, B1, B2, B3, B5, B6, B12, C, D, E, folic acid, and minerals like calcium, iron, magnesium, phosphorus, zinc, copper, manganese, selenium, and sodium. We also measured anthropometric parameters: weight, body mass index, body fat, percent of body fat, abdominal circumference and arterial tension.

Results: As we expected, after nutritional intervention we found a significant improvement on total body weight, body mass index, body mass fat, percent of body fat, abdominal circumference and arterial tension. Regarding the macronutrients, there were significant changes: protein consumption increased ($p < 0.05$) and lipids ($p = 0.006$) and carbohydrates ($p < 0.005$) decreased. The intake of vitamin E ($p = 0.029$) and vitamin B3 ($p = 0.027$) reduced significantly. The following minerals had an important decreasing after intervention: sodium ($p < 0.05$), calcium ($p < 0.05$), magnesium ($p < 0.05$), phosphorus ($p < 0.05$), zinc ($p = 0.016$), copper ($p < 0.05$) and manganese ($p < 0.05$).

Conclusions: There is a significant improved on anthropometric measures after nutritional intervention but there are significant changes in the intake of minerals and vitamins. We need to pay more attention to food quality and quantity during low caloric diet, thus to assure the recommended daily intake for vitamins and minerals.

Nutrients and diet patterns

Abstract record ID: 897

LMPO.009**THE NUTRITION TRANSITION IN TURKEY: TRENDS IN ENERGY AND MACRONUTRIENTS SUPPLY FROM 1961 TO 2011 USING FOOD AND AGRICULTURE ORGANIZATION FOOD BALANCE SHEETS**Türküzü D.¹, Ayhan B.¹, Köksal E.¹, Bilici S.¹*Department of Nutrition and Dietetics, Faculty of Health Science, Gazi University, Ankara, Turkey*Email of the presenting author: busraayhan989@gmail.com

Aim: It has been aimed to evaluate the differences occurred between 1961 and 2011 regarding the amounts of energy–macronutrient elements per capita in Turkey.

Material and Method: Energy and macronutrient data (fat and protein) per capita between 1961 and 2011 for Turkey was downloaded from FAOSTAT data base as kg/year and then converted into g/day. The amount of carbohydrate per capita (g/day) was calculated. The changes in daily energy and macronutrient per capita were calculated according to each 10 years period (1961-1970, 1971-1980, 1981-1990, 1991-2000, 2001-2011) by taking the mean value for each period.

Results: It was found out that there had been a 19.5% increase in the daily energy amount per capita in Turkey from 1961 to 2011. It was also found that the amount of daily fat per capita increased 11.7% between 1961 and 1970 and from 71.3 gram to 79.6 gram between 1971 and 1980, increased 8.8% to 86.7 gram between 1981 and 1990 and increased 11.0% to 96.2 gram between 1991 and 2000. It was determined that the biggest increase in the amount of daily fat per capita was between 2001 and 2011 (11.5% increase, 107.3 g/day) and the amount of daily fat per capita increased 50.5% in total from 1961 to 2011. The amount of protein per capita increased around 10.6% between 1961 and 2011. Although the amount of carbohydrate per capita decreased 6.0% between 2001 and 2011 compared to the amount between 1991 and 2000, it was determined that there was a total of 11.3% increase from 1961 to 2011.

Conclusion: It was found out that there was an increase in the amounts of energy and macronutrients per capita in Turkey from 1961 to 2011. That result is seemed to be an indicator for the increase in the food supply according to the development level of the country.

Changing behaviors

Abstract record ID: 882

LMPO.010**HUMAN RELATIONSHIPS AND DIGITAL WEIGHT MANAGEMENT TECHNOLOGY**Harricharan M.¹, Barnett J.¹, Gemen R.², Fernández Celemin L.²*¹Department of Psychology, University of Bath, Bath, UK, ²European Food Information Council (EUFIC), Brussels, Belgium*Email of the presenting author: raymond.gemen@eufic.org

Introduction: With global obesity levels rising and health services being stretched to meet increasing demand, many researchers and health practitioners are turning to digital weight management technology, particularly mobile apps, to support the care process. Many available apps, however, are not designed to support routine healthcare. Indeed, many ‘lifestyle apps’ do not reflect core facets of the care process. Also, many apps do not seem to be grounded in any theory or research evidence, nor do they involve practitioners widely in their design and development.

Methods and results: With this in mind we developed the myPace platform, a weight management system deployed via a smartphone and desktop computer. Informed by the European dietetic community, myPace was designed to complement and support the trusted face to face patient-practitioner relationship – a relationship that has been shown to directly influence patient adherence, motivation and, in weight management in particular, to effect greater weight loss. The myPace system supports and extends that important relationship between consultations through regular patient progress updates and dietitians’ tailored and timely advice and encouragement to enable change. The platform was developed from research into behaviour change for weight loss and further underpinned by design elements that foster human engagement with technology to enable sustained behaviour change.

Outlook: Unlike human to technology models where users interact solely with technology, myPace is about people connecting and interacting with each other supported by technology. The human support model that underpins the design of myPace, the supportive accountability framework, will likely play an important role in future digital health technology.

Changing behaviors

Abstract record ID: 902

LMPO.011**HEALTH, NOT WEIGHT LOSS, FOCUSED PROGRAMMES (HNWL) VERSUS CONVENTIONAL WEIGHT LOSS PROGRAMMES (CWL) FOR CARDIOVASCULAR RISK FACTORS: A COCHRANE REVIEW - PRELIMINARY RESULTS ON WEIGHT***Khasteganan N.*¹, *Lycett D.*¹, *Turner A. P.*¹, *Amanda F. C.*², *Lindson-Hawley N.*³, *Furze G.*¹*¹Faculty of Health and Life Sciences, Coventry University, Coventry, UK, ²Primary Care Clinical Sciences, University of Birmingham, Birmingham, UK, ³Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford, UK*Email of the presenting author: khastegn@uni.coventry.ac.uk**Aim:** To compare the effects of HNWL programmes with those of CWL programmes on cardiovascular risk factors.**Methods:** We searched CENTRAL, MEDLINE, EMBASE, PsycINFO, CINAHL and ASSIA databases, clinical trial and commercial websites and hand searched reference list. We combined the outcomes of weight change, at each follow-up period, from all the studies in a meta-analysis using a fixed effects model. We investigated heterogeneity with sub-analysis.**Results:** 8,503 relevant studies were identified of these. We agreed on twelve articles for final inclusion; six of them discussed the same studies. Therefore nine distinct studies were included in the final review

At the end of treatment (8-13weeks) mean (95% CI) weight loss was 1.29kg (0.38, 2.20) greater in the CWL than in the HNWL programmes. By 40-52 week follow-up this difference was no longer significant (0.03kg (-1.30, 1.35)). By follow-up between 65 and 104weeks mean weight loss was greater in the HNWL programmes than the CWL programmes, but this was not significantly so: -0.72kg (-2.45, 1.00).

Conclusion: Our results suggest that in the long term HNWL programmes do not result in a significantly different outcome on weight loss than CWL programmes. However our results are limited by poor quality studies and heterogeneity, good quality RCTs in this area are needed.

Physical fitness

Abstract record ID: 904

LMPO.012**INFLUENCE OF FREE INDOOR FOOTBALL PLAY (FISP) ON THE CIRCULATORY SYSTEM, AMONG OVERWEIGHT YOUNG ADULT MALES**Ihász F.¹, Raffai A.¹*¹Department of Sport Science, Apáczai Csere János Faculty, University of West Hungary, Hungary, Győr*Email of the presenting author: ihasz@atif.hu

Introduction: Regular indoor football is similar to high-intensity interval training and is capable of improving cardiovascular risk factors such as hypertension, obesity, and low maximum oxygen uptake as well as ameliorating circulating lipid levels amongst young and middle aged men.

Methods: Eight (n=8); (39.6±3.8) untrained, overweight (F %> 25), (visceral fat area>150cm²) healthy male participants (working colleagues at the same Bank) took part in the present research program. The participants undertook a preliminary cardiac examination (echocardiography, using a GE Vivid 9 ultrasound machine, GE Medical System, Horten, Norway, with a 2.5 MHz transducer). For this study, we used the “InBody720” (Biospace Co. Inc., Seoul, South Korea) Bioelectrical Impedance Analyzer (BIA) to assess body mass and body composition. The heart rate of the participants was measured continuously during all training sessions using heart rate belts (POLAR Team System, Finland). Pulmonary gas Exchange “Cardiosoft”, (Milwaukee, USA) was measured during a standardized treadmill test.

Results: In many cases during the free indoor soccer play (FISP) we recorded extremely high pulse rate, which was then compared with the laboratory high pulse rate (LHPR). These results were much higher than the recommended physiological load level HR(FISP)>190 beat×min⁻¹; HR(LHPR) =175 beat×min⁻¹ ; p<0.001). Recorded systolic blood pressure at the same load level was significantly higher than the physiological values (sys>230 mmHg).

Conclusion: We can establish that the role of the recorded heart rate during free indoor soccer is of a predictive nature. Based on the recorded data we can create personalized physical activity programs that would introduce the circulatory system for extreme allowable load and thereby lowering the risk of any cardiovascular anomaly during extreme loads such as (FISP).

Energy balance

Abstract record ID: 930

LMPO.013**FEATURES OF THE HORMONAL STATUS WITH COMORBID CONDITIONS IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN COMBINATION WITH ARTERIAL HYPERTENSION UNDER CONDITIONS OF OBESITY**Gerasimenko O. N.¹, Shpagina L. A.¹, Shpagin I. S.¹, Sevastyanova T. N.¹*¹Novosibirsk State Medical University*Email of the presenting author: ger@muzgkb2.ru

Introduction: Systemic mechanisms of chronic inflammation, endothelial dysfunction and abnormalities of the metabolic status of pathogenetically interconnected in COPD and hypertension [1]. Adipose tissue synthesizes inflammatory cytokines and adipocytokines. Some of adipocytokines exacerbate systemic inflammation and affect the level of energy metabolism. Leptin stimulates the formation of proinflammatory markers, enhances endothelial dysfunction [2]. Adiponectin has anti-inflammatory, anti-atherogenic effect. Materials and methods: 60 patients with COPD in combination with hypertension. We determined the levels of adipokines blood by ELISA, conducted assessment of body composition by bioimpedanceometry.

Results: Actual BMI in the group of COPD in combination with hypertension it is of 143% of the average normal value exceeds the value of this parameter in the control group 1.4 times. The percentage of the actual values FROM/ABOUT from the mean normal value in the group of COPD in combination with AG-111% (1,1 times greater than in the control group). In the group of COPD in combination with AG leptin blood 1.2 times higher values of the control group. The level of adiponectin in patients in this group of 1.1 times lower than in the control group.

Conclusion: In patients with COPD in combination with hypertension in the conditions of obesity are expressed hormonal and metabolic abnormalities that are associated with the presence of systemic inflammation during concomitant comorbidity. Shown increased levels of leptin in the reduction of blood adiponectin, which contributes to inflammation, atherogenic effects in COPD in combination with hypertension, what justifies the approaches to the correction of body weight, metabolic status in patients with combined forms of diseases.

Acknowledgement: Chuchalin A., Isanov Z., Avdeev S. and other Russian respiratory society. Federal clinical guidelines for the diagnosis and treatment of chronic obstructive pulmonary disease, 2014 Samorukova E., Malanichev Y., Zadionchenko V., Lee V., Adasheva T. etc. // Obesity and metabolicheskie disorders in patients with chronic obstructive pulmonary disease: opportunities phenotyping // Pulmonology, 2014, №5

Physical (in)activity

Abstract record ID: 912

LMPO.014**THE HUMAN HYPERGRAVITY HABITAT, H3, AS RESEARCH PLATFORM FOR OBESITY**van Loon J.¹, Blanc S.², O'Gorman D.³, Heer M.⁴, Woodward E.⁵¹VU Medical Center, Amsterdam, the Netherlands, ²Institut Pluridisciplinaire Hubert Curien, CNRS & University Strasbourg, France, ³Centre for Preventive Medicine, Dublin City University, Dublin, Ireland, ⁴Rheinische Friedrich-Wilhelms-Universität Bonn, Germany, ⁵European Association for the Study of Obesity (EASO), London, United KingdomEmail of the presenting author: j.vanloon@vumc.nl

The paper reports on the possible application of hypergravity a research platform both in preparation for the human space exploration initiative but also as facility for basic and applied science questions regarding metabolism and in particular obesity. The Human Hypergravity Habitat, H3.

We know from paired controlled animal studies where e.g. rodents [Moran et al. 2001], hamster, rat, guinea pig, and rabbit [Katovich et al. J App Physiol 1978; Pace et al. Physiologist, 1985] or chicken [Smith et al. Ann N Y Acad Sci 1963] have been exposed to long duration chronic accelerations that fat mass decreases while bone density and cardiac capacity increases. Such observations deserve appropriate hypergravity human studies to see if these effects translate to humans. On the other hand it has been shown that human stem cells exposed to simulated microgravity are driven towards adipocytes compared to 1g controls (Zayzafoon et al. Endocrinology 2004) while astronauts exposed to weightlessness for more than weeks show increased blood glucose and -insulin concentrations suggesting insulin resistance (Leach et al. Apollo, 1975; Leach et al. Skylab 1977).

The H3 is a large facility where increased gravity levels can be generated for prolonged stays of weeks or even months. On this platform, various facilities can be accommodated while 6 to 8 humans subjects can live autonomously. Adaptation from 1g to higher g levels can be studied extensively.

A group of some 70 scientists and engineers are exploring the possibility of this H3 facility which could serve as clinical research platform for a multitude of health problems like obesity, insulin resistance and diabetes but also for issues such as osteoporosis, elderly frailty, inactivity, sarcopenia, cardiovascular problems, connective tissue ageing and immune deficiency. This novel research paradigm will provide fundamental insights into the effects and possible application of hyper-gravity (van Loon et al. Ann. Kinesiological 2012).

Acknowledgement: This study was initiated via a Topical Team grant from the European Space Agency, ESA. Figure courtesy BERTE bvba and BETAQUA.

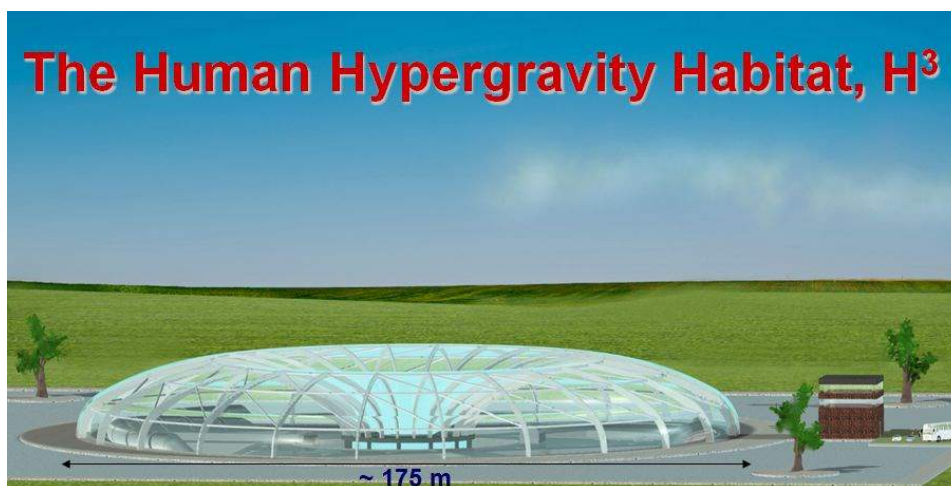


Fig. 1: View of the outside structure of the H3 is a large diameter (~175 meter) ground based centrifuge where subjects can be exposed to higher g-levels for periods up to weeks or months. The H3 can be used for regular human

Physical (in)activity

Abstract record ID: 943

LMPO.015**IS THE PRESENCE OF SEDENTARY BEHAVIOUR OR THE ABSENCE OF PHYSICAL AKTIVITY RESPONSIBLE FOR FAT MASS AND APPETITE DYSREGULATION? PRELIMINARY RESULTS FROM THE DAPHNE PROJECT**Myers A.¹, Finlayson G.¹, Blundell J.¹, Gibbons C.¹¹*School of Psychology*Email of the presenting author: a.myers@leeds.ac.uk

Introduction: The objective was to investigate whether measures of appetite dysregulation were associated with sedentary time, physical activity, energy expenditure or fat mass. Several studies indicate sedentary behaviour is associated with obesity but most use questionnaire-based self-report measures of sedentary time. The present study employed an innovative validated device for the objective measurement of sedentary and active behaviour.

Methods: Thirty participants took part in this cross-sectional study. Measures of body composition, health markers, cardiovascular fitness and resting metabolic rate, and appetite dysregulation were taken as well as 7days measurement of free-living physical activity and sedentary behaviour with the SenseWear Armband. Active energy expenditure was calculated by subtracting measured resting metabolic rate from total measured energy expenditure from the Armband.

Results: Sedentary behaviour was positively correlated with multiple indices of adiposity. These associations disappeared when controlling for moderate-to-vigorous physical activity (MVPA). MVPA was negatively associated with fat mass. Physical activity and sedentary behaviour were not associated with indices of appetite dysregulation. TFEQ Disinhibition and Binge Eating were positively associated with indices of adiposity but not with lean mass. Active energy expenditure was negatively associated with sedentary time and positively associated with moderate-to-vigorous physical activity.

Conclusion: The results suggest that the lack of MVPA may be more important than total sedentary time for the accumulation of body fat. Higher adiposity (but not sedentary time, physical activity or low energy expenditure) was associated with Disinhibition and Binge Eating (appetite dysregulation).

Acknowledgement: Funding for this research came from EC under grant agreement nş 610440 (DAPHNE).

T4 - Obesity and Mental Health

Disability/intellectual deficiency

Abstract record ID: 879

LMPO.016

WEIGHT REDUCTION IN CHILDREN WITH INTELLECTUAL IMPAIRMENT AND OBESITY

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Background: Despite overwhelming attention for obesity treatment in children and adolescents, there is little attention for obese children/adolescents with intellectual impairment. Treatment in this group is even more complex than in children without intellectual problems.

Objective: The purpose of the study was to examine the effects of the “Food Control Program”, an inpatient multidisciplinary weight control program, on body weight, BMI and BMI SD-scores in children and adolescents with overweight/obesity and intellectual impairment and /or behavioural problems.

Methods: A cohort of 101 overweight and obese children/adolescents participated in the intervention during their stay in a healthcare centre for children with intellectual impairment (IQ below 70 or 70-85 with chronic limited social empowerment). Age (mean \pm SD) was 13.7 ± 3.2 y. The intervention lasted 9 to 12 months and started at the beginning of the hospitalization and stopped when participants had internalized a more healthy lifestyle. Data

on age, sex, height, body weight and BMI were collected at entry and at the end of the intervention.

Results: Initial BMI-SDS was 3.9 ± 0.9 (range 2.0 to 8.4). BMI-SDS was reduced significantly by -1.4 ± 0.7 ($P < 0.001$). Initial weight was 97.3 ± 3.2 kg. Weight reduction was -20.7 ± 12.1 kg or -20.3 ± 9.5 % ($P < 0.001$). Initial BMI was 36.5 ± 8.5 kg/m². BMI was reduced by -8.4 ± 4.2 kg/m². Age, gender and the presence of psychiatric disorders did not affect the treatment outcome significantly. Being of non-Dutch origin had a negative effect on the change in BMI-SDS ($P = 0.011$) and treatment duration was positively associated with the reduction in BMI-SDS ($P = 0.006$).

Conclusion: The “Food Control Program” is an effective tool to obtain weight reduction in an inpatient setting and is relatively easy to handle even for children with intellectual impairment and behavioural problems with different causes of obesity.

T-5 Early Life

Fetal programming/epigenetics

Abstract record ID: 898

LMPO.017

AUTOPHAGY IS MODULATED IN OFFSPRING FROM DIET-INDUCED OBESITY MICE

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Introduction: Maternal obesity is an important metabolic disease that in the last few years had affected a growing number of women. Recent studies demonstrated that early life environment can result in profound effects on long term health of the offspring. Additionally, in adulthood, obesity and lipids overload constitute factors that result in impairment of autophagy, a lysosomal degradation process essential for maintaining cellular homeostasis. Based on this evidences, this study tested the hypothesis that maternal obesity induced by high fat diet (HFD) would be able to modulate proteins of autophagy in the hypothalamus and liver of offspring.

Methods: We used swiss female mice fed with standard- chow diet (SC) or HFD- 45% during pregnancy and lactation and evaluated autophagic markers by protein content (Western Blot) in the liver and hypothalamus of offspring (SC-O and HFD-O) on the day of birth (d0), after weaning (d18) and adulthood (d82).

Results: Although HFD-O animals showed lower body mass in d0, we observed increased protein content of p62 and decreased of LC3-II on liver of HFD-O when compared to SC-O. At d0 animals didn't show any modulation of autophagy proteins on hypothalamus. Interestingly, in d18 we observed an increase in body mass accompanied by down-regulation of autophagy proteins in both tissues analyzed. Offspring that received SC until d82, didn't show any impairment of autophagy markers, despite higher body weight was observed. **Conclusion:** Indirect exposure to HFD during pregnancy and lactation seems to be essential to negative modulation of autophagy in the liver and hypothalamus. This premature impaired autophagy may be a role on development of obesity in adult life.

Acknowledgement:

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Fetal programming/epigenetics

Abstract record ID: 919

LMPO.018**MATERNAL HIGH-FAT DIET IMPAIRS INSULIN SIGNALLING IN NEWLY WEANED AND ADULT OFFSPRING OF MICE**

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Introduction: Early obesity prevalence in population suggests that fetal programming contribute considerably to the obese phenotype development in offspring. Considering that obesity is followed by an inflammatory condition that can promotes insulin resistance, it is important to evaluate the potential effect of metabolic programming in impairing the insulin signalling in recently weaned offspring of obese dams, also investigating if early exposure to obesogenic environment is able to exacerbate the impairment of glucose metabolism in adult life in response to high-fat diet (HFD).

Methods: Female Swiss mice were fed with standard chow or HFD before and during mating, gestation and lactation. At d28 and d82, peripheral and central tissues of male offspring were obtained to investigate activation of key proteins of inflammatory and insulin signalling pathways by Western Blot.

Results: Offspring of obese dams (HC-O) were heavy than offspring from control dams (CC-O) at d14 and thereafter. At d28, HC-O showed impaired insulin signalling in all tissues evaluated, following by increased inflammatory proteins. Rechallenge to HFD seems to be an aggravating factor especially for adipose tissue, leading to less IRS-1 (77%) and AKT (57%) phosphorylation and consequently impairing insulin signalling. Offspring re-exposed to HFD (HH-O) also showed higher adiposity (29%), food intake (25%) and glucose intolerance than offspring of control dams exposed to HFD (CH-O).

Conclusion: Maternal obesity leads to increase susceptibility to development of obesity and impairment in insulin signalling in recently weaned and adult offspring that can be aggravated when re-exposed to HFD.

Early feeding practices and nutrition

Abstract record ID: 923

LMPO.019**ETHNIC DIFFERENCES IN TYPE OF BEVERAGE CONSUMPTION AT AGE 5-6 YEARS: THE AMSTERDAM BORN CHILDREN AND THEIR DEVELOPMENT (ABCD) STUDY**Rashid V.¹, Engberink M. F.¹, Vrijlkotte T. G.², Verhoeff A. P.³, Weijts P J.^{1,4}

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Introduction: Consumption of calorie-dense beverages has been associated with weight gain and may explain the higher prevalence of obesity among children from different ethnic origin. We examined the intake of beverage type among specific ethnic groups at early age.

Methods: A validated FFQ was completed by 2,769 children aged 5-6 years in the ABCD-cohort. Five ethnic groups were distinguished: Dutch (n=2,283), Surinam (n=166), Turkish (n=61), Moroccan (n=112) and Other (n=197). Intake of energy (kcal/d), sugar containing soda, fruit juice, water/tea, full-fat dairy, and fruit concentrate (g/d) were reported. Ethnic groups were compared using one-way ANOVA with posthoc LSD tests.

Results: Mean (\pm SD) age was 5.7 \pm 0.5y, mean (\pm SD) BMI was 15.5 \pm 1.4 kg/m² and 51.1% was boy. Children of Surinam origin had a higher mean total energy intake (kcal/d) (1753 \pm 564 vs Dutch 1517 \pm 304, Turkish 1544 \pm 492 and Moroccan 1614 \pm 498, p<0.05) and intake (g/d) of sugar containing soda (median 46 [IQR:0;139] vs median 0 g/d in other ethnic groups, p<0.05). Children of Dutch origin had lower intake (g/d) of fruit juice (54 [11;139] vs on average 139g/d in other groups, p<0.05), water/tea (193 [107;305] vs Surinam 252 [139;418], Turkish 300 [150;434] and Moroccan 284 [150;437], p<0.05) and full-fat dairy (57 [26;105] vs Surinam 90 [20;146], Turkish 70 [49;168] and Moroccan 95 [45;173], p<0.05). Children of Dutch and Surinam origin had a higher intake (g/d) of fruit concentrate (Dutch 11 [2;28] and Surinam 5 [0;13] vs Turkish 0 [0;1] and Moroccan 0 [0;1] g/d, p<0.05).

Conclusion: Intake of energy and type of beverages differ among ethnic groups. Further research will have to explore the association between type of beverage intake and weight development.

Childhood and adolescence

Abstract record ID: 909

LMPO.020**IS A REDUCED CARBOHYDRATE DIET AN EFFECTIVE MANAGEMENT STRATEGY FOR PAEDIATRIC OBESITY? A SYSTEMATIC REVIEW**Hyde A. S.¹*¹Swansea University College of Medicine, Swansea, UK*Email of the presenting author: andy.hyde2006@gmail.com

Introduction: The increasing prevalence of childhood obesity poses a serious public health challenge. Recent literature examining the efficacy of reduced-carbohydrate diets (RCDs) at inducing weight loss and improving metabolic parameters in obese children is reviewed here.

Methods: Data sources used were PubMed/MEDLINE, EMBASE and Cochrane databases. Clinical trials and cohort studies investigating the effect of RCDs on weight and metabolic parameters in obese children were eligible for inclusion. Only English-language studies involving human subjects below the age of 18 were included. The primary outcome measure was change in weight or BMI. Secondary outcome measures were changes in metabolic parameters that are markers of noncommunicable disease risk, such as plasma lipid levels.

Results: 12 studies (729 participants) including 7 RCTs, 2 controlled trials and 3 uncontrolled trials were included. Most had a high risk of bias. 58% of included studies report statistically significant weight or BMI reduction as a result of an RCD intervention. 33% of included RCTs found greater BMI reduction in the RCD intervention group than in control groups, although only evident in the intervention period. 67% of included studies report statistically significant improvement to metabolic parameters as a result of an RCD intervention. 22% of included controlled trials report statistically significant improvement in plasma triglyceride levels over control.

Conclusion: In the short term, RCDs are as good as or better than other diets for weight loss and improvement in metabolic parameters. There is concern regarding the high risk of bias evident in these studies. There is no indication if RCDs are effective in the long-term. Additional high quality trials are needed.

Childhood and adolescence

Abstract record ID: 918

LMPO.021**CORRELATIONS BETWEEN ANTHROPOMETRIC MEASUREMENTS AND CARDIOMETABOLIC RISK FACTORS IN MORBID OBESE CHILDREN: ARE MEASUREMENTS OF WAIST-TO-SITTING HEIGHT USEFUL?**Skodvin V. A.¹, Haaland R. A.², Roelants M.³, Danielsen Y. S.⁴, Morken M. H.¹, Júliusson P. B.¹*¹Institute of Clinical Science, University of Bergen, Bergen, Norway, ²Department of Global Public Health and Primary Care, University of Bergen, Bergen, Norway, ³Department of Public Health, Katholieke Universiteit Leuven, Belgium, ⁴Department of Clinical Psychology, University of Bergen, Bergen, Norway*Email of the presenting author: vilde.aabel@gmail.com

Introduction: Early detection and treatment of childhood obesity is of major importance to reduce cardiometabolic risk. The Body Mass Index (BMI) is most commonly used to assess adiposity. Although the BMI is also considered to be a good predictor for various adverse effects of adiposity, indicators of central obesity may have a closer link with cardiometabolic risk. In this study we compare the correlation of waist-to-sitting height-ratio (WSHR) and other anthropometric indicators with cardiometabolic risk factors.

Methods: Ninety-six obese (BMI>IOTF 35) patients (46 boys) aged 5-18 years were recruited in the outpatient clinic at Haukeland University Hospital in Bergen, Norway. Associations between BMI, waist circumference (WC), waist-to-height-ratio (WHtR) and WSHR, and systolic/diastolic blood pressure (SBP/DBP), HDL, LDL, total cholesterol, HbA1c, ALAT, gGT and the metabolic syndrome (MS, as defined by Cook et al., 2003) were assessed. All models were adjusted for age and sex.

Results: Logistic regression models showed BMI, WHtR and WSHR were significantly associated with SBP, and WC was significantly associated with DBP. BMI was the only measurement significantly related to MS ($p=0.03$). No significant relations were found between the anthropometric measurements and other biomarkers using linear regression.

Conclusions: We found BMI to be the best anthropometric measurement to predict cardiometabolic risk in a group of children and adolescents with a high degree of obesity. Compared to WC and WHtR, waist-to-sitting height-ratio did not contribute additional information on the cardiometabolic risk.

Childhood and adolescence

Abstract record ID: 920

LMPO.022**THREE IMPORTANT QUALITATIVE HEALTH-PEDAGOGICAL FACTORS IN A SUCCESSFUL DANISH CHILDHOOD OBESITY TREATMENT**Stjernholm T.¹, Grabowski D.², Jensen B. B.², Holm J. C.¹*¹The Children's Obesity Clinic, Department of Paediatrics, Copenhagen University Hospital Holbæk, Holbæk, Denmark, ²Steno Health Promotion Research, Steno Diabetes Center, Gentofte, Denmark*Email of the presenting author: thest@regionsjaelland.dk

Introduction: The Children's Obesity Clinic in Holbæk, Denmark, has shown positive results in regards to weight loss in 75% of the children undergoing treatment and a retention rate at 90% within 1 year of treatment. The aim of the study was to investigate the health-pedagogical approach and the ensuing socio-psychological effects in terms of health, well-being, and quality of life.

Methods: Forty families undergoing treatment at The Children's Obesity Clinic were randomly selected for semi-structured interviews. Twenty families were interviewed at baseline and 20 families after 1-2 years of treatment. The interviews were analysed and interpreted following hermeneutic guidelines.

Results: The study produced three main results: 1) The families were able to relate the authentic explanation of what obesity is to their health identities: Explaining obesity as a chronic disease and weight loss as regulated by complex hormone systems served as a motivating factor by removing guilt and blame from the families. 2) The degree of family involvement reflected the level of success: It appeared that the more family members participating in the treatment the greater the weight loss in the child. 3) The treatment plan motivated long term lifestyle changes: The treatment plan containing 15-20 changing points encompasses all aspects of everyday life - thereby inviting the families to complete lifestyle changes. Total incorporation and a new lifestyle resulted in weight loss.

Conclusion: The main characteristics of the method and thereby the main reasons for its success are the authentic meeting with the health professionals, the involvement of the whole family, and the motivation for long term lifestyle changes.

Childhood and adolescence

Abstract record ID: 928

LMPO.023**SERUM BETATROPHIN CONCENTRATIONS IN CHILDREN AND ADOLESCENTS**Lehmann U.¹, Schwartze J. T.¹, Landgraf K.^{1,2}, Löffler D.^{1,2}, Scheuermann K.¹, Berthold A.¹,Tauscher R.¹, Petroff D.², Raschpichler M.², Körner A.^{1,2}¹Center for Pediatric Research Leipzig (CPL), University Hospital for Children & Adolescents, ²Medical Center Adiposity Diseases (IFB) (Leipzig)Email of the presenting author: Ulrike.Lehmann@medizin.uni-leipzig.de

Background: Betatrophin is a novel hormone has been suggested to be involved in the regulation of glucose and lipid metabolism. Although several studies underlined the associations in adults, little is known about children. Therefore, this study aimed to investigate the association of betatrophin with obesity and metabolic alterations in obese and normal weight children.

Methods: Anthropometric data, clinical and cardiovascular parameters were obtained in 105 children and adolescents (lean n= 42, obese n=63). Circulating betatrophin levels were measured by enzyme-linked immunosorbent assay (ELISA). Measurement of Reactive hyperaemia Index (RHI) was performed by fingerplethysmography.

Results: Serum betatrophin concentrations were negatively correlated with BMI-SDS ($r=-0.262$, $p=0.008$) but were not different between obese and normal weight children and adolescents (0.77 ± 0.35 vs. 0.86 ± 0.25 , $p=0.143$). However, increased betatrophin concentrations were associated with decreased visceral fat mass and increased lean mass ($r=-0.360$, $p=0.008$ and $r=0.361$, $p=0.006$). No differences were found between insulin-resistant and non-resistant obese children (0.73 ± 0.36 vs. 0.89 ± 0.26 , $p=0.136$). RHI was correlated with circulating betatrophin concentrations ($r=0.280$, $p=0.008$), but no significant differences were determined between participants with normal endothel function and endothel dysfunction ($p=0.68$). Triglyceride, total cholesterol, HDL, LDL cholesterol, pubertal status, age, sex, waist-to-hip-ratio were not associated with betatrophin concentrations.

Conclusion: These results indicate no association of betatrophin concentrations and clinical or cardiovascular parameters in children and adolescents.

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T7- Public Health Epidemiology

Population trends (European comparison)

Abstract record ID: 895

LMPO.024

PREVALENCE OF CHILDHOOD OBESITY AND OVERWEIGHT IN PORTUGAL AND GREECE - COSI 2010

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Introduction: WHO/Europe Childhood Obesity Surveillance Initiative (COSI) is an ongoing, systematic process of collection, analysis, interpretation and dissemination of descriptive information for monitoring excess body weight in the WHO European Region. The system aims to measure trends in overweight and obesity in children aged 6-8 year-olds, every two years. Here we are presenting and comparing the results of the second COSI round (2010), for schoolchildren age 7 years for two countries of Southern Europe: Portugal and Greece.

Methods: 4020 children (910 age 7 years) from 172 schools participated in the study in Portugal and 5701 (1293 age 7 years) from 150 schools in Greece (national representative samples). Height and weight were directly measured by trained fieldworkers. Overweight (including obesity) and obesity prevalence were calculated using the international body mass index cut-offs according to WHO criteria. Dietary and exercise patterns were assessed through school and family questionnaires.

Results: Prevalence of overweight (including obesity) in children age 7 years was 31,5% in boys and 36,2% in girls (according to WHO definition) in Portugal and 48,9% in boys and 44,8% in girls in Greece. In both countries dietary and exercise patterns were found very similar with children presenting poor food habits, low level of physical activity and high level of sedentary habits.

Conclusion: Portugal and Greece are two of the countries with higher prevalence of overweight and obesity across Europe. This has been consistently higher in Southern European countries which also share several similarities on dietary patterns and physical activity levels among primary school children, suggesting that active implementation of policies or interventions to counteract overweight and obesity are needed.

Community based interventions

Abstract record ID: 896

LMPO.025**IS SOCIOECONOMIC STATUS A RISK FACTOR FOR CHILDREN'S OVERWEIGHT AND OBESITY? - MUN-SI PORTUGAL, A COMMUNITY BASED PROGRAM**Rito A. I.¹, Doroana E.¹, Garcia R.¹, Alves E.¹¹CEIDSS - Centro de Estudos e Investigação em Dinâmicas Sociais e SaúdeEmail of the presenting author: ana.i.rito@gmail.com

MUN-Si (www.mun-si.com) is an on-going Portuguese community-based program at local level which aims to promote lifestyles changes in the long-term particularly to children and families that do not have adequate resources. The objective of this study was to address the association between socioeconomic (SE) indicators and children's nutritional status (NS) of the two rounds of the MUN-SI NS surveys (2009 and 2011). A total of 2726 children (round 1 (R1) = 1126; round 2 (R2)= 1600) aged between 6-12 years old were evaluated from 5 municipalities. Childhood overweight and obesity prevalence was assessed according to WHO criteria. Low SE status was defined according to 3 criteria: family income, parents occupation and education level. These SE characteristics were obtained by a self response questionnaire. In R1 (2009), the prevalence of overweight was 39.4% (n = 444), of which 15.8% (n = 178) were obese. In the second round (2011) similar prevalence were obtained (40.8% of overweight, in which 16.9% obese). In both rounds, 69% of the families had a low income (<1500 €). Mother's education level was mainly up to 12th grade (79%) and more than 50% of fathers had an education level up to 9th grade. Parents occupation were mainly (>45%) unqualified or semi-qualified. In R1, a family income of 0-1500 € was associated with higher obesity prevalence (OR = 2,37; IC95%: 1,11-5,02). In R2, no significant association between obesity prevalence and low family income (p=0.494) was observed. Families where the parents had a non-qualified or semi-qualified occupation had a higher probability (mother - OR ≥ 3.4; father - OR ≥ 2.7) to have children with obesity. Low education level of the parents was also proved to be associated with higher childhood obesity prevalence. This study observed that low SE status is an important risk factor to development of childhood obesity in Portuguese population. These results support that further intervention is needed on low socioeconomic families.

Obesity and disease in populations

Abstract record ID: 914

LMPO.026**RELATIONSHIP BETWEEN ADIPOSITY AND HUMAN ADENOVIRUS 36 IN ADULTS**

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Introduction. Several studies suggest a possible correlation between obesity and human adenovirus 36 (Adv36) infection. High levels of serum antibody titers against Adv36 (Adv36 Ab) associate with human obesity.

Methods. Eighty-eight overweight/obese patients (28 males and 60 females, age 42.47 ± 13.09 years, BMI 37.48 ± 11.04 kg/m²), were studied.

Body composition measured by dual energy X-ray absorptiometry (DXA), representative measures of metabolic syndrome (waist circumference, fasting plasma glucose, LDL-cholesterol, HDL-cholesterol, triglycerides, inflammation [erythrocyte sedimentation rate, C-reactive Protein, fibrinogen] and Adv36 antibodies (by serum neutralization assay), were evaluated. Twenty lean patients were included as controls.

Virus detection in adipose tissue and serum was performed using nested-PCR protocol.

Results. A total of 19 out of 88 sera (21 %) were positive for Adv36 Ab. No significant differences in terms of age, BMI, waist-hip ratio were seen in the Adv36 seropositive patients compared to the seronegative patients. Adv36 Ab positivity did not correlate with triglycerides and LDL-cholesterol. An inverse relationship with blood glucose levels was observed. 10 seropositive patients had high total fat mass % (41.48 ± 6.55 %). Only one of the Adv36 Ab seropositive patients had positive Adv36 DNA in adipose tissue biopsy, no DNA was detected in the serum. Sequencing of the adipose tissue extracted DNA confirmed the finding.

Conclusion. This pilot study demonstrates that serum Adv36 Ab positivity may be associate with obesity and overweight. The Adv36 genome can be detected in the visceral adipose tissue in a portion of obese individuals.

Obesity and disease in populations

Abstract record ID: 922

LMPO.027**OVERWEIGHT AND OBESITY PREVALENCE IN REFFERAL POPULATION OF INFERTILE CAUCASIAN WOMEN WITH PCOS**Suturina L. V.¹, Lazareva L. M.¹, Atalyan A. V.¹, Darzhaev Z. Y.¹, Lizneva D. V.¹*¹Department of Reproductive Health Protection, Scientific Center of Family Health and Human Reproduction, Irkutsk, Russia*Email of the presenting author: lsuturina@mail.ru

Objectives. We performed this study to test the hypothesis that overweight and obesity prevalence is not similar in patients with different phenotypes of Polycystic Ovary Syndrome (PCOS).

Methods: 70 Caucasian women aged 28.1±4.7 years were recruited at clinical research center in Irkutsk (Eastern Siberia). A complete medical history, physical examination with BMI calculation, lap-aroscopy, pelvic ultrasound and hormonal immunoassay analysis were performed in all patients. Hirsutism was defined by modified Ferriman-Gallwey (mFG) hirsutism score >6. Menstrual dysfunction (MD) was defined as menstrual cycles ≥35 and ≤23days). Polycystic ovarian morphology (PCO) was defined as antral follicle count of ≥12 in 2–9 mm diameter and/or ovarian volume of ≥10 cm³. PCOS was diagnosed according to presence of hyperandrogenemia (HA) and/or hirsutism (H), oligo-anovulation (O) and polycystic ovaries (PCO). Other causes of hyperandrogenemism were excluded. PCOS phenotype with HA/H, O and PCO was marked as «NIH1»; with HA/H and O - as «NIH 2»; with HA and PCO- as «AEPCOS/Rotterdam1» (AE/Rott1); with O and PCOS - as «Rotterdam2» (Rott2).

Results: The prevalence of PCOS phenotypes NIH1 (27%), NIH2 (27%) and AE/Rott1 (37%) was significantly higher compare to prevalence of Rott2 phenotype (9%) (p<0,05). NIH1 and NIH2 phenotypes of PCOS were associated with increased number of overweight women. It was found that the frequency of obesity was similar in these two groups (37,7 % in each); there were no cases of obesity in AE/Rott1 group and only 9% of patients demonstrated BMI ≥30 kg/m² in Rott2 phenotype.

Conclusions: NIH1 and NIH2 phenotypes of PCOS in infertile women are characterized by higher prevalence of over-weight and obesity in comparison with AE/Rott1 and Rott2 phenotypes.

Obesity and disease in populations

Abstract record ID: 924

LMPO.028**FUTURE TRENDS OF CHILDHOOD AND ADOLESCENT OBESITY IN MEXICO TO 2030 USING IOTF AND WHO CUT-OFF POINTS**Sanchez-Romero L. M.¹, Scholes S.¹, Head J.¹, Mindell J.¹*¹Department of Epidemiology and Public Health, University College London, London, UK*Email of the presenting author: l.romero.12@ucl.ac.uk

Introduction: Obesity is one of the leading risk factors for the principal causes of mortality worldwide. It has become one of the greatest public health problems in Mexico. Over the last three decades, Mexico's obesity prevalence has increased alarmingly. **Objective.** To forecast obesity prevalence in Mexican population 2-19 years old to 2030.

Methods. Data extracted from five Mexican national surveys. Obesity prevalence was calculated separately for each year (1999/2000, 2002, 2006, 2012) stratified by age group and sex. Children and adolescents (2 to 19 years of age) BMI was categorized by using the IOTF and WHO 2007 sex- and age-specific BMI cut-off reference. Future obesity rates were calculated by fitting a linear regression model to extrapolate the prevalence data from 99/00, 02, 06 and 12 to the year 2030.

Results. The projected trends showed that with IOTF the obesity prevalence in 2 to 9 years of age for 2030 was projected to be 12.4% (95% CI 3.4, 21.3) with WHO cut off points was 19.2% (95% CI 8.3, 30.1) that represents a difference of 6.8 pp higher prevalence of obesity when using WHO 2007 BMI cut-off points. Among adolescent population (10 to 19 years of age), the obesity prevalence for 2030, 16.3% (95% CI 10.6, 22.1) with WHO cut off points the future obesity rate increased a 33% reaching 21.7% (95% CI 14.1, 29.4)

Conclusion. Mexico will encounter an increase in morbidity and mortality associated with obesity-related non-communicable diseases. These future trends will have a great impact on Mexico's health and health care services, and on the productivity of the population.

Primary/secondary preventiv

Abstract record ID: 892

LMPO.029**IS IT AN ADVANTAGE TO BE METABOLICALLY HEALTHY IN OBESITY TO LOSE WEIGHT?**Akbas E.¹, Atmaca H. U.¹, Demircin M.¹, Niyazoglu M.¹*¹Istanbul Training and Research Hospital, Internal Medicine Department, Istanbul, Turkey*Email of the presenting author: atlibatur@yahoo.com

Introduction: Obesity is a growing global health problem. It's generally accompanied by insulin resistance and metabolic syndrome. In this study; we aimed to investigate weight loss differences in metabolically healthy obese patients.

Methods: 45 obese (BMI ≥ 30 kg/m²) patients who were regularly followed in our obesity outpatient clinic were included in the study. Their waist circumference, fasting blood glucose, blood pressure, triglyceride and HDL values were recorded at first evaluation and metabolic syndrome existence rates were determined according to IDF 2005 criteria. Weight loss after a 6-months of diet and exercise programme was recorded. Metabolically healthy patients and the patients with metabolic syndrome were divided into groups and their mean weight loss rates were calculated. Results were evaluated with SPSS statistical analysis method.

Results: 40 of the patients were female and 5 were male. Mean age was 48.31 years. Totally 29 (64%) of the patients had metabolic syndrome. 16 (36%) of the patients were metabolically healthy. At the end of 6-months period, where in metabolic syndrome group, 3 (10%) patients gained weight, 3 (10%) patients had no weight change, in metabolically healthy group only 1 (6%) patient gained weight. Metabolically healthy group (8.6 kg mean) lost significantly more weight than the metabolic syndrome group (5.8 kg mean).

Conclusion: With these results; metabolically healthy obese patients seem to have an advantage about weight loss. As well as insulin resistance which accompanies metabolic syndrome and abdominal obesity could have caused this advantage and related diseases and medications, patient compliance/incompliance could have contributed. Although some obese patients may seem to be healthy at the beginning, considering the possible upcoming complications and related diseases, even if metabolically healthy, all obese patients should be encouraged to lose weight without any delay.

Primary/secondary preventiv

Abstract record ID: 910

LMPO.030**NOURISH: DIETARY OUTCOMES FROM 2 TO 5 YEARS**Mauch C.¹, Mallan K.², Daniels L.^{1,2}, Magarey A.^{1,2}¹*Nutrition and Dietetics, Flinders University, Adelaide, South Australia*, ²*School of Exercise and Nutrition Science, Queensland University of Technology, Brisbane, Queensland, Australia*Email of the presenting author: anthea.magarey@flinders.edu.au

Introduction: The NOURISH RCT evaluated an early feeding intervention targeting first time mothers. Anticipatory guidance promoted 'protective' feeding practices, which were hypothesized to improve dietary outcomes and reduce risk of overweight in children. We have previously shown increased use of protective feeding practices in intervention mothers compared with controls. This study presents dietary and eating behaviour outcomes at child ages 2, 3.7 and 5 years (0.5, 2 and 3.5y post intervention).

Methods: 541/698 enrolled mothers provided at least 1 day of dietary intake data over 3 time points (110 provided data at 1 time point, 50 at 2, 381 at all 3). Eating behaviours were assessed using the Children's Eating Behaviour Questionnaire. Linear mixed models assessed the effect of intervention and time on fruit and vegetable intake (g/kg bodyweight), non-core food and non-milk sweetened beverage intake (% total energy intake) and eating behaviours across the 3 time points.

Results: There were no group or time x group differences in dietary outcomes but significant time differences for vegetable (2y:7.72±0.31, 3.7y:6.68±0.34, 5y:6.23±0.35 g/kg P=.002) and non-core food intake (2y:15.47±0.6, 3.7y:19.4±0.7, 5y:21.3±0.7 % energy P<.001). Intervention children were rated as less food responsive (P=.036) and more satiety responsive (P=.041) than control children, and tended, non-significantly, toward less fussy (P=.056).

Conclusions: Despite some intervention effect on eating behaviours, NOURISH intervention children did not have significantly improved dietary outcomes at 2, 3.7 or 5y of age. This data provides longitudinal evidence of deterioration in the dietary quality of Australian toddlers from 2 to 3.7 and 5y, particularly in vegetable and non-core food intake.

Policy

Abstract record ID: 913

LMPO.031**CHILDREN'S HYDRATION STATUS AND ITS RELATION TO SCHOOL POLICY**Michels N.¹, Van den Bussche K.¹, De Henauw S.¹¹Department of Public Health, Ghent University, BelgiumEmail of the presenting author: nathalie.michels@ugent.be

Introduction: Dehydration has been related to several aspects of health. Because of the long time children spend at school and the role-model of schools, the current study examined children's hydration status at the school.

Methods: In 451 Belgian primary school children (8-13y), urine was collected at the start of school and over the remaining toilet visits during the school to analyse osmolality as hydration marker. School drink and toilet policy was reported by the school and by the child's opinion. Regression analyses were adjusted for sex, age, parental education and region.

Results: 75.3% was badly hydrated based on the morning sample and 53.3% based on the over-day sample. Hydration was highest in girls and low BMI but not related to age, parental education or diet quality. Only in half of the school, the topics drinking and peeing were introduced in the curriculum. Only 8% of the children reported to like visiting the school's toilet. A possibility to go to the toilet or drink water during class was indicated by 65%. Children's hydration was higher in schools (1) that make water available during sports, at playground or during lunch, (2) that introduce the topic drinking in the curriculum, (3) that allow children to drink during class. Children's toilet visit frequency was higher in schools (1) that introduce the topic of toilet visits in the curriculum, (2) that have an official policy on toilet visits, (3) that make toilet visits more pleasant e.g. clean toilets that can be locked and with sufficient toilet paper or an attached toilet seat.

Discussion: Dehydration at school was frequent. Since some of the school policy items were related with children's hydration, more related resources and attention are needed by school management and governmental organizations.

Optimising monitoring and technology with technology

Abstract record ID: 929

LMPO.032**VISCERAL FAT IS THE BEST FATNESS INDICATOR RELATED WITH METABOLIC VARIABLES**Lee K. R.¹, Ko K. D.², Whang I. C.², Suh H. S.², Kim K. K.², Choi S. J.³, Jun S. H.³¹Bariatric unit, family medicine, Dong-incheon Hospital, Gachon University, ²Family medicine, Gil medical center, Gachon University, ³Health Check Center, family medicine, Gil medical center, Gachon UniversityEmail of the presenting author: baria07@daum.net

Since BMI has postulated as the standard index for mortalities, it has been the standard indicator to evaluate obesity and its complication. Asians including Koreans have more pronounced metabolic dyslipidemia with lower BMI than Westerns. It would be implied to measure the more precise indicator for fatness for Koreans. Therefore we investigated the association between the metabolic variables and body fatness indicators in healthy Koreans. 297 healthy subjects among those visited bariatric clinic (86.9% (female), 40.26 +/- 11.40 years, 26.1 +/- 4.27 kg/m²) in hospital were enrolled to measure fasting blood glucose, lipid profiles, height, weight, body fat using by DXA, CT, impedance.

SPSS package for widows (version 18) was performed to evaluate for statistical analysis. Probabilities less than 0.05 was significant as statistically significant at both sided. Person correlation was done for relation between fatness markers and metabolic variables after controlled age. In addition Students' t-test was performed to compare metabolic variables according to /markers.

BMI showed association with FPG (Fasting Plasma Glucose) ** positively, whereas HDL cholesterol * negatively. The fat measured on trunk ** and upper extremities * (DXA) showed the positive association with FPG. VAT (visceral adipose tissue) showed association with TG (triglyceride) *, FPG ** positively whereas HDL cholesterol* negatively. In contrast no association did between metabolic variables and body fat measured using by impedance. (* p<0.05, ** p<0.01)

As a hospital based cross-sectional study, it cannot represent the usual healthy Korean population. Few comparative studies for fatness markers (DXA, CT, impedance) had been investigated at the same time in Korea until now.

In conclusion visceral fat measurement is considered as best indicator among fatness markers including body impedance, DXA, BMI for metabolic derangement in healthy Koreans.

T-8 Clinical Management

Metabolic outcomes (diabetes, lipids, hypertension)

Abstract record ID: 901

LMPO.033

ANTI-INFLAMMATORY EFFECT OF N-3 PUFA SUPPLEMENTATION WITH OBESITY AND TYPE 2 DIABETES

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Introduction: Obesity is associated with low-grade inflammation. n-3 PUFAs reveal anti-inflammatory properties, preventing the progressing of prediabetes to type 2 diabetes (T2D). The study was undertaken to examine if n-3 PUFA supplementation modifies markers of inflammation in patients with obesity and T2D diabetes.

Methods: Patients with T2D (n=15) and obesity (n=45) aged 25-65 yrs. were included into a double-blinded randomized trial. Patients were put on isocaloric diet supplemented for three months with either 3x600mg/day DHA:EPA (5:1) (EPAXTG, Epax AS, Norway) or placebo, (4mg VitE; Epax AS Norway). Pre and post supplementation fasting blood concentrations of hsCRP, IL-6, sE-Selectin, s-VCAM-1, sPECAM-1, MCP-1, and adipokines (leptin, adiponectin, resistin, visfatin) were determined. Additionally T2D plasma miRNA before and after supplementation was analyzed.

Results: n-3 PUFA supplementation significantly decreased content of hsCRP and adhesive molecules, sE-Selectin, s-VCAM-1, s-PECAM-1 as well as MCP-1 concentration in fasting blood samples from obese subjects, but did not affect the concentrations of resistin, visfatin. In turn, subjects with T2D responded to n-3 PUFA supplementation with decreased proinflammatory adipokines (resistin, visfatin) and a tendency to lower sE-Selectin concentration. Analysis of miRNA content after supplementation showed upregulation of hsa-miR 483-5p and hsa-miR 484, which inversely correlated with insulin resistance. The expression of hsa-miR 30e-3p, which is stimulated by proinflammatory cytokines, was downregulated.

Conclusion: Three months EPAXTG supplementation exerted beneficial effect on early inflammation markers in prediabetes as well as in T2D, documented by reduced proinflammatory cytokines. Down-regulation of hsa-miR 30e-3p and upregulated hsa-miR 484 confirms anti-inflammatory effect and indicates mi-RNA regulated mechanism of insulin sensitivity improvement with DHA/EPA.

Metabolic outcomes (diabetes, lipids, hypertension)

Abstract record ID: 906

LMPO.034**A COMPARISON OF FOUR CLINICAL METHODS FOR THE EVALUATION OF METABOLIC SYNDROME IN WOMEN**Assyov Y.¹, Kamenov Z.², Tsakova A.², Boneva Z.³¹Medical University of Sofia, Sofia, Bulgaria, ²University Hospital, ³Medical Institute - Ministry of Interior, Sofia, BulgariaEmail of the presenting author: yavovian@abv.bg

Introduction: Metabolic syndrome (MS) consists of atherogenic risk factors that include insulin resistance, obesity, dyslipidemia and arterial hypertension. The aim of the current study was to evaluate four methods easily accessible in the clinical practice – waist circumference(WC), neck circumference(NC), ultrasound-measured abdominal fat(USMF) and body fat measured by body impedance(BF%) - for the evaluation of MS.

Methods: The study population consisted of 118 female patients with diagnosed MS, based on the IDF criteria. WC was measured at the midpoint between the inferior costal margin and the superior border of the iliac crest on the mid-axillary line. NC was measured between the mid-cervical spine and mid-anterior neck just below the laryngeal prominence. USMF was measured as the distance between the internal face of recto-abdominal muscle and the anterior wall of the aorta. BF% was evaluated by a TANITA TBF-215GS Body Composition Analyzer. Biochemical measurements included OGTTs, lipids, uric acid(UA), immuno-reactive insulin(IRI), HbA1c, liver enzymes.

Results: Median age was 54.5 [IQR=42-61]; 41[34.7%] of the study participants had T2D. Correlation analysis (fig.1) showed that USMF correlated best with fasting glucose ($p<0,01$, $r=0,387$), fasting IRI ($p<0,05$, $r=0,356$), serum ALT ($p<0,05$, $r=0,324$). WC correlated best with HbA1c ($p<0,01$, $r=0,352$) and BMI ($p<0,001$, $r=0,759$). NC correlated best with UA ($p<0,001$, $r=0,351$), triglycerides ($p<0,01$, $r=0,247$). BF% did not correlate with the metabolic profile of the evaluated subjects. Using ROC-curve analysis (fig.2) we established that NC was the best predictor for T2D ($r=0,712$, $p<0,001$); USMF was the best predictor for dyslipidaemia ($r=0,782$, $p=0,010$) and insulin resistance ($r=0,828$, $p=0,001$).

Conclusions: WC, NC and USMF were useful for the evaluation of the metabolic profile in the study population. Body impedance was not of clinical significance.

Parameter	Waist	Neck	USMF	BodyFat%
Age	0,041	0,059	0,041	0,181
BMI	0,759***	0,553***	0,619***	0,641***
FPG	0,365***	0,295**	0,387**	0,225
IRI	0,201	0,226*	0,356*	-0,028
Cholesterol	-0,016	0,093	-0,125	-0,081
AST	0,175	0,164	0,233	0,094
ALT	0,245**	0,154	0,324*	0,140
Creatinine	0,077	0,226*	0,037	-0,202
UA	0,291**	0,351***	0,301*	0,061
GGT	0,118	0,100	0,099	0,261
HbA1c	0,352**	0,138	0,332**	0,179
Trigl	0,179	0,247**	0,257*	0,172
Systolic BP	0,034	-0,008	0,135	0,306
Diastolic BP	-0,024	-0,010	-0,008	0,193

Fig. 1: Spearman correlations of WC, NC, USMF and different parameters of the study population. Statistically significant values are marked as follows: * - $p<0,05$, ** - $p<0,01$, *** - $p<0,001$. BMI – Body Mass Index, Cholest – Total Cholesterol, Waist – Waist Circumference, UA – Uric Acid, FPG – Fasting Plasma Glucose, IRI – Fasting immunoreactive insulin

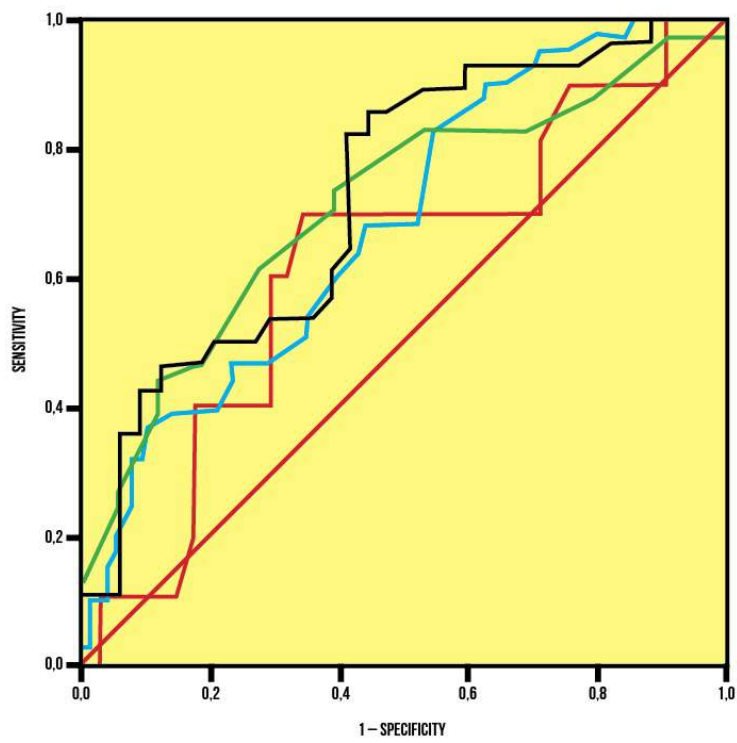


Fig. 2: ROC-curves depicting the predictive value of WC ($r=0,683$; $p=0,001$; blue), NC ($r=0,712$; $p<0,001$; green), USMF ($r=0,729$; $p=0,002$; black) and BF% ($r=0,622$; $p=0,236$; red) for T2D

Bariatric and metabolic Summary

Abstract record ID: 907

LMPO.035**DOES WEIGHT LOSS PRIOR TO SURGERY AFFECT WEIGHT OUTCOMES AFTER GASTRIC BYPASS SURGERY?**Faile E.¹, Abeysekera A.¹, Labib M.¹*¹Department of Clinical Biochemistry, Russells Hall Hospital, Dudley Group NHS Foundation*Email of the presenting author: elspeth.faile@gmail.com

Introduction: NICE recommend that bariatric surgery should be considered in patients unable to lose weight by non-surgical means. Some evidence shows that patients who lose weight pre-surgery may achieve more postoperative weight loss but there are no randomised trials to validate that preoperative dieting improves surgery outcomes. We assessed the relationship between weight loss pre-surgery and outcome post-surgery.

Methods: We analysed data from 146 patients who underwent RYGB (56 male, 90 female; mean age 46.4±9.0 years). Patients were divided into group A: patients who lost weight pre-surgery, and group B: patients who failed to lose weight pre-surgery. We compared weight loss between the 2 groups at 1 and 2 years post-surgery. We had data at 2 years for 100 patients (Group A=52, Group B=48).

Results: The mean BMI in group A (50.9±7.7 kg/m²) was not significantly different from that in group B (50.2±9.5 kg/m²) [p=0.49 and p=0.63]. Patients in Group B lost more weight at 1 year post-surgery (49.5±16.1 kg) compared to Group A (41.1±13.8 kg) [p=0.001]. The mean BMI at 1 year in group A (BMI 33.3±5.5 kg/m²) was lower than in group B (35.6±7.5 kg/m²) [p =0.049] but at 2 years, the BMI in group A (32.9±5.9 kg/m²) was not significantly different from group B (35.3±6.5 kg/m²) [p= 0.06].

Conclusion: Our audit showed that preoperative weight loss may affect short term weight loss after surgery but that BMI was not different at 2 years between those who lost weight and those who did not prior to RYGB surgery. Although preoperative weight loss may have benefits in reducing surgical risk and assessing patient commitment, preoperative weight loss per se does not seem to affect the outcome at 2 years and should not be a prerequisite for consideration of gastric bypass surgery.

Bariatric and metabolic Sumery

Abstract record ID: 916

LMPO.036**WHY PREOPERATIVE AND POSTOPERATIVE UPPER GASTROINTESTINAL ENDOSCOPY IS VITAL IN BARIATRIC SURGERY PATIENTS**Taskin H. E.¹, Zengin S. U.², Taskin E.⁴, Demir I.¹, Yumuk V.³, Taskin M.¹¹Department of General Surgery, Division of Bariatric Surgery, Istanbul University Cerrahpasa Medical Faculty, Turkey, ²Department of Anesthesiology, Bezmi Alem University, Istanbul, Turkey, ³Department of Internal Medicine, Division of Obesity and Metabolism, Istanbul University Cerrahpasa Medical Faculty, Turkey, ⁴Department of Internal Medicine, Umraniye State and Research Hospital, Istanbul, TurkeyEmail of the presenting author: eren_taskin@hotmail.com

Introduction: Morbid Obesity has been associated with presence of severity of various gastrointestinal symptoms. Certain concurrent diseases such as hiatal hernia and gastro-esophageal reflux can change choice of operations in bariatric surgery. Also postoperative evaluation is important for the detection of gastritis, biliary reflux, and pouch size after surgery. We believe that upper gastrointestinal endoscopy (UGE) is a vital part of preoperative treatment planning and follow-up of the Bariatric surgery patients.

Methods: Data of 242 patients who have underwent a primary laparoscopic bariatric procedure (sleeve-gastrectomy and Mini gastric-bypass) between the years 2010-2013 were evaluated preoperatively and postoperatively evaluated by UGE done by bariatric surgeons were retrospectively analyzed. All the patients underwent an UGE evaluation before and 6 months and 12 months follow-up.

Results: Preoperatively an abnormal endoscopic finding or antral biopsy was found in 37.6% and 67.2% respectively. 6 patients had a grade 2-3 hiatal hernia and total of 12 patients showed a presence of LA grade A and B reflux esophagitis. Two patients showed peptic ulcers and the surgery was delayed until healing. The presence of H.pylori infection was 58.2%. After bariatric surgery the rate of abnormal endoscopic finding or antral biopsy were 24.7% and 40.3 % ($p < 0.005$) respectively and none of the patients showed a recurrent hiatal hernia, 8 patients showed LA Grade A-B reflux esophagitis. Two patients developed gastric sleeve dilation.

Conclusion: Endoscopic evaluation of the bariatric surgery patient is vital before planning of surgery and also in the follow-up period. Bariatric surgery dramatically helped the resolution of upper-gastrointestinal disorders in obese individuals.