cose (IFG) and 114 with impaired glucose tolerance (IGT), were included in the study and were followed-up 13.4 ± 2.2 months later. OGTT was performed in all participants. Anthropometric and laboratory parameters, blood pressure and body fat mass were assessed.
Results: Progression rates from IFG and IGT to diabetes over 1 year were 12.08 and 19.91 per 100 person-years, respectively. Baseline determinants of progression from IFG to diabetes were found to be insulin resistance (HOMA-IR) and systolic blood pressure, and from IGT to diabetes – overweight and obesity (BMI), waist circumference and HOMA-IR. The most significant predictors for the progression from IFG to diabetes were the increase in BMI, waist circumference, systolic blood pressure, total cholesterol and triglycerides; and for progression from IGT to diabetes – the changes in BMI, percentage of body fat, systolic and diastolic blood pressure.
Conclusion: Individuals with IFG or IGT have a rather high risk of developing diabetes within one year. The changes in body weight, waist circumference, body fat, total cholesterol, triglycerides, systolic and diastolic blood pressure are significant determinants of progression to diabetes, which implies for adequate measures for their control aiming at prevention of the disease.

T6:PO.005

Role of Adipokines in Insulin synthesis and secretion

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Introduction: The adipose tissue has become a central player in the pathogenesis of metabolic disease. The aim of this study was to evaluate whether preadipocytes from different depots, could change differently synthesis and secretion of insulin in beta-pancreatic cells.
Methods: We performed isolation, cultivation and differentiation of human preadipocytes using either abdominal subcutaneous or mesenteric adipose tissue obtained from bariatric interventions. The media from day 0,4,7,10,15 and 20 was added over PANC-1 beta-pancreatic cells (2X104cells) and the insulin and proinsulin levels were measured by ELISA. We also used a transwell system in which the PANC-1 cells grown in the lower well of the 6-well culture plate were co-cultured for 24 hours with differentiated adipocytes in the transwell inserts (with 0.4µm porous membrane). The leptin, adiponectin, insulin and proinsulin levels in co-cultured PANC-1 cells (media and cell lysates) were determined by ELISA as well. The experiments were done in duplicate and repeated four times.
Results: Intracellular proinsulin level was higher then in the media while insulin was lower in the cell lysates and these was maintained with adipocytes differentiation. The expresion level of leptin increases steadily with the degree of differentiation only intracelular while levels of adiponectin dit not differed. When the two types of cells were cocultured in the transwell system except for proinsulin all parameter did not differ from those obtained in experiment 1. Adiposse tissue origin does not influence neither synthesis nor secretion of insulin.
Conclusion: Our results suggest that the ratio between pro/antiinflamatory adipokines during adipocytes differentiation has an important rol in both production and secretion of insulin in beta-pancreatic cells.

T6:PO.007

Childhood obesity associated cardiovascular and cardiorenal risk factors in relation to pubertal status

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Introduction: Obesity is known to be associated with hypertension, one of the major causes of chronic kidney disease in adults. This study aims to evaluate the association between childhood obesity, cardiovascular and renal risk factors.
Methods: A total of 104 consecutive obese children (IOTF, Cole et al., 2000) investigated in 11.2012–11.2013 and aged 11.8 ± 3.6 (4–17.6 years), without chronic diseases, were included (38.5% boys). Body weight, height, waist circumference (WC) and blood pressure (BP) were measured using standard procedures. Pubertal status was defined applying Tanner scale. Blood and urine samples were collected after a 12-hour overnight fasting. The presence of hypertension (systolic, diastolic or both) was defined according to NHBPEP (2004) as a measure above 90th percentile for age, sex and height.
Results: Above one third of the participants (**41.6%**) had elevated systolic BP (83.8% pubertal, $p < 0.001$). Microalbuminuria (MA) was detected in **7.2%** of the children (85.7% pubertal, $p = 0.014$). Systolic hypertension and MA were simultaneously present in 3% of the children, all pubertal (mean age 15.69 ± 1.42 years) and with positive family history of hypertension. There were no significant correlations between positive MA and weight, BMI, WC. However, cardiovascular risk factors such as total cholesterol, HDL-cholesterol and hsCRP were significantly associated with MA in the pubertal group ($p = 0.054$, $p = 0.038$, $p = 0.015$ respectively).
Conclusion: The current findings suggest development of kidney dysfunction in obese children with positive family history of hypertension after the initiation of puberty. Microalbuminuria might be a good marker to identify pubertal children with increased risk of endovascular damage.

T6 – Cancer

T6:PO.009

Effect of excess body adiposity on the expression of genes involved in early steps of mammary carcinogenesis on diet-induced obese female rats

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Introduction: Obesity is increasing worldwide and is associated with higher risk for some cancers. However, the mechanisms underlying this association are unclear. Because the obesity microenvironment could promote the onset of carcinogenesis, the aim of this study was to evaluate the association between excess body adiposity and the expression of genes related to the activation of early steps of tumor promotion on the mammary gland.
Methods: Three weeks-old female Sprague-Dawley rats were fed a high fat diet (DIO: 60% Kcal/g fat, n = 14) or standard chow (LEAN: 3% Kcal/g fat, n = 15) for 10 weeks. Body weight and food intake were measured weekly. After sacrifice, retroperitoneal fat tissue was weighed and mammary tissue was extracted for qRT-PCR analysis. Genes associated

with cell proliferation (Survivin/BIRC5 and MYC), DNA repair (TP53), and antioxidant protection (GSTM2, ALDH3A1) were quantified.
Results: The DIO group showed a body weight 14.1% higher than LEAN group ($p < 0.001$). These differences were reflected on higher retroperitoneal fat content on DIO (3.22 ± 0.89g) vs. LEAN group (2.33 ± 0.52g; $p = 0.012$). Interestingly, DIO rats showed a higher gene expression for Survivin (Δ68.2%), MYC (Δ50.1%), TP53 (Δ40.5%), ALDH3A1 (Δ74.1%), and GSTM2 (Δ25.7%) with respect to LEAN group.
Conclusion: These data show that obesity is associated with changes potentially involved in early steps of tumor promotion, as shown by an increase in cellular proliferation and DNA damage related genes, even before detecting histological changes on the mammary tissue of obese female individuals. Further studies are needed to elucidate weather reducing body weight might be a therapeutic strategy to prevent this process.

T6:PO.010

Increased intestinal tumorigenesis by genetic or diet-induced obesity in a double mutant (*Min* x *ob*) mouse model may involve both disturbed blood glucose regulation and inflammation

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Introduction: We have studied two hypotheses for the association between obesity and intestinal tumorigenesis.
Methods: These experiments were done in double mutant F1 offspring from intercrossing of C57BL/6J-*ApcMin* (adenomatous polyposis coli-multiple intestinal neoplasia)/+ mouse, which develops spontaneous intestinal tumors, and C57BL/6J-*Lepob* (leptin-obese)/+ mouse, which develops obesity, on 10% or 45% fat diet.
Results: Terminal body weight (bw) and number of small intestinal tumors were significantly increased in *Min*/+,ob/ob compared with *Min*/+,ob/+ and *Min*/+,+/+ mice. In these mice given a 45% fat diet from weaning to termination at 11 weeks, terminal bw and number of small intestinal tumors were increased further compared with 10% fat diet. Insulin resistance and hyperinsulinemia are implicated by higher blood glucose levels (non-fasted) and area under the curve (AUC) in a glucose tolerance test (fasted), as well as higher plasma insulin levels, in ob/ob mice compared with ob/+ and +/+. A 45% fat diet further increased glucose, but not insulin levels. An alternative hypothesis implicates inflammation. The proinflammatory cytokine tumor necrosis factor (TNF)α was increased in ob/ob versus ob/+ and +/+, but was not further increased by a 45% fat diet. To draw firm conclusions for the cytokines interleukin 6 (IL-6) and IL-1β the positive samples were too few and none, respectively. The genotypes ob/+ and +/+ did not differ significantly in any of these end points.
Conclusion: Both genetic and diet-induced obesity increases intestinal tumorigenesis in this mouse model, and the association between obesity and intestinal tumorigenesis may involve disturbed blood glucose regulation and inflammation.

T6:PO.011

In utero exposure to perfluorooctanoate (PFOA) or perfluorooctane sulfonate (PFOS) did not increase body weight or intestinal tumorigenesis in multiple intestinal neoplasia (*Min/+)* mice

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Introduction: We examined whether perfluorooctanoate (PFOA) or perfluorooctane sulfonate (PFOS) had obesogenic effect or increased spontaneous intestinal tumorigenesis in the mouse model C57BL/6J-*ApcMin* (adenomatous polyposis coli-multiple intestinal neoplasia)/+ after *in utero* exposure.
Methods: The dams were exposed to PFOA or PFOS (0.01, 0.1 or 3.0 mg/kg bw/day) by p.o. gavage on GD1–17. The *Min*/+ and +/+ offspring were terminated at week 11 for examination of intestinal tumorigenesis or at week 20 for obesogenic effect, respectively. Body weights of the dams and pups were recorded throughout life. Food intake was determined at week 6 and 10. Blood glucose (non-fasted) was measured at week 6 and 11.
Results: No obesogenic effect of PFOA or PFOS was observed up to 20 weeks of age. PFOA or PFOS did not increase the incidence or number of tumors in the small intestine or colon of *Min*/+ mice or affect their location along the intestines. Feed intake was not affected. Some indications of toxicity of PFOA, but not of PFOS, were observed. There was lower survival of pups after 3.0 mg/kg PFOA, lower body weight in pups after 3.0 and possibly 0.1 mg/kg PFOA, and increased relative liver weight after 0.01 and possibly 0.1 mg/kg PFOA. Plasma glucose was lower after 0.01 and 0.1 mg/kg PFOA.
Conclusion: *In utero e*xposure to PFOA and PFOS in the doses used did not have obesogenic effect on *Min/*+ or +/+ mice, at least not up to 11 or 20 weeks of age, nor increased intestinal tumorigenesis in *Min/*+ mice.

T6:PO.012

Obesogenic conditions *in utero* and during nursing increased body weight and intestinal tumorigenesis in *Min/*+ mice as adults

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Introduction: We studied effects of 45% fat diet in various periods of life on development of obesity and susceptibility to intestinal tumorigenesis in the C57BL/6J-*ApcMin* (adenomatous polyposis coli-multiple intestinal neoplasia)/+ mice as adults.
Methods: The mice were exposed to 10% fat diet throughout life (negative control) or 45% fat diet *in utero*, during nursing, during both *in utero* and nursing, during adult life, or during their whole life-span, and terminated at 11 weeks for tumorigenesis (*Min/*+) or 23 weeks for obesogenic effect (+/+).
Results: Body weight as area under the curve (AUC) from day 3 to termination was significantly increased after 45% fat diet during nursing, and during *in utero* and nursing, as well as throughout life. In the glucose tolerance test, early exposure to 45% fat diet *in utero*, during nursing, or during *in utero* and nursing, did not affect blood glucose, whereas exposure to 45% fat diet as adults or throughout life significantly increased glucose AUC compared with the control. However, 45% fat diet during nursing, or during *in utero* and nursing, significantly increased the number of small intestinal tumors compared with the control. So did exposure to 45% fat diet in adult life or throughout life, but these dietary exposures for longer time did not significantly increase the number of small intestinal tumors further compared with exposure during *in utero* and nursing.
Conclusion: A high fat diet early in life increases obesity and intestinal tumors in mice as adults, revealing a critical window of exposure.

T6:PO.013

Osteopontin induces aromatase expression in human adipocytes

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