O001 / #322

ORAL PRESENTATIONS 01: NEONATAL & PREMATURITY

INSULIN-SENSITIVITY OF THE OFFSPRING EXPOSED IN UTERO TO MATERNAL HYPERGLYCEMIA SEEMS TO BE MODULATED IN LONG TERM BY THE BREAST MILK COMPOSITION RECEIVED DURING LACTATION.

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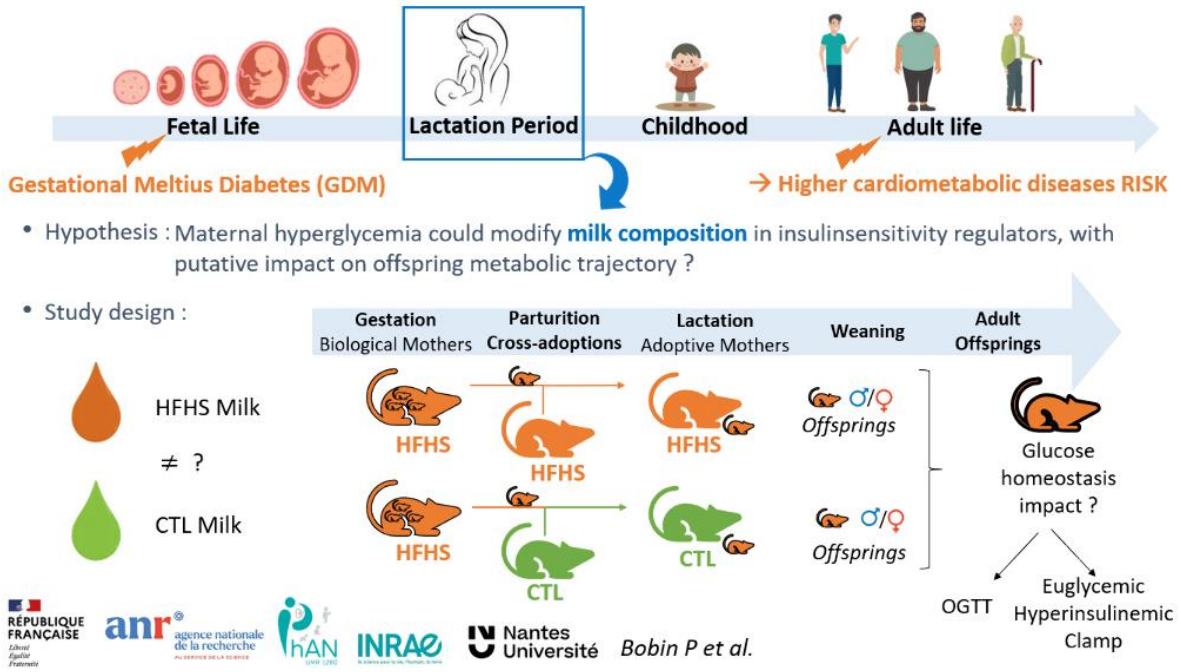
Background and Aims: Epidemiological evidence suggests that foetal hyperglycaemia in gestational diabetes (GDM) context programs offspring susceptibility to type-2-diabetes. Emerging benefit effects of breastfeeding duration on child's metabolic status were reported beside changes in GDM-breast-milk (BM) composition. We investigated whether maternal hyperglycaemia impacts BM content in insulin-sensitivity regulators and their effects on offspring glucose homeostasis using a pre-clinical cross-fostered rodent pup combined with an integrative metabolomic approach.
Methods: Female Sprague-Dawleys rats were fed high-fat high-sucrose (HFHS) or chow diet (CTL) one week before mating and during gestation (G). During lactation (L), HFHS group was fed standard diet (4HFHS) or maintained on HFHS (7HFHS). Oral glucose tolerance tests (OGTT) were performed at G12 and L12. Milk metabolome/lipidome were characterized throughout lactation (L1/L8/L14/L19). Offspring insulin-sensitivity was studied by OGTT (D60/D210) and euglycemic-hyperinsulinemic clamps (D200) in response to hypercaloric challenge (D120 to D220).
Results: Insulino-sensitivity of HFHS dams was lower compared to CTL at G12 and at L12 in 7HFHS dams, compared to 4HFHS and CTL. Throughout lactation, insulino-trophic amino acids, ω6/ω3 polyunsaturated fatty acids ratio as well as various sphingolipids species were significantly increased in 7HFHS *vs* CTL milk. At D220, offspring born to HFHS dams and suckled by CTL dams showed hyperglycemia (in males) and an insulin-sensitivity lower trend (in females) in response to hypercaloric challenge.
Conclusions: Maternal hyperglycemia during gestation and lactation seem to impact milk composition and gender-metabolic flexibility of offspring. We are currently analysing longitudinal offspring blood metabolome/lipidome phenotyping data in a specific manner depending to be nursed by hyperglycemic *vs* euglycemic
dams.



O002 / #403

ORAL PRESENTATIONS 01: NEONATAL & PREMATURITY

PRETERM GROWTH ASSESSMENT: THE LATEST FINDINGS ON AGE CORRECTION

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Background and Aims: Currently available evidence on age correction for assessing preterm growth is >25 years old. Growth assessment of preterm infants risks over-identifying suboptimal growth depending on age correction. This study aims to update the evidence on age correction up to 36 months of age using recent data and up-to-date growth charts.
Methods: Longitudinal data were obtained from the Preterm Infant Multicenter Growth Study. Using standard growth measures, growth patterns were compared on the World Health Organization sex-specific growth charts based on chronological and corrected ages at 4, 8, 21 and 36 months.
Results: A total of 1,416 children born before 32 weeks of gestation were included in the study. Weight, height, and head circumference z-scores based on chronological age were consistently lower on the growth charts than those based on corrected age for all ages (4, 8, 21 and 36 months). This difference was highest at 4-months corrected age and decreased as children grew, however, the difference remained statistically significant through 36 months of corrected age. Using the chronological age, an overwhelmingly higher proportion (~40%) of children were misclassified as having suboptimal growth, defined as stunting and underweight.
Conclusions: For children born extremely and very preterm, our findings support the practice of age correction for all growth measures including weight, length/height and head circumference through 3 years corrected age. To avoid growth misclassifications among preterm

O003 / #195

ORAL PRESENTATIONS 01: NEONATAL & PREMATURITY

TISSUE-SPECIFIC EPIGENETIC DIFFERENCES IN ADULTS BORN PRETERM WITH VERY LOW BIRTH WEIGHT COMPARED WITH THEIR SAME-SEX SIBLINGS

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Background and Aims: Preterm birth and very low birth weight (VLBW; ≤1500 g) increase the long-term risks for poor health, however, the mechanisms remain unknown. One suggested pathway is epigenetic DNA methylation (DNAm), but few studies have assessed other tissues than blood. We examined whether DNAm in blood or fat differs between VLBW adults and their sibling-controls.
Methods: The current analysis is based on the Adults Born Preterm Sibling Study and included 71 adults born preterm (<37 gestational week) with VLBW with 72 same-sex sibling-controls born on average at term and with normal birth weight, born between 1976-1996. DNAm at cytosine-guanine dinucleotide (CpG) sites were examined from blood and fat tissue by Illumina EPIC 850K at mean age of 29 years. Mixed model was conducted adjusting for age, sex, batch, estimated cell composition and maternal smoking.
Results: None of the DNAm differences in blood attained epigenome-wide significance. In fat tissue 440 CpG sites were differentially methylated with false discovery rate [FDR] $p<0.05$ and 86 CpG sites with epigenome-wide significance of $p<9.4 \times 10^{-8}$ between VLBW and their sibling-controls. Top sites were annotated to genes such as *FADS2* (cg00264176: coefficient [SE] 0.08 (0.01], FDR $p=9.1 \times 10^{-15}$), *ACSL3* (cg14157824: 0.05 [0.01], $p=6.1 \times 10^{-11}$) and *KIF26A* (cg08277679: 0.05 [0.01], $p=1.7 \times 10^{-12}$).
Conclusions: Our results suggest tissue-specific DNAm differences in VLBW adults compared with their siblings with associations in fat tissue rather than blood. The CpG sites observed were related to genes that influence fatty acid and cholesterol metabolism indicating possible pathways for metabolic disturbances of VLBW adults.

O004 / #455

ORAL PRESENTATIONS 01: NEONATAL & PREMATURITY

DOES THE EVIDENCE SUPPORT BARKER'S HYPOTHESIS? A CRITICAL APPRAISAL OF DAVID BARKER'S HIGHLY CITED STUDIES

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Background and Aims: Previous studies by Barker and colleagues suggest that exposure to intrauterine adverse conditions can lead to later cardiovascular and metabolic complications. Questions have been raised about adequate adjustment for socioeconomic and maternal health and the improper adjustment for adult body weight, resulting in residual confounding, over-adjustment and potentially misleading results. We conducted a critical appraisal of Barker's most highly cited (HCBarker) publications for risks of bias and whether they overadjusted for later body weight.
Methods: We performed a systematic review of HCBarker's studies that had more than 1000 citations. Two reviewers independently examined for eligibility and assessed for risk of bias assessment using the Risk Of Bias In Non-randomized Studies of Interventions (ROBINS-I) tool. Any discrepancies were resolved by a third reviewer.
Results: Out of 564 papers, 8 studies met the inclusion criteria for our final review. All of these studies displayed high risks of bias, with particular concerns regarding confounding (8/8), selection of reported results (8/8), classification of exposure (7/8), selection of participants (5/8), measurement of outcomes (2/8), deviations from intended question (1/8), and high missing data (ranged from 40% to 97%). Later body weight was adjusted in most (7/8) of the studies.
Conclusions: Our review of the HCBarker studies revealed important bias of risks concerns stemming from inadequate control of confounding factors, possible bias in selection of reported results as well as overadjustment of later body weight. Coupled with notably high rates of missing data, these findings raise questions about the validity of HCBarker's conclusions.

O005 / #323

ORAL PRESENTATIONS 01: NEONATAL & PREMATURITY

PLASMA AMINO ACIDS IN EARLY PREGNANCY AND LONGITUDINAL FETAL GROWTH TRAJECTORIES ACROSS PREGNANCY: FINDINGS FROM A PROSPECTIVE MULTI-RACIAL PREGNANCY COHORT

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Background and Aims: Maternal amino acids (AAs) are crucial for fetal growth. We examined first-trimester plasma AAs and longitudinal fetal growth across pregnancy.
Methods: Pregnant women (n=2,802) of diverse race/ethnicity from the U.S. NICHD Fetal Growth Studies – Singletons Cohort were enrolled at 10-14 gestational weeks (GW). Ultrasound schedules were randomly assigned to estimate weekly fetal growth. Twenty four AAs were measured using plasma samples collected at enrollment among 321 women. We modeled fetal growth trajectories across tertiles of AAs with cubic splines using linear mixed models after accounting for major confounders. We performed weekly comparisons to determine the time when these differences emerged.
Results: In general, all AAs were associated with significant differences in fetal growth trajectory (P for global test <0.05). These associations varied by specific types of AAs and measures of fetal growth. For instance, compared with the lowest tertile, the highest tertile of arginine was related to smaller estimated fetal growth (EFW), abdominal circumference (AC) and biparietal diameter (BPD) at 18-26 GW (at 18 GW: 215 vs 226 g for EFW; 126 vs 131 mm for AC; and 40 vs 41 mm for BPD). By contrast, the highest tertile of asparagine was related to higher estimated EFW, AC and BPD at 12-16 GW and 34-38 GW.
Conclusions: Our study suggests that maternal plasma AA concentrations are significantly associated with fetal growth, with the associations being varied by types of AA and ultrasound measures of fetal growth.

O006 / #637

ORAL PRESENTATIONS 01: NEONATAL & PREMATURITY

PROTEIN INTAKE IN VERY LOW BIRTH WEIGHT AND PRETERM INFANTS IN THE FIRST WEEK OF LIFE

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Background and Aims: Protein is essential for growth, body repair ian neurodevelopment in a very low birth weight (VLBW) and preterm infant due to inadequate oral intake and prolonged illness. However due to fear of acidosis and azotemia, the protein intake is usually limited in VLBW. To evaluate the amount of protein given to VLBW & preterm infants, and associiated urea and creatinine level, in first week of life.
Methods: Retrospective audit to assess local protocol for protein intake, aiming 3.5g/kg/day to 4g/kg/day in the first week of life in preterm & VLBW infants. From january 2021- january 2022, 20 random patients in NICU, weighing less than 1500 gm, were included. Data was collected from TPN charts, clinical notes and lab online. SPSS was used for data analysis and results.
Results: Protein intake on day 1 was <2 g/kg/day in 20% (n 4), 2-2.5 g/kg/day in 45% (n 9), and 2.5-3 gm/kg/day in 35% (n 7). By day 5, 2.5-3 gm/kg/day in 25%(n 5), 3-3.5 gm/kg/day in 40% (n 8) and >3.5 gm/kg/day in 25% (n 5). By day 7, decreased protein of <2 g/kg/day, 2-2.5 g/kg/day given to 1 baby each, 2 got 2.5-3 gm/kg/day, only 35% (n7) got 3-3.5 gm/kg/day and 45% (n 9) reached >3.5 gm/kg/day. High urea and creatinine were not asso

ciated with more protein intake.

Conclusions: Protein intake in VLBW/ preterm infants were not adequate in the first week of life. High urea and creatinine were not associated with more protein.We recommend protein intake of 2.5 to 3gm/kg/day, and increased up to 3.5 to 4gm/kg/day in the first week of life.

O007 / #530

ORAL PRESENTATIONS 01: NEONATAL & PREMATURITY

BOVINE LACTOFERRIN FOR PREVENTION OF LATE-ONSET OF SEPSIS IN LOW-BIRTH-WEIGHT INFANTS: A RANDOMIZED CONTROLLED TRIAL

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Background and Aims: In LMICs, Sepsis remains a significant cause of morbidity and mortality in preterm and LBW neonates. Our study assessed the effectiveness of lactoferrin (bLF) supplementation in preventing LOS and necrotizing enterocolitis (NEC) in preterm and LBW neonates in Pakistan.
Methods: A double-blind, randomized clinical trial was conducted in Aga Khan University Hospital. Preterm (28 to 36+5 weeks-gestational-age) and low-birthweight (LBW) (≥1000g- <2500g) neonates who established enteral feeding by 72 hours were eligible. Exclusion criteria included sepsis before randomization, maternal history of chorioamnionitis or group B streptococcus colonization, and congenital anomalies. Enrolled neonates were randomly allocated sequence to receive placebo (D-glucose), 150mg-bLF, or 300mg-bLF mixed in breast or formula milk once daily for 28 days. Neonates followed weekly for 28+2 days and episodes of LOS and NEC were recorded.
Results: Of the 305 neonates enrolled, 102 and 203 were randomized to receive placebo and bLF respectively. Outcome data for 291 participants (99 in placebo group, 192 in bLF group) were available for inclusion in the intention-to-treat analysis. There were 8% neonates in the placebo group who were diagnosed with culture-proven sepsis compared to 3.1% in the bLF group (p=0.068). We did not find any difference in episodes of NEC between placebo group (n=16, 16%) and bLF group (n=27, 13%; p=0.559). We reported compliance as 95.7% of placebo group and 98.4% of bLF group.
Conclusions: Bovine lactoferrin supplementation may prevent late-onset sepsis in preterm and low birth-weight neonates. However, more trials with larger sample sizes are required to confirm its efficacy in this at-risk group.

O008 / #343

ORAL PRESENTATIONS 02: INFANCY

GROWTH AND GUT COMFORT OF HEALTHY TERM INFANTS EXCLUSIVELY FED WITH A HYDROLYSED PROTEIN-BASED INFANT FORMULA: A RANDOMIZED CONTROLLED DOUBLE-BLIND TRIAL

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Background and Aims: The aim was to study growth and gut comfort of healthy infants exclusively fed with a partially hydrolysed cow's milk protein-based infant formula (pHF) compared to a standard intact cow's milk protein-based formula (IPF).
Methods: A double-blind, multi-center, randomized, controlled trial was performed. Healthy full-term, exclusively formula-fed infants (n=345), aged ≤28 days consumed either pHF (n=173) or IPF (n=172) up to the age of 17 weeks. During the study period, growth, and gut comfort outcomes were obtained at four time points (baseline, 8, 13 and 17 weeks of age). The primary outcome was equivalence of weight gain (g/d) until the age of 17 weeks. The secondary outcomes were other growth parameters, while tertiary outcomes were gut comfort, formula intake.
Results: In total, 288 infants completed the study (pHF group: 138, IPF group: 150). No differences were observed between the two groups in weight gain (p=0.915, 90% CI [-1.252 to 1.100]. No differences over the intervention period were shown for the secondary outcomes. Average Z-scores were in the normal range based on WHO growth standards for both groups. Stool consistency, amount, and colour were different in the pHF group compared to the IPF. No differences were observed in gut comfort, stool frequency, and formula intake.
Conclusions: The study demonstrates that consumption of pHF results in adequate infant growth, equivalent to that of infants consuming IPF. Furthermore, overall gut comfort reported was comparable between the two groups. Therefore, it can be concluded that the pHF is safe for and well tolerated by healthy infants.

O009 / #554

ORAL PRESENTATIONS 02: INFANCY

MATERNAL CAPITAL MODIFIES THE IMPACT OF A BREASTFEEDING RELAXATION INTERVENTION ON INFANT GROWTH: RESULTS FROM THREE TRIALS IN CHINA, MALAYSIA AND THE UNITED KINGDOM

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Background and Aims: Maternal capital is a broad term referring to any aspects of maternal phenotype that represent the resources available for investment in offspring. The aims were to examine the association between capital and infant growth and to identify whether capital modified the effects of a breastfeeding relaxation intervention.
Methods: Data were collected in three randomized controlled trials investigating effects of a relaxation audiotape in 209 breastfeeding mothers of late preterm and term infants in China, Malaysia, and the UK. We combined data on maternal weight, age, education and income into a composite maternal capital score. A score of at least 3/4 was considered low capital. Infant outcomes were birth weight and weight- and length-for-age z-scores at 6-8 weeks post-delivery. Linear regression was conducted to assess the relationship between capital and infant outcomes. General linear models were used to assess the interaction of maternal capital and intervention assignment on infant outcomes.
Results: Infants of low capital mothers had significantly lower weight at birth and at 6-8 weeks although not significantly so. There was a significant interaction between capital and intervention assignment for weight z-score at 6-8 weeks, where low capital mothers who were assigned to the control group had lighter babies.
Conclusions: Mothers with low capital had smaller infants at birth, which might reflect lower investment during pregnancy. Findings also suggest that the breastfeeding relaxation intervention was most effective in low capital mothers, as the effects of low capital appeared most detrimental to infants whose mothers did not receive the intervention.

O010 / #192

ORAL PRESENTATIONS 02: INFANCY

POSTNATAL GROWTH IN SMALL VULNERABLE NEWBORN: EVIDENCE FROM A LONGITUDINAL STUDY WITH 2 MILLION BRAZILIAN

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Background and Aims: Preterm, low birth weight (LBW) and small for gestational age (SGA) newborns have a higher frequency of adverse health outcomes, including linear and ponderal growth impairment. We aimed to describe the growth trajectories during the first five years of life of small newborns according to three vulnerability phenotypes (preterm, LBW, SGA).
Methods: A longitudinal study using linked data from the 100 Million Brazilian Cohort baseline, the Brazilian National Live Birth System (SINASC), and the Food and Nutrition Surveillance System (SISVAN) from 2011 to 2017. We estimated the length/height-for-age (LAZ/HAZ) and weight-for-age z-scores (WAZ) trajectories from children of 6 to 59 months using the linear mixed model for each vulnerable newborn phenotype.
Results: 2,021,998 live-born children and 8,726,599 observations were analyzed. The prevalence of at least one of the vulnerable phenotypes was 16.65% and 0.56% were simultaneously preterm, LBW, and SGA. For those born at term, all phenotypes had a period of growth recovery from 12 months. For preterm infants, the onset of LAZ/HAZ growth recovery started later at 24 months and the growth trajectories were lower than those born at term, a condition aggravated among children with the 3 phenotypes. Preterm and female babies experienced slower growth recovery than those born at term and males. The rapid growth also occurs at 24-58 months for males preterm and among females.
Conclusions: Children born preterm reached LAZ/HAZ and WAZ growth trajectories lower than those obtained by children born at term, a condition aggravated among the most vulnerable.

O011 / #99

ORAL PRESENTATIONS 02: INFANCY

IS MATERNAL IODINE INSUFFICIENCY RELATED TO INFANT OVERWEIGHT? A MOTHER-OFFSPRING PILOT STUDY

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Background and Aims: Childhood obesity and iodine deficiency are global public health concerns; however, data on the link between mild-to-moderate ID and overweight in infants are lacking. Therefore, We aimed to assess the relationship between maternal iodine status and infant weight.
Methods: A prospective pilot study was carried out among 80 euthyroid mother-infant pairs from Israel. Maternal iodine-related behaviors, iodine status and thyroid function were assessed, estimated, and measured using questionnaires, biochemical measurements including serum thyroglobulin (Tg) and serum free thyroxine (FT4), respectively. Maternal and offspring characteristics, including offspring weight at 1 year of age, were collected from medical records. Infants were considered as being overweight at 1 year when weight percentile was above the 85% tile (gender-adjusted), using a Cox proportional hazards model with multiple confounders.
Results: Maternal Tg > 20 µg/L was independently associated with infant overweight (adjusted hazard ratio = 7.2, 95% CI: 1.3–40.4, p = 0.003). Infants born to mothers with a Tg > 13 µg/L value (n=49), had higher weight mean±SD percentiles than those born to mothers with a Tg < µ13 g/L value (n=31), 58±29% vs. 42±29%, respectively. Maternal FT4 correlated negatively with infant weight percentile among women who reported consuming iodine-containing supplements (n = 42, R^2 = 0.14, p = 0.02).
Conclusions: Maternal insufficient iodine status might increase the risk of offspring overweight in mild-to-moderate ID regions. Maternal iodine status, thyroid function and iodine-related behaviors can be associated with offspring anthropometric index. These preliminary findings highlight the need to better understand how maternal ID may impact childhood obesity.

O012 / #399

ORAL PRESENTATIONS 02: INFANCY

MEDITERRANEAN DIET ADHERENCE AND CARDIOMETABOLIC CHANGES AFTER 1YEAR INTERVENTION IN CHILDREN AT RISK OF OBESITY: MELIPOP STUDY

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Background and Aims: The worldwide high prevalence of childhood obesity indicates a worrying future health scenario; therefore, promoting healthy habits and ensuring proper children's growth is a priority. The aim is to compare one-year intervention program changes in Mediterranean diet (MD) adherence and cardiometabolic parameters between control group (CG) and intervention group (IG).
Methods: The MELIPOP study is a randomised clinical trial conducted in three Spanish cities (NCT04597281). Children aged 3-6 years were contacted (n=293). After run-in period, baseline measurements were performed in 147 children, who were subsequently randomised. Cardiometabolic measurements were obtained in 65 children who had been followed up for 12 months in clinical care and 82 in Mediterranean lifestyle intervention. MD adherence was assessed using an 18-item questionnaire adapted from PREDIMED study. Glucose, triacylglycerol, HDL-cholesterol and insulin were determined through automated methods and waist circumference was measured according to ISAK-protocol. To compare CG and IG, after one-year of intervention, general linear model for repeated measurements adjusted for age at baseline was performed.
Results: After one-year of MELIPOP participation, there are an increase in HDL-c (CG: 56.0 ± 13.4 vs 58.0 ± 10.8 and IG: 55.4 ± 13.6 vs 61.1 ± 14.6mg/dl; p=0.047) and MD adherence (11.6 ± 2.6 vs 12.8 ± 2.2; p=0.001) in children who were assigned to IG.
Conclusions: One-year intervention showed a change in HDL-c and MD adherence. Healthy lifestyle program is important to increase and improve dietary patterns and maintenance of health status.
Funded by European Union (MSCA project MARCO-101109120), CIBEROBN (OBN17PI03) and Instituto de Salud Carlos III (PI18/00666).

O013 / #383

ORAL PRESENTATIONS 02: INFANCY

UNVEILING THE IMPACT OF ZINC SUPPLEMENTATION ON GROWTH IN PRETERM INFANTS: CURRENT EVIDENCE FROM SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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Background and Aims: Zinc, an essential micronutrient, serves a crucial role in orchestrating more than 300 biological functions, ranging from cell growth and differentiation to the synthesis of major proteins. However, there is still a lack of recent evidence regarding the impact of zinc supplementation on the growth of preterm infants. Therefore, in this study, we aim to elucidate the effects of zinc supplementation on the growth of preterm infants.
Methods: The Preferred Reporting Items for Systematic Review and Meta-Analysis, commonly known as PRISMA, were adhered to in this study. Searches were conducted in the following medical databases up to October 5th, 2023: PubMed, Wiley, ScienceDirect, and Cochrane.
Results: Out of the 20 in randomized controlled trials (RCTs) retrieved for eligibility, 16 RCTs (*n*=2,091 infants) was included in the systematics review and meta-analysis and 4 RCTs were excluded due to outcome of interest not reported. The administration zinc supplementation significantly increase the serum alkaline phosphatase level (SMD = 1.19IU/L, 95% CI; 0.08IU/L – 2.31IU/L) and the serum zinc level (SMD = 0.77IU/L, 95% CI; 0.07-1.48UI/L) compared to the control group. Interestingly, based on the results of zinc supplementation to preterm infants resulted to weight gain (3.1.1; SMD = 0.54, 95% CI' 0.25-0.82), Height gain (SMD = 0.86, 95% CI; 0.26 – 1.47) and head circumference (SMD = 0.41, 95% CI; 0.06 – 0.76) in the intervention group compared to control group significantly ($p<0.05$).
Conclusions: Finally, this study reveals the latest evidence that zinc supplementation can help increase growth in preterm infants drastically.

O014 / #362

ORAL PRESENTATIONS 02: INFANCY

EFFECT OF LOW-DOSE IRON SUPPLEMENTATION IN BREASTFED INFANTS ON DEVELOPMENT DURING EARLY CHILDHOOD: RESULTS FROM A RANDOMIZED PLACEBO-CONTROLLED TRIAL.

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Background and Aims: Breastfed infants are at risk of iron deficiency (ID) which is associated with suboptimal development. Evidence on effects of iron supplementation on child development is inconsistent and current guidelines are contradictory. The aim of the present study was to investigate whether daily iron supplementation, administered between 4 and 9 months of age to exclusively or predominantly breastfed infants, enhances psychomotor development at 12 months of age.
Methods: In a randomized, quadruple-blinded placebo-controlled trial, healthy and full term exclusively or near exclusively (>50% meals) breastfed infants (n = 221) were randomized to receive low dose iron supplementation (approximately 1 mg/kg/day) or placebo between 4 and 9 months of life. At 12 months, psychomotor development was assessed using Bayley Scales of Infant and Toddler Development III.
Results: Out of 221 randomized infants, 200 (90%) were included in intention-to-treat analysis. Iron supplementation (n = 104) compared to placebo (n = 96) had no effect on motor development (mean difference -1.07 points, 95% CI: -4.69, 2.55, main outcome); cognitive score (-1.13, 95% CI: -4.26, 1.99); and language score (0.75, 95% CI: -2.3, 3.8) at 12 months. Additionally, iron supplementation did not reduce risk for ID (relative risk RR 0.49; 95% CI: 0.17, 1.41) or ID anemia (RR 0.84, 95% CI: 0.05, 13.3) at 12 months.
Conclusions: Breastfed infants had no benefit from low dose daily iron supplementation given between 4 and 9 months in terms of psychomotor development or the risk of ID and IDA.

O015 / #587

ORAL PRESENTATIONS 02: INFANCY

PARTIALLY HYDROLYZED FORMULA WITH HMO, LOW-LACTOSE, AND UNIQUE VEGETABLE OIL BLEND IS ASSOCIATED WITH IMPROVEMENT IN COLICKY SYMPTOMS IN INFANTS: A SINGLE-ARM CLINICAL FEEDING STUDY

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Background and Aims: Many infants may experience gastrointestinal (GI) intolerance, including colicky symptoms during early infancy. This study (ClinicalTrials.gov registration #NCT02757924) aimed to evaluate the effects of a partially hydrolyzed whey protein-based infant formula (pHF) with 2′-FL HMO, low lactose, and no palm olein oil blend on GI symptoms in healthy infants.
Methods: This was a prospective, multi-center, single-arm, feeding experience study of 65 healthy, term infants (7-42 days old) who were exclusively formula-fed and assessed by parents to be very fussy or extremely fussy. Infants were switched to the study formula (0.2 g/L 2′-FL HMO) and fed exclusively for 28 days. The primary outcome was change in fussiness severity from baseline to within one day of study feeding (Day 1).
Results: Mean baseline fussiness severity scores (1=not at all to 5=extremely fussy) were 4.1±0.1 (mean±SEM) dropping to 3.2±0.1 at Day 1 ($P<0.001$). Compared to baseline, significant improvements ($P<0.05$) in GI tolerance were also observed, including amount of gassiness, hours of crying, number of spit-ups associated with feeding, after Day 1 and sustained to Day 28. At baseline, 55% of infants (n=26) had constipation which reduced to 41% at Day 7, and to 23% at Day 28 (All $P<0.002$). Growth of infants was normal.
Conclusions: This study demonstrated that switching fussy infants to a pHF infant formula with 2′-FL HMO, low lactose, and unique vegetable oil blend, is associated with improvement in colicky symptoms, including fussiness severity and other GI symptoms within 1 day.

O016 / #291

ORAL PRESENTATIONS 03: OBESITY

CHILDHOOD PLANT-BASED DIETARY PATTERNS: ASSOCIATIONS WITH NUTRIENT INTAKE, ADOLESCENT GROWTH, AND BODY COMPOSITION

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Background and Aims: The potential nutritional and health impacts of plant-based diets (PBDs) among children are largely unknown. We aimed to examine associations between PBDs and nutrient intake levels among children, and explore their associations with longitudinal growth and body composition.
Methods: We analyzed prospective data from 3340 children in the Dutch Generation R Study cohort. Food and nutrient intake was assessed at age 8 years using food-frequency questionnaires. We constructed an overall plant-based diet index (PDI), healthful PDI (hPDI), and unhealthful PDI (uPDI), and fitted multivariable linear mixed models to estimate their associations with nutrient intake levels and with growth and body composition measures, standardized by sex and age, at ages 10 and 13 years.
Results: After adjustment for socioeconomic and lifestyle factors, higher adherence to the three PDIs was associated with lower vitamin B2, B12, calcium, haem-iron and selenium intake, whilst higher adherence to the hPDI was associated with greater intakes of fiber, vitamins B1, B3, and C, and copper. The hPDI was also associated with higher fat-free mass index (FFMI) z-scores (per 10-hPDI score increment: β=0.05 SDS, 95%CI: 0.01,0.99), and with lower body fat percentage z-scores (β=-0.05 SDS, 95%CI:-0.09, -0.01), while the uPDI was associated with lower weight z-scores (β=-0.06 SDS, 95%CI: -0.11, -0.02) and FFMI z-scores (β=-0.08 SDS, 95%CI: -0.12, -0.03).
Conclusions: Our findings support the importance of a transition towards diets rich in healthy plant foods for adolescent growth and body composition, but also highlight carefully monitoring sufficient intake of animal food-derived micronutrients.

O017 / #282

ORAL PRESENTATIONS 03: OBESITY

PREVALENCE, TEMPORAL TRENDS AND ASSOCIATED FACTORS OF IMPAIRED GLUCOSE TOLERANCE AND TYPE 2 DIABETES IN FINNISH CHILDREN AND ADOLESCENTS

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Background and Aims: Clinical experience suggest that impaired glucose tolerance (IGT) and type 2 diabetes (T2D) have become increasingly common. Nevertheless, data on the prevalence, temporal trends and associated factors in children remain limited.
Methods: Data of 602 6–16-years-old Finnish patients (median 11.7 years, 41% girls) examined due to obesity in 2002–2020 were collected. Participants of prospective PANIC study comprised the population-based control group (n=438, age 6-17 years, 48% girls). IGT signified fasting glucose 5.6-6.9 mmol/l or 2h-OGTT values of 7.8–11.0 mmol/l and T2D values of ≥7.0 or ≥11.1 mmol/l, respectively. Associations between IGT/T2D and patient characteristics were studied by logistic regression.
Results: IGT was present in 34% and T2D in 1% of patients and in 3–16%/ none of controls, respectively. Patients with IGT or T2D had higher median age (12.9 vs. 11.1 years, p<0.001; 13.4 vs. 11.7 years, p=0.018) and pubertal stage than those without glucose abnormalities. After adjustments, acanthosis nigricans (OR 1.8, 95% CI 1.0–3.2) and fatty liver disease (1.7, 1.1–2.9) were associated with IGT, and acanthosis nigricans (7.3, 1.8–30.5), hypertriglyceridemia (5.5, 1.1–28.8) and family risk for T2D (6.4, 1.4–30.0) with T2D. IGT increased from 16% to 50% during the study period, while no change was seen in obesity or other metabolic disturbances.
Conclusions: Prevalence of IGT was 34% and T2D 1% among patients and 3-16%/0% in population. Associated factors were higher age and pubertal stage, and acanthosis nigricans, other metabolic conditions and family risk for T2D. Obesity-adjusted IGT increased significantly over time.

O018 / #395

ORAL PRESENTATIONS 03: OBESITY

MODELLING INDIVIDUAL INFANCY GROWTH TRAJECTORIES TO PREDICT EXCESSIVE GAIN IN BMI Z-SCORE: A COMPARISON OF GROWTH MEASURES IN THE ABCD AND GECKO DRENTHE COHORTS

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Background and Aims: It remains unknown which growth measures in infancy (0-2 years), besides predictors known at birth, are the strongest predictors for excessive weight gain between 2 and 5-7 years.
Methods: Data from the ABCD-study (derivation cohort, n=3139) and GECKO Drenthe study (validation cohort, n=2201) was used; change(Δ) in body mass index(BMI) z-score between 2 and 5-7 years was the outcome. Growth measures considered were weight, weight-for-length(WfL), and BMI with values at 1, 6, 12, and 24 months, at the BMI peak, the change between aforementioned ages, and prepeak velocity. 10 model structures combining different variable formats and including predictors at birth were derived for each growth measure. A Parsimonious Model considering all growth measures and a Birth Model considering none were also derived.
Results: The prevalence of excessive gain in BMI z-score (>0.67) was 11.9% in derivation and 26.9% in validation cohort. Across the 3 growth measures, 5 model structures which included measures related to the BMI peak and prepeak velocity (derivation cohort AUC range=0.765-0.855) achieved more accurate estimates than 3 model structures which included growth measure change over time (0.706-0.795). All model structures with BMI were most superior. The Parsimonious Model's AUCs were 0.856 (derivation) and 0.766 (validation), compared to 0.690 and 0.491, respectively, for the Birth Model. The respective false positive rates were 28.2% and 20.1% for the Parsimonious Model and 70.0% and 74.6% for the Birth Model.
Conclusions: Growth trajectories up to 2 years are of added benefit to predictors at birth for predicting ΔBMI z-score between 2 and 5-7 years.

O019 / #437

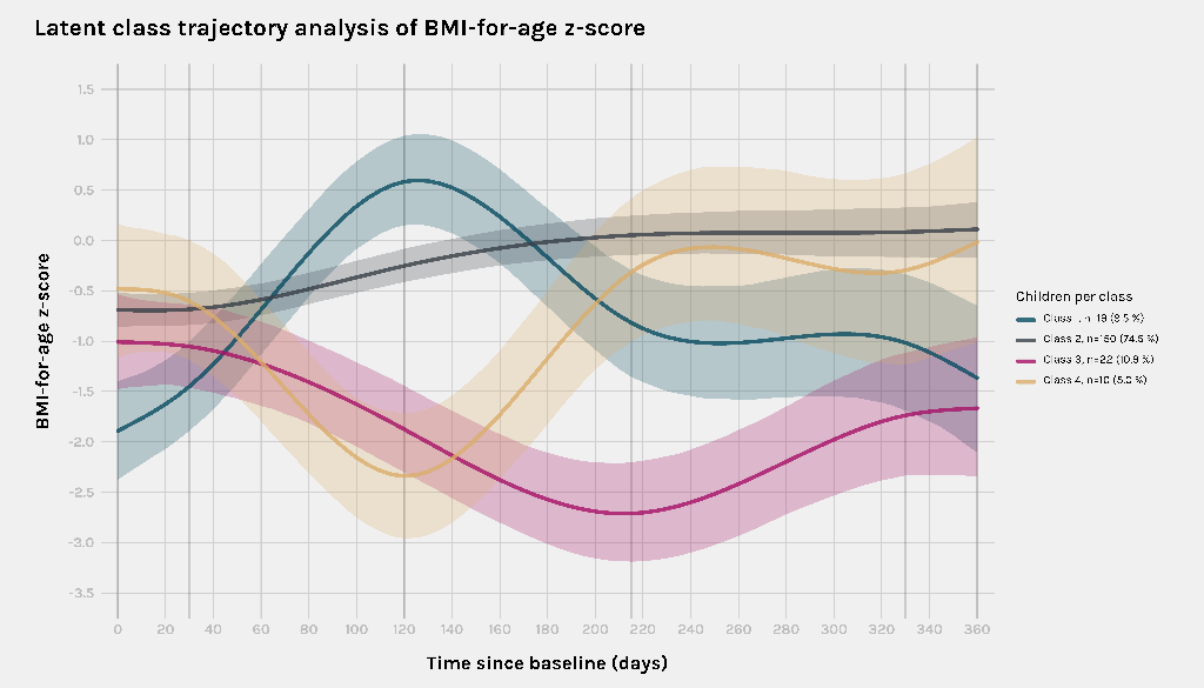
ORAL PRESENTATIONS 03: OBESITY

TRAJECTORIES OF BODY MASS INDEX ONE-YEAR POST-RECOVERY FORM SEVERE ACUTE MALNUTRITION TREATMENT AND THEIR ASSOCIATIONS WITH BODY COMPOSITION AND CARDIOMETABOLIC MARKERS

Getu Gizaw[1], Tsinuel Girma[2], Jonathan Ck Wells[3], Henrik Friis[4], Alemayehu Argaw[5], Mette Frahm Olsen[4], Mubarek Abera[6], Alemseged Abdissa[7], Paluku Bahwere[8], Rasmus Wibaek[9]
[1]Jimma University, Human Nutrition And Dietetics, Jimma, Ethiopia, [2]Jimma University, Department Of Pediatrics And Child Health, Jimma, Ethiopia, [3]UCL Great Ormond Street Institute of Child Health, Childhood Nutrition Research Centre, London, United Kingdom, [4]University of Copenhagen, Department Of Nutrition, Exercise And Sports, Copenhagen, Denmark, [5]Ghent University, Food Technology, Safety And Health, Ghent, Belgium, [6]Jimma University, Department Of Psychiatry, Jimma, Ethiopia, [7]Jimma University, Department Of Laboratory Sciences, Jimma, Ethiopia, [8]Free University of Brussels, Center For Epidemiology, Biostatistics, And Clinical Research, Brussels, Belgium, [9]Steno Diabetes Center Copenhagen, Clinical Epidemiology, Herlev, Denmark

Background and Aims: Background and aims: In healthy children, trajectories of accelerated growth has been shown to be associated with increased adiposity and cardiometabolic risk, but evidence from children recovering from severe acute malnutrition (SAM) is lacking. We aimed to identify trajectories of body mass index-for-age z-score (BAZ) and to examine associations with body composition (BC) and cardiometabolic markers in children recovered from SAM.
Methods: Methods: In a prospective cohort study, we enrolled Ethiopian children aged 6-59 months who recovered from SAM through community-based management. BAZ was assessed monthly for 12 months post-discharge. We used data-driven latent class trajectory modelling to identify patterns of BAZ and multiple linear regression analyses to examine their associations with BC and cardiometabolic markers at 5-years post-discharge.
Results: Results: We identified four heterogeneous BAZ trajectories: “class-1: fast catch-up to deceleration” (9.5%), “class-2: normal” (74.6%), “class-3: slow deceleration to low catch-up” (10.9%), and “class-4: fast deceleration to full catch-up” (5.0%). Compared with class-2, children with initially deteriorating BAZ trajectories had higher total cholesterol (β-coefficient for class-3: 26.6 mg/dl; 95% CI: 8.9, 44.3); and class-4: 43.3 mg/dl; CI: 5.6, 81.0) and higher LDL-cholesterol (class-3: 26.6 mg/dl; CI: 8.9, 44.3). Furthermore, children in class-3 had lower fat-free mass index (-1.4 kg/m^2; CI: -2.3, -0.4). BAZ trajectories were not associated with fasting glucose, insulin, HDL-cholesterol, triglycerides, fat mass index, and blood pressure.
Conclusions: Conclusions: Children recovered from SAM, who experience growth deceleration and subsequent catch-up in BAZ have higher total and LDL-cholesterol concentrations as well as lower fat-free mass. Thus, designing targeted post-recovery interventions are

required.


Latent class trajectory analysis of BMI-for-age z-score
BMI-for-age z-score
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
Time since baseline (days)
Children per class
Class 2, n=50 (74.5 %)
Class 3, n=22 (10.9 %)

O020 / #477

ORAL PRESENTATIONS 03: OBESITY

EFFECTS OF MEDITERRANEAN DIET DURING PREGNANCY ON THE ONSET OF OVERWEIGHT AND OBESITY IN THE OFFSPRING: THE RESULTS OF THE PREMEDI STUDY

Serena Coppola[1,2], Lorella Paparo[1,2], Mariella Cuomo[3], Rita Nocerino[1,2], Annalisa Agangi[4], Marcello Napolitano[4], Annalisa Passariello[5], Francesco Messina[4], Lorenzo Chiariotti[3], Roberto Berni Canani[1,2]
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Background and Aims: Maternal diet during pregnancy could be a potential target for overweight/obesity prevention in the pediatric age. Mediterranean Diet (MD) is considered one of the healthiest dietary models exerting protective effects against overweight/obesity. The Mediterranean Diet during Pregnancy (PREMEDI) study has been designed to evaluate the effects of a personalized nutritional counseling to promote MD during pregnancy on the occurrence of overweight/obesity at 24 months in the offspring.
Methods: The PREMEDI study was a multicenter randomized controlled, parallel groups, prospective trial. 95 healthy women (mean age 36 years) at their first trimester of pregnancy were randomly allocated to receive the standard obstetrical and gynecological follow up plus a nutritional counseling to promote MD (MD arm, n= 45) or standard obstetrical and gynecological follow up alone (CT arm, n= 50). We evaluated pediatric overweight/obesity rate at 24 months, and leptin gene DNA methylation rate in cord blood mononuclear cells. Furthermore, the maternal MD adherence during pregnancy (assessed through the MeDiet Score questionnaire) was also evaluated.
Results: At the age of two years, the rate of overweight/obesity was significantly lower in children of women enrolled in MD arm (29.4% vs. 53.7 %, $p<0.05$). This effect paralleled with higher leptin gene DNA methylation rate (30.4% vs. 16.9%, $p<0.001$) in cord blood mononuclear cells. A low baseline MD adherence was observed in both groups. The nutritional counseling promoted an optimal MD adherence starting from the second trimester to the end of pregnancy.
Conclusions: MD-adherence during pregnancy could be an effective strategy against pediatric overweight/obesity.

O021 / #191

ORAL PRESENTATIONS 03: OBESITY

THE EFFECTS OF SNP RS9939609 OF FTO GENE AND ADVERSE CHILDHOOD EXPERIENCES' INTERACTIONS ON THE LEVEL OF BODY FAT IN SCHOOL AGE CHILDREN IN POLAND

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Background and Aims: Despite their similar effects on eating habits and obesity risk, the role of possible interactions between the two factors, SNP rs9939609 of FTO gene and adverse childhood experiences (ACEs), in body fat determination wasn't examined in details. Thus, the aim of the study was to asses effects of these interactions on BMI and body fat level in school age children.
Methods: The sample was 456 children (51 boys and 49% girls) aged 6-12 form Poznan, Poland. Children's height and weight, as well as body composition were measured and the Body Mass Index (BMI) and Fat Mass Index (FMI) were calculated. ACEs were estimated using the questionnes designed based on TESI-PRR and categorised as 'life/health threat', 'life/health threat witness', 'violence victim', 'violence witness', 'death of someone close', 'stressful family problems', 'long separation from parents' and 'other unspecified'. The FTO was genotyped using the TaqMan SNP allelic discrimination method.
Results: FTO genotypes as well as ACEs were not related to z scores for BMI and FMI in separate analyses. Nevertheless, the number of 3 or more ACEs, 'long separation from parents' and 'other unspecified' type of ACEs were found to be associated with higher z scores BMI or FMI in AA but not in TT genotype.
Conclusions: The study results indicate possibble role of the interaction between ACEs' accumulation and SNP rs9939609 FTO genotype in aetiology of obesity. The type of adverse childchood experiences may modulate strength of the FTO-ACEs interactions' effects.

O022 / #623

ORAL PRESENTATIONS 03: OBESITY

DECREASED PREVALENCE OF OVERWEIGHT AND OBESITY IN SWEDISH PRESCHOOL CHILDREN AFTER THE COVID-19 PANDEMIC

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Background and Aims: The prevalence of childhood obesity increased during the COVID-19 pandemic. Sweden reported an increase in childhood overweight and obesity during the pandemic, despite absence of a formal lockdown. This study aimed to analyse longitudinal trends in BMI and frequency of overweight/obesity in Swedish preschool children before, during, and after the COVID-19 pandemic.
Methods: Retrospective population based cross-sectional study, with longitudinal follow-up for a portion of the children. The study included 50833 children from three Swedish regions, with growth measures at 3-5 years of age.
Results: In 3 and 4-year-old children, overweight and obesity had highest prevalence in early COVID-19 (16.6-15.4%) and returned to levels as before COVID-19 in late/post-COVID-19 (14.5-12.4%). For 5-year-olds, the prevalence of overweight and obesity did not change significantly. In the longitudinal analysis, incidence of increasing BMI decreased from early COVID-19 to post-COVID-19 for all age groups.
Conclusions: To our knowledge, this is the first study exploring preschool children's BMI change before, during and after the COVID-19 pandemic. Increased rates of overweight and obesity in the early COVID-19 pandemic decreased to pre-pandemic levels after the pandemic in 3–4-year-old children. Even without formal COVID-19 lockdowns in Sweden, many children were absent from pre-school, with nutritious food and regular outdoor activities, which could explain increased levels of overweight and obesity. The decrease in overweight and obesity after the COVID-19 pandemic indicates an association with the pandemic and shows that negative effects of an unhealthy weight status could be reversable for the youngest age group.

O023 / #37

ORAL PRESENTATIONS 04: CLINICAL NUTRITION

THE LINK BETWEEN RUBIDIUM AND FETAL GROWTH RATE - A MATERNAL-FETAL-NEWBORN STUDY

Yaniv S Ovadia[1], Ishai Dror[2], Gad Liberty[1], Maayan Sultani[1], Eyal Y Anteby[1], Stefan Fox[2], Brian Berkowitz[2], Efraim Zohav[1]
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Background and Aims: Pregnancy has both immediate and long-term health consequences for the fetus. Despite rubidium's abundance in the environment, little is known about its effects on intrauterine development. This presentation examines fetal growth and amniotic fluid rubidium concentrations.
Methods: Rubidium was determined in amniotic fluid (at a median gestational age of 19 weeks) in this prospective study. Maternal, fetal, and newborn characteristics, including anthropometrics, were obtained from participants' medical files. Fetuses with a total rise or fall in percentiles (from recruitment to birth) were classified as increased or decreased estimated fetal weight percentiles, respectively. A logistic regression random forest test was conducted to determine whether factors (such as amniotic fluid rubidium concentrations) contributed to the decrease in estimated fetal weight percentiles.
Results: Diminished rubidium concentrations in amniotic fluid were the variable with the greatest contribution (40.4%) to predicting decreased estimated fetal weight percentiles. The study cohort (N=99) was divided into two subgroups based on an algorithmic partition threshold of 122 µg/L of rubidium in amniotic fluid. Fetuses with values > 122 µg/L displayed a significantly lower rate of decreased estimated fetal weight percentile. In this subgroup, the risk of this outcome was approximately threefold higher (OR = 3.2; 95% CI 1.1, 8.8; p = 0.03). A significant correlation (p=0.01) was found between mid-pregnancy amniotic fluid rubidium concentrations and estimated fetal weight percentile change (β=0.2, *p*=0.01).
Conclusions: A rubidium concentration in the amniotic fluid > 122 mg/L at mid-pregnancy was associated with decreased fetal weight. Further research on rubidium intake and development in utero is needed.

O024 / #400

ORAL PRESENTATIONS 04: CLINICAL NUTRITION

ANTHROPOMETRIC PARAMETERS AND BODY COMPOSITION IN CHILDREN WITH SPINAL MUSCULAR ATROPHY (SMA) AND CEREBRAL PALSY (CP): AN OBSERVATIONAL STUDY

Giulia Fiore[1,2], Alessandra Mari[2], Sara Vizzuso[1], Mireia Escudero-Marín[3,4], Martina Chiara Pascuzzi[1], Martina Tosi[1], Barbara Borsani[1], Alessandra Bosetti[1], Simona Bertoli[5,6], Ramona Silvana De Amicis[5], Gloria Pelizzo[7,8], Gianvincenzo Zuccotti[8,9], Elvira Verduci[2,10]
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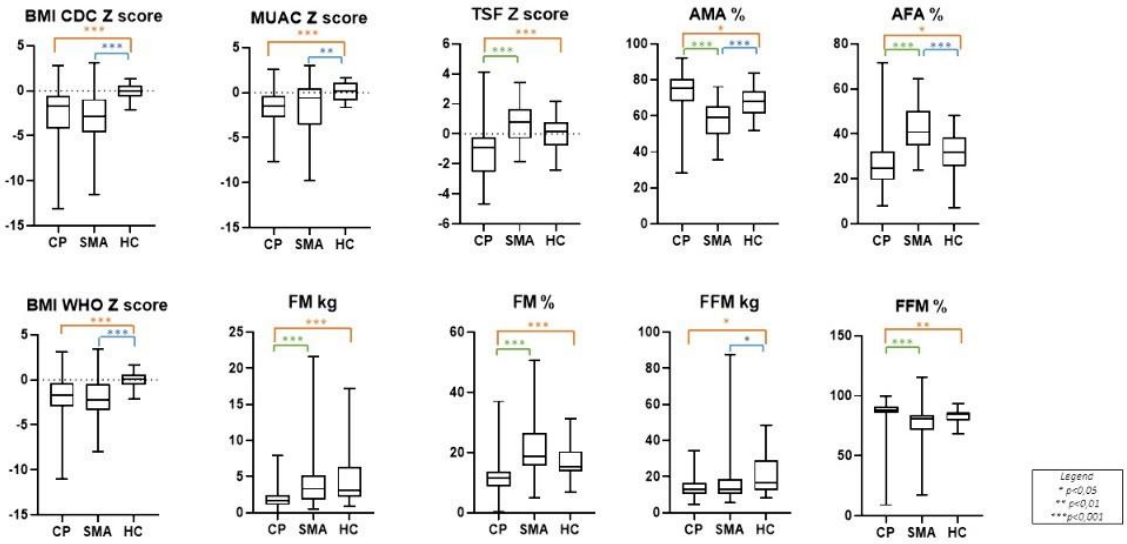
Background and Aims: Spinal muscular atrophy (SMA) and cerebral palsy (CP) are severe neurological conditions which impact profoundly on the nutritional status of children. SMA is a genetical, degenerative disease that leads to muscle atrophy. CP is an acquired condition caused by a permanent and non-progressive encephalic lesion. This observational study aimed to compare anthropometry and body composition among 3 pediatric groups SMA, CP and healthy controls (HC)
Methods: We enrolled 3 groups of 42 children (0-18 years) respectively SMA, CP and sex- and age-matched HC. Their nutritional intakes have been verified to be comparable and cover total energy expenditure. Weight, height, body mass index (BMI) z-score, mid-upper arm circumference (MUAC)z-score, tricipital skinfold (TSF)z-score were collected. Arm Muscular Area (AMA) and Arm Fat Area (AFA) were calculated, Fat Mass (FM) and Free Fat Mass (FFM) were estimated according to Slaughter equation. One-way ANOVA and Kruskal Wallis Test were performed for normally and not-normally distributed variables, respectively
Results: BMI z-score of children with neurological impairment was significantly lower compared to HC ($p<0,001$), while no significant differences were found between SMA and CP. No differences were found in MUAC z-score between SMA and CP; SMA children had higher TSF z-score ($p<0.001$), higher AFA% ($p<0.001$) and higher FM both % and in kg ($p<0.001$) compared to CP. On the contrary, AMA% and FFM% were significantly lower in SMA compared to
CP



Conclusions: The impact of neurological conditions on nutritional status differs enormously depending on the pathology, thus nutritional support should be personalized to avoid overnutrition, especially in SMA patients

O025 / #339

ORAL PRESENTATIONS 04: CLINICAL NUTRITION

OUTCOMES OF TWO DIFFERENT APPROACHES TO CENTRAL VENOUS CATHETER REPAIRS IN CHILDREN ON HOME PARENTERAL NUTRITION: PRELIMINARY RESULTS

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Background and Aims: Children on home parenteral nutrition (HPN) may experience central venous catheter (CVC) breakage, which could lead to infections. To preserve vascular access sites, CVC repairs are preferred to CVC substitutions. Aim of this study is to evaluate whether routine blood culture (BC) is needed for all children undergoing CVC repair or if, in absence of specific risk factors, BC can be avoided without increased incidence of central line associated blood stream infections (CLABSI).
Methods: Children (0-17 years) enrolled in the HPN program of a large tertiary referral center who underwent a CVC repair between January 2021 and August 2023 were included in the study. During period-A (01/01/2021-30/06/2022) a BC was performed for every repair. During period-B (01/07/2022-31/08/2023) BC was performed only for repairs with one or more risk factors for infections (repair done in >12 hours, signs of systemic or local infection, breakage due to biting).
Results: During period-A, among fifty children (median age 11-years) in the HPN program seventeen breakages were reported. Median age for breakage was 6-years. BC was performed in 100% of the patients. Three BC were positive, all three children had at least one risk factor. During period-B, twenty breakages were reported among forty-five children (median age 11-years). For nine children (45%) without risk factors, BC was not obtained. None of them developed CLABSI.

Characteristics	Period A	Period B
Number of patients	50	45
F, n (%)	27 (54%)	29 (49%)
Age, median (25°-75° QI)	11 (7-15)	11 (7-16)
Number of breakages	17 (in 13 patients)	20 (in 11 patients)
Breakages/ 1000 catheter days	0,77	0,91
Line breakages age, median	6 (4-11)	5 (5-11)
Patients who had blood culture	17 (100% of breakages)	11 (55% of breakages)
Repair in > 12 hours	N.A.	10 (90,1% of patients with BC)
Breakage due to biting	1 (5,9 of patient with BC)	4 (36,3% of patients with BC)
Signs of infections	2 (11,8% of patient with BC)	2 (18,8% of patients with BC)
Cultures positive	3 (18% of breakages)	4 (20% of breakages)
Repair in > 12 hours	N.A.	4 (100% of positive BC)
Breakage due to biting	1 (33,3% of positive BC)	4 (100% of positive BC)
Signs of infections	3 (100% of positive BC)	2 (50% of positive BC)
Patients who did not have blood culture	0 (0% of breakages)	9 (45% of breakages)
Line sepsis in patients who did not have blood culture	N.A.	0 (0%)

Conclusions: In absence of risk factors, avoiding routine BC during CVC repairs does not seem to be associated with increased risk of CLABSI. This approach can help reducing unnecessary line accesses, laboratory resources and hospitalization.

O026 / #414

ORAL PRESENTATIONS 04: CLINICAL NUTRITION

ANTIOBESITY EFFECT FROM THE DIETARY SUPPLEMENTATION OF GREEN ALGAE: A RANDOMIZED DOUBLE-BLIND PLACEBO-CONTROLLED CLINICAL TRIAL IN OBESE MEN

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Background and Aims: More than 1 billion people worldwide are obese and the number is still increasing. Various anti-obesity innovations continue to develop. Doses of 30 mg/200g BW Sea grapes or green algae extract (SGE) in a previous pre-clinical trial, showed that it ameliorates of obesity markers in rats model obesity. However, it has not represented the SGE efficacy in humans trial. Therefore, this clinical trial was aimed to support the effect of SGE on lipid profile, and PGC-1α levels in obese men according to a prospectively registered protocol (ClinicalTrials.gov; NCT05037591).
Methods: The study was a 4-weeks, randomized, double-blind, placebo-controlled clinical trial. A total 70 participants (35 subjects SGE, 35 subjects received placebo) were included in this study. Evaluation during the initial visit includes physical examination in the form of Body Mass Index (BMI) and laboratory tests blood glucose (BG), triglycerides (TG), high-density lipoprotein (HDL), low-density lipoprotein (LDL) and total cholesterol (TC), FTO protein, and PGC-1α were performed on all participants within 1 week of the initial screening. SGE (1.68 g/70kg BW) were given to participants in intervention group once daily, 15 minutes before lunch, the control group received placebo.
Results: After 4 weeks intervention, there were significant reductions ($p<0.05$) in BG, TC, LDL, TG, waist circumference, FTO protein, and body weight. There was also a significant increase in PGC-1α and HDL level ($p<0.0001$). Interestingly, a pattern of decreasing BMI was observed from baseline (0-week) after 4 weeks of SGE intervention.
Conclusions: SGE has potential antiobesity effect, reduce the risk and help to control obesity in obese men.

O027 / #610

ORAL PRESENTATIONS 04: CLINICAL NUTRITION

WEIGHT FOR AGE AS AN INDICATOR OF MORTALITY AND MORBIDITY IN PEDIATRIC INTENSIVE CARE UNIT IN UTTRAKHAND

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Background and Aims: Mortality Indicators are very important tool in councelling of attenders in PICU. This study is designed to use weight for age at the time of admission and discharge as an indicator for mortality and morbidity in Pediatric Intensive care unit in kashipur ,Uttrakhand
Methods: This was a Restrospective study done over a period of 5 years at sahota hospital kashipur. All the children aged between 3 months to 16years, admitted to PICU (1564)over last 5 years were divided into no malnutrition group(weight for age > 3rd percentile ,WHO growth charts) and these were taken as control group and malnutrition group(weight for age <3rd percentile, WHO growth charts) ,taken as cases .
Results: Our study showed a positive correlation of weight on addmission with PRISM(pediatric risk of mortality) score. The vital signs like mean BP and saturation in room air was significantly more among subjects who were underweight in comparison to obese. These parametres were significantly more amongst obese in comparison to normal weight children.. The duration of stay was more in underweight and obese group. Mortality was highest in undernourished group,and lowest in the normal weight group.The undernourished group had more Oxygen hours(invasive or noninvasive ventilation) in comparsion to the other groups.
Conclusions: Weight for age and BMI can be an important indicator of mortality and morbidity in PICU,which can help in triage and councelling of attenders accordingly. Nutritional specialists can be involved in PICU for improving the discharge weight and for a better long term outcome.

O028 / #528

ORAL PRESENTATIONS 05: CHILDHOOD & ADOLESCENCE

DEXTRAN SODIUM SULFATE INDUCED COLITIS ATTENUATES GROWTH IN YOUNG MALE SPRAGUE DAWLEY RATS

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Background and Aims: Linear growth impairment is one of the most serious complications in pediatric inflammatory diseases. As overall prevalence of pediatric inflammatory disease has significantly increased, effect on linear growth is becoming a serious matter. GH Administration to children with active, uncontrolled inflammation is ineffective in improving growth. The aim of this study was to examine the underlying mechanisms involved in inflammation induced growth attenuation in the EGP.
Methods: Colitis was induced with Dextran Sodium Sulfate (DSS) and rats were randomized into groups (n=6 CTL, n=10 DSS). DSS (1%) was administered in drinking water for 10 days, a 4-day pause, and another course of 10 days of DSS. Weight, colon, humerus and EGP length were measured. RNA sequencing and qPCR assessed molecular changes in the EGP.
Results: DSS caused a 20% decrease in weight, 30% decrease in colon length and 23% shorter EGP ($P<0.05$ for all). The proliferative and hypertrophic zones exhibited similar reductions. Bioinformatic analysis of RNA sequencing showed upregulation of immune response related genes, including neutrophil expressed elastase and Cathepsin-G. Gene Set Enrichment Analysis showed down regulation of oxidative phosphorylation and adipogenesis, concomitantly with an increase in cell cycle inhibitory pathways including E2F and G2M targets in the DSS group. This suggests attenuation of basic cell processes (i.e. replication and metabolism).
Conclusions: To the best of our knowledge, our study is the first to show the effect of colonic inflammation on the EGP. The understanding of these mechanisms may broaden the scope of future treatments for growth attenuation when GH therapy is ineffective.

O029 / #515

ORAL PRESENTATIONS 05: CHILDHOOD & ADOLESCENCE

IMPROVING CONSUMPTION OF IRON AND FOLIC ACID (IFA) AMONG OUT OF SCHOOL ADOLESCENT GIRLS: LEARNING FROM A FIELD EXPERIMENT IN MADHYA PRADESH, INDIA

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Background and Aims: The prevalence of anaemia among adolescent girls, at 70%, is quite high in India. In 2013, Government of India launched the Weekly Iron and Folic Acid Supplementation (WIFS) program across the country. However, prevalence of anaemia remains high among the girls. One key reason was irregular consumption of iron supplement specially among out-of-school girls. To improve its consumption, an intervention was undertaken in Mandla district of India.
Methods: 9 villages were randomly selected for the study and out of school adolescent girls were identified and tested for Hb level. Total 247 anaemic girls in the age group of 10-19 years were identified. An initiative was implemented for 12 months including delivery of a health curriculum by Peer Educators with the support of community workers. At the end, an assessment was undertaken.
Results: 92% of the planned meetings were conducted and 83% girls attended more than 50% of the meetings. 88% of the girls were able to tell the causes & treatment of anaemia. 82% girls shown improvement in their Hb level and 57% were girls were not found to be anaemic. 61% girls also shared that they started consuming more nutritious food. 68% girls shared that their parents became more concerned about the need of nutritious food for the girls.
Conclusions: It was observed that though prevalence of anaemia is quite high in rural areas however the combination of behaviour change communication in form of well-designed curriculum along with Peer pressure in form of follow-up by peer educator can significantly address this challenge.

O030 / #457

ORAL PRESENTATIONS 05: CHILDHOOD & ADOLESCENCE

DISPARITIES IN INFANT GROWTH IN BRAZIL

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Background and Aims: Racism experienced by the mother results in social inequalities and different access to health assistance, which can impact the growth trajectories among children in the first five years of life born to mothers of diverse ethnoracial background. In this study we aim to investigate child growth by maternal ethnoracial group using a nationwide Brazilian database.
Methods: Database consisted of a population-based retrospective cohort, the CIDACS Birth Cohort and the Brazilian Food and Nutrition Surveillance System (SISVAN). It included children born at term, aged five years or younger with at least two measurements of length/height (cm) and weight (kg) between 2008 and 2017. To estimate childhood growth trajectories we employed mixed effect models, with maternal self-declared race/skin color as the main exposure variable.
Results: The study included 4,090,271 children. Weight-for-age (WAZ) and length/height-for-age (L/HAZ) z-scores exhibited an initial decline in the early weeks of life, followed by a recovery. Children born to White mother presented better growth of both WAZ and L/HAZ z-scores compared to those born to Indigenous (-0.49 WAZ, -0.87 L/HAZ), Parda (-0.17 WAZ, -0.16 L/HAZ), Black (-0.11 WAZ, -0.06 L/HAZ), and Asian descent (-0.15 WAZ, -0.11 L/HAZ) mothers. The adjusted model shows that social vulnerabitlity exacerbated the unfavorable growth, mostly for children born to Indigenous mothers.
Conclusions: Racial disparities were observed in childhood growth trajectories when comparing maternal ethnoracial groups, with children of Indigenous mothers showing the most unfavorable outcomes compared to their White counterparts. Policy initiatives are needed to address systematic ethnoracial inequalities and to protect the health of children.

O031 / #409

ORAL PRESENTATIONS 05: CHILDHOOD & ADOLESCENCE

DETERMINANTS OF BONE MINERAL DENSITY IN HEALTHY TERM-BORN CHILDREN AT AGE 4 YEARS

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Background and Aims: Background and aims: In early adulthood, bones reach their maximum density, the peak bone mass. Decreased bone mineral density in childhood and adolescence results in lower peak bone density and has long-term consequences, such as increased osteoporosis risk. Knowledge concerning determinants of bone mineral density (BMD) in young children is essential but still limited. Our aim was to investigate which determinants significantly influence BMD at age 4 years.
Methods: Methods: In 221 healthy term-born children, included in birth cohort Sophia Pluto, we determined anthropometrics, bone mineral density (BMD) and body composition by Dual-energy X-ray Absorptiometry (DXA). Furthermore, information regarding ethnicity, birth characteristics, vitamin D suppletion, if children were exclusively breastfed or formula fed in infancy and the duration of breastfeeding or formula feeding were collected. We performed multiple regression analyses with BMD total body less head (BMD_{TBLH}) at age 4 years as dependent variable and patient characteristics and body composition as independent variables.
Results: Results: Mean BMD_{TBLH} was 0.477 g/cm^2 at age 4 years, without significant sex difference. Higher BMD_{TBLH} SDS at age 4 years was associated with higher fat free mass (standardized β 0.60, $p<0.001$) and fat mass (standardized β 0.27, $p<0.001$), corrected for height SDS and sex. Ethnicity, birth characteristics, vitamin D suppletion, infant feeding type and duration of breast- or formula feeding were not associated.
Conclusions: Conclusions: Fat free mass was the strongest determinant of BMD_{TBLH} SDS at age 4 years. Stimulating an active lifestyle in young children is important for normal bone health.

O032 / #357

ORAL PRESENTATIONS 05: CHILDHOOD & ADOLESCENCE

POLY- AND PERFLUOROALKYL SUBSTANCES (PFAS) AFFECT GROWTH AND FAT FREE MASS AT AGE 3 YEARS

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Background and Aims: Poly- and perfluoroalkyl substances(PFAS) are non-degradable, man-made-chemicals. They accumulate in humans with potential harmful effects, especially in susceptible periods of human development, such as the first 1000 days. Exclusively breastfed(EBF) infants have 3-times higher PFAS-plasma-levels compared to exclusively formula-fed(EFF) infants during the first 2 years of life. Thus, PFAS could potentially reduce breastfeeding's health benefits. We investigated the associations between plasma PFAS levels in infancy and anthropometrics, lean body mass and total-body bone mineral density(BMD) at age 3 years.
Methods: In 173 healthy term-born infants, included in Sophia Pluto cohort, we determined anthropometrics, and body composition by Dual-energy-X-ray Absorptiometry(DXA) longitudinally until age 3 years. Levels of 5 individual and total PFAS were determined by liquid-chromatography-electrospray-ionization-tandem-mass-spectrometry(LC-ESI-MS/MS) in blood samples collected at age 3 months and 2 years. We studied the associations between PFAS-levels and outcomes at age 3 years using multiple regression models, corrected for confounders, such as height-SDS.
Results: PFAS levels at age 3 months and 2 years were highly correlated (R=0.805, p<0.001). Higher PFAS-levels at age 3 months were associated with lower height-SDS(B:-0.675, p=0.028) and weight-for-height-SDS(B: -0.773, p=0.008) at age 3 years and longitudinal growth until age 3 years(B:-0.733, p=0.013). Additionally, higher PFAS-levels at age 2 years were associated with lower lean-body-mass-SDS (B:-0,669, p=0.023) and BMD-SDS (B:-0.898, p=0.037) at age 3 years.
Conclusions: Higher PFAS levels in young children are associated with less growth, lean body mass and total-body-BMD at age 3 years. This potentially leads to unfavorable effects later in life, which warrants further research.

O033 / #354

ORAL PRESENTATIONS 05: CHILDHOOD & ADOLESCENCE

SOCIAL DETERMINANTS OF NUTRITIONAL STATUS.

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Background and Aims: Children's Health Ireland at Temple Street (CHI-TS) runs a community outreach clinic for children experiencing social adversity. A heterogenous cohort of children attend this urban clinic, representing many nationalities and ethnicities. Almost all are homeless, many without kitchen facilities or safe outside space. To ascertain the nutritional status of the children experiencing social adversity we reviewed 6 months of clinic referrals to measure indicators of nutrition and growth compared to population norms.
Methods: A retrospective review of medical records ascertained the first recorded weight and height following referral as well as BMI. Growth parameters were plotted on UK-WHO growth charts and NICE Healthy Weight calculator was used to calculate BMI. Nutritional parameters of haemaglobin, ferritin and vitamin D were reviewed when available
Results: 34% female (n=21), 66% male (n=40). 9.8% <1 yr (n=5); 39% 1-4yrs (n=24); 24.6% 5-8 yrs(n=17); 11.5% 9-12years (n=7); 9.8% 13 – 15 yrs (n=6); 1.6% >16 years (n=1) 16.6% <2nd centile (n=7) for weight (national data 6.4% underweight COSI 2020) 20.8 % >91st centile (n=10) for weight (national data 19.1% overweight/obese – COSI report 2020) 54% (n=33) of children had additional nutritional investigations, of those tested: 15% (n=4 of 26) had Cholecalciferol 25(OH)Vit D < 30(nmol/L) 39% (n=11 of 28)had Ferritin < 13 (ug/L)
Conclusions: Underweight category was substantially over-represented and iron deficiency more prevalent than the population norm. Protecting core nutrition is vital for children experiencing multiple adversities. The lack of cooking facilities, space and poor health literacy must be addressed to challenge this negative impact on wellbeing.

O034 / #259

ORAL PRESENTATIONS 05: CHILDHOOD & ADOLESCENCE

ORAL NUTRITIONAL SUPPLEMENT WITH DIETARY COUNSELLING INCREASES LEAN MASS, BONE MINERAL CONTENT AND DENSITY IN CHILDREN DURING CATCH-UP GROWTH – A RANDOMIZED CONTROLLED TRIAL

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Background and Aims: Childhood undernutrition is associated with lower bone mineral density (BMD) and long-term deficits in fat-free mass. We previously reported that adding oral nutritional supplementation (ONS) to dietary counselling (DC) improved height and weight catch-up in children with or at-risk of undernutrition. This study further evaluates ONS+DC effects on body composition, bone mineral content (BMC) and BMD during catch-up growth.
Methods: A randomized, multi-site interventional study of 324 children aged 24-60 months at nutritional risk (z-scores for weight-for-age (WAZ) <-1, height-for-age (HAZ) <-1 and weight-for-height (WHZ) < 0) compared 2 servings/day of ONS+DC to a DC-only control group for 240 days. Body composition, BMC and BMD were assessed by dual-energy X-ray absorptiometry (DXA) scans of the total body, lumbar spine and proximal femur.
Results: At day 240, lean mass (LM) and height-normalized LM index (LMI) were higher in ONS+DC than DC (least squares mean, LSM(SE): LM, kg; 10.97(0.050) vs. 10.80(0.049); LMI, kg/m^2: 11.06(0.05) vs. 10.92(0.05); both $p<0.05$) whereas fat mass and fat mass index were not different between groups. BMC of total body less head (TBLH), spine (L1-L4), and right femur were higher in ONS+DC than DC at day 240 (all $p<0.05$). BMD of TBLH and femur were higher in ONS+DC, and BMD of spine trended higher (g/cm^2: TBLH, 0.407(0.003) vs 0.399(0.003), p=0.0257; femur, 0.565(0.004) vs. 0.552(0.003), p=0.007; spine 0.463(0.004) vs. 0.454(0.004), p=0.065).
Conclusions: Long-term ONS with DC improves growth quality in terms of a healthier body composition and increased bone mineralization, in addition to the greater weight and height gain previously shown.

O035 / #251

ORAL PRESENTATIONS 05: CHILDHOOD & ADOLESCENCE

FOLLOW-UP DURING CHILDHOOD AFTER A RANDOMIZED, DOUBLE-BLINDED CONTROLLED TRIAL WITH A MODIFIED, LOW-PROTEIN INFANT FORMULA FOR HEALTHY TERM INFANTS

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Background and Aims: Childhood obesity is a major health concern, as it is likely to persist into adulthood. Breastfeeding is associated with a lower risk of childhood obesity compared to formula feeding, possibly due to its lower protein content. We aimed to investigate the effects of feeding a modified, low-protein infant formula during the first 6 months of life on growth and body composition at 6 years.
Methods: Healthy term-born infants were randomized to either a modified Low-Protein (mLP) infant formula (n=90; 1.7 g protein/100 kcal) or a standard infant formula (CTRL) (n=88; 2.1 g protein/100 kcal) up to 6 months of age. Sixty-seven breastfed (BF) infants were included as reference group. At age 6y, anthropometry and body composition (air-displacement plethysmography and skinfold thicknesses) were measured and analyzed using linear mixed models (corrected for gender, birth weight and baseline value).
Results: A total of 106 infants were measured at 6y follow-up, (n=39 mLP; n=33 CTRL; n=34 BF). No differences in mean length, weight and BMI were observed among the three feeding groups. Fat-free-mass was lower in the mLP group compared to the CTRL group (-1.17kg, 95%CI: -1.84 – -0.50, p<0.001). Both formula groups had a significantly higher fat mass compared to the breastfed group (figure 1). However, no significant differences were observed in fatmass% or skinfold thicknesses amongst all three feeding groups.

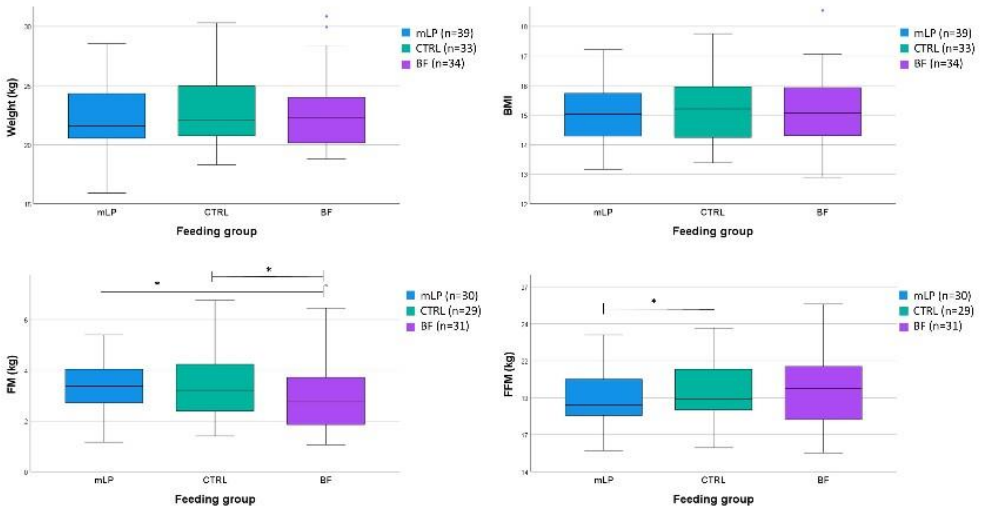

Figure 1. Differences in weight, BMI, fat mass (FM) and fat-free mass (FFM) between the feeding groups. mLP, modified low-protein formula; CTRL, standard infant formula; BF, breastfed.

Conclusions: No differences in body composition were observed in children fed with a modified low-protein infant formula during the first months of life compared to those fed standard infant formula.

O036 / #304

ORAL PRESENTATIONS 06: MALNUTRITION

GROWTH AND BODY COMPOSITION 5 YEARS AFTER TREATMENT FOR SEVERE ACUTE MALNUTRITION: A 5-YEAR PROSPECTIVE MATCHED COHORT STUDY IN ETHIOPIAN CHILDREN

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Background and Aims: Background: Short-term anthropometric outcomes are well documented for children treated for severe acute malnutrition (SAM). However, anthropometric recovery may not indicate restoration of healthy body composition. Objective: To evaluate long-term associations of SAM with growth and body composition of children 5-years after discharge from community-based management of acute malnutrition (CMAM).
Methods: We conducted a 5-year prospective cohort study, enrolling children aged 6-59 months discharged from CMAM (post-SAM) (n=203) and non-malnourished matched controls (n=202) in Ethiopia. Anthropometry and body composition were assessed. Multiple linear regression models tested differences in height (HAZ), weight (WAZ) and BMI (BAZ) z-scores, and height-adjusted fat-free mass (FFMI) and fat mass (FMI), between groups.
Results: Post-SAM children had higher stunting prevalence than controls at discharge [82.2% compared with 36.0%; p<0.001], 1-year [80.2% compared with 53.7%; p<0.001] and 5-year post-discharge [74.2% compared with 40.8%; p<0.001]. No catch-up in HAZ, WAZ or BAZ was observed. Post-SAM children had lower hip (-2.05 cm; 95% CI: -2.73, -1.36), and waist (-0.92 cm; CI: -1.59, -0.23) circumferences and lower-limb length (-1.57 cm; CI: -2.21, -0.94) at 5-year post-discharge. They had larger waist-height (0.013 cm; CI: 0.004, 0.021) ratio, and persistent deficits in FFMI at discharge, 6-month, and 5-year post-discharge (p<0.001 for all). No difference was detected in head circumference, sitting height or FMI.
Conclusions: Five years after SAM treatment, children maintained deficits in HAZ, WAZ, BAZ and FFMI, with preservation of FMI, sitting height and head circumference at the expense of lower limb length, indicating a ‘thrifty growth’ pattern.

O037 / #524

ORAL PRESENTATIONS 06: MALNUTRITION

EARLY INITIATION OF BREASTFEEDING IS A KEY SUCCESS OF EXCLUSIVE BREASTFEEDING

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Background and Aims: Indonesia is considered as a country with triple burden of malnutrition, consists of stunting (30.8%), wasting (12.1%) and obesity (11.9%). One cause of malnutrition is inadequate intake of nutritious food among baby, one of it is the low prevalence of exclusive breastfeeding. This study aimed at analyzing association between exclusive breastfeeding with early initiation of breastfeeding, mother's knowledge, attitude and self-efficacy.
Methods: This study using cross sectional design conducted from interviewing 206 mothers who lived in in Depok City, West Java Indonesia between August and October 2022.
Results: Prevalence of exclusive breastfeeding was 58.3% and early initiation of breastfeeding was 57.8%. Proportion of mothers who have good knowledge regarding exclusive breastfeeding and early initiation of breastfeeding was even (51% vs 49%). More than half of them also have good attitude for exclusive breastfeeding (55%). Majority of them have good self-efficacy to breastfed their babies (86%). All of the factors associated with exclusive breastfeeding with p value <0.005. Early initiation of breastfeeding is one mean to increase the success of exclusive breastfeeding promoted during the first 6 months. Early contact between mother and baby will increase the length of breastfeeding. Babies who do not receive early initiation of breastfeeding can increase their risk of death due to not receiving colostrum.
Conclusions: Health programs aimed at improving exclusive breastfeeding and early initiation of exclusive breastfeeding should focus on efforts to increase its practice, mothers' knowledge, attitude and self-efficacy through health promotion and education about the benefits of breastfeeding and early initiation of breastfeeding.

O038 / #560

ORAL PRESENTATIONS 06: MALNUTRITION

NUTRITION-SENSITIVE CHILD-OWNED POULTRY INTERVENTION IMPROVED HEALTH, NUTRITION AND GROWTH OF INFANTS AND YOUNG CHILDREN IN SOUTHERN ETHIOPIA: A CLUSTER-RANDOMIZED COMMUNITY TRIAL

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Background and Aims: Cereal-based diets with very low animal-source food (ASF) intake contribute to malnutrition among under-two Ethiopian children. We hypothesized a nutrition-sensitive child-owned poultry intervention would increase egg intake and improve health, nutrition and growth of young children.
Methods: Targeting 6–18-month-old children, a community trial was conducted in Halaba district from May-Nov 2018. Intervention children (N=127) received two hens with caging materials in a cultural ceremony where religious and community leaders declared children's chicken ownership. Parents promised to present two or more hens, replace if birds died and not sell nor share the eggs; rather feed the chicken-owning child an egg daily. Community workers promoted egg feeding and proper poultry husbandry, including cage utilization and environmental sanitation. Controls (N=126) received the existing nutrition-agriculture training.
Results: At baseline, groups were comparable in socioeconomic, nutrition, growth and anemia status. The intervention increased weekly mean eggs [SD] intake (4.85[2.41] vs 0.4[0.61]) (β=2.20; 95%CI=1.97-2.43). Weight-for-age and weight-for-height z-scores increased by 0.38 (95%CI=0.13-0.63) and 0.43 (95%CI=0.21-0.64) respectively. Underweight (Odds ratio [OR]=0.46; 95%CI=0.26-0.84) and stunting (OR=0.58; 95%CI=0.37-0.91) decreased among intervention children compared to controls. Hemoglobin increased by 0.52 g/dl (95%CI=0.26-0.77). The odds of anemia and concurrent anemia and stunting decreased by 64% (OR=0.36; 95%CI=0.24-0.54) and 57% (OR=0.43; 95%CI=0.23-0.80) respectively. Intervention children attained motor skills of running (Adjusted hazard ratio [AHR]=1.43; 95%CI=1.05–1.95), kicking a ball (AHR=1.39; 95%CI=1.04–1.87) and throwing a ball (AHR=1.37; 95%CI=1.01–1.86) earlier than controls.
Conclusions: We recommend integration of this model with existing malnutrition prevention interventions, particularly in settings where ASF intake is low and undernutrition is high.

O039 / #538

ORAL PRESENTATIONS 06: MALNUTRITION

ANTHROPOMETRIC, BIOCHEMICAL , CLINICAL ASSESSMENT AND MANAGEMENT OF MALNUTRITION AMONG EGYPTIAN CHILDREN WITH CHRONIC LIVER DISEASES

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Background and Aims: Background: Malnutrition is a common problem among children with chronic liver diseases (CLD). We aimed to
assess the nutritional status of children with CLD and to correlate the anthropometric indices with the severity of
liver disease, liver function tests, insulin growth factor-1 (IGF-1) and 25-hydroxy vitamin D (25- OH D).
Methods: A total of 69 patients with CLD and 50 healthy controls (6 months − 6 years) were included in the study.
Nutritional status was assessed by anthropometric indices expressed in standard deviation score (Z score),
biochemical, hematological and clinical parameters.
Results: We found 52.2% of CLD patients underweight by weight for age (W/A); 50.2% were stunted by height for
age/ length for age (HAZ or LAZ); and 39% exhibited wasting by weight/height or (length) for age (W/HZ or W/LZ)
z scores analysis. We found no correlation between
anthropometric z-scores and the mean IGF-1 and (25- OH D) values ($p > 0.05$). Malnutrition was directly correlated
with the severity of hepatic dysfunction, particularly, Child-Pugh C cases.
Conclusions: Our results identified anthropometric arm indicators and MUAC/A measurements as an effective
applied methods for assessing nutritional status in CLD children. Moreover, Integrating comprehensive clinical
assessment, anthropometric measurements and objective biochemical analyses is essential for evaluation, follow-up
and management of CLD children with variable degree of malnutrition.

O040 / #550

ORAL PRESENTATIONS 06: MALNUTRITION

NUTRITIONAL RECOMMENDATIONS AN ARSENAL AGAINST CHILDHOOD MALNUTRITION IN FIVE PAN-AFRICAN COUNTRIES

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Background and Aims: Ongoing increase in demand for the uptake of nutritional research products (new knowledge, technological innovations and recommendations), research products need to be packaged in utilizable and exploitable forms. FoodLAND sought to generate country level nutritional recommendations (NRs) based on desk review, consumers studies and nutrition stakeholder engagement that involved five African countries; Morocco,Tunisia, Kenya, Tanzania and Uganda. Five objectives 1)To establish the situational architecture from which nutritional recommendation would emerge and describe the context in which the uptake and exploitation of the NRs would occur 2)To innovate a detailed protocol for actualizing creation of the NRs 3) To conceive NRs 4) To validate the NRs and capture additional ones with potential consumers of the NRs
Methods: An innovated protocol conmprising identification and packaging of nutritional gaps (formed situational architecture); solicitation of nutrition stakeholders engagement; generation of NRs; dissemination of NRs applied. Creation of NRs used five factors; gender, locality, income and education levels and potential NRs implementors.
Results: A total of 316 NRs were generated. Kenya generated 38.3%, Morocco 2.5%, Tanzania 28.5%, Tunisia 21.2% and Uganda 9.5% that were categorised according to potential uptakers. Generation of NRs contexualised existing recommendations, adding value and generation of precision-based recommendations at each country level.
Conclusions: In conclusion, once an arsenal of NRs is created integrating significant nutritional stakeholders is key in its application and uptake of NRs for implementation. Precision in stating what the uptaker of NRs is to do is importnt thus use of a verb in phrasing the NR..

O041 / #346

ORAL PRESENTATIONS 06: MALNUTRITION

REVOLUTIONIZING MALNUTRITION SCREENING THROUGH INNOVATION: SAM PHOTO DIAGNOSIS APP PROGRAM

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Background and Aims: The Severe Acute Malnutrition Photo Diagnosis App® is an innovative, fast, easy and reliable smartphone tool that screens for acute malnutrition among children aged 6-59 months, based on an image of their left arm. It provides a result in real-time (offline) and constitutes a proxy variable correlated with WHO standard indicators used at health facilities.
Methods: Various cross-sectional observational studies were carried out using geometric morphometric techniques. From convenience samples (n=600) considering sex, age and nutritional status, morphogeometric variability in different populations was evaluated. We are currently carrying out validation and adaptation studies of the tool to Senegalese, Guatemalan and Indian contexts.
Results: The analysis of more than 1,600 images of girls and boys has allowed us to build a classification algorithm to identify acute malnutrition. We have created a first viable prototype that integrates the methodology, automatically records the information and analyzes it, offering an accurate and easy-to-interpret detection result. It is associated with a web platform for data management, analysis and visualization. It is currently being tested in Senegal with the hope of sharing the results by the conference date. At the same time, the research is being repeated in Guatemala and India; updates may be shared at the conference.
Conclusions: Our solution has the potential to revolutionize routine epidemiological monitoring of malnutrition at institutional and community level. It will enable greater collection and sharing of nutrition reliable data across the health system, allowing governments and community health workers to take more informed decisions and strategize better the allocation of resources.

O042 / #611

ORAL PRESENTATIONS 06: MALNUTRITION

ASSOCIATIONS BETWEEN ADEQUACY OF IRON INTAKE WITH HAEMOGLOBIN LEVEL IN INDONESIAN URBAN CHILDREN AGED 1–3 YEARS OLD

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Background and Aims: Anaemia is still a health problem worldwide, including in Indonesia. Young children are specifically vulnerable, with iron deficiency contributing to almost half of the anaemia cases. More than half of urban children have iron consumption <70% compared to the Indonesian Recommended Dietary Allowance (RDA). This study aimed to determine the association between iron intake adequacy with haemoglobin levels (Hb) in Indonesian urban young children.
Methods: Haemoglobin assessment using Hemocue, dietary intake from a semi-quantitative food-frequency-questionnaire, and sociodemographic variables data were taken from 232 eligible subjects aged 1-3 years old in Jatinegara District Health Centre, Jakarta-Indonesia, conducted from October-December 2022. The association between Hb with iron intake was analysed by adjusting for several sociodemographic factors in model-1. Model-2 was adjusted with several other nutrients. Iron intake was adjusted to energy with the Willet residual method, and adequacy was calculated by percentage to Indonesian RDA.
Results: The mean of Hb was 9.70±1.39 g/dL. Iron intake was 4.02 (2.75–4.82) mg/day with an adequacy of 57.43 (25.14–68.92)%. Hb was associated with iron intake in both models (model-1: beta 0.368, CI: 0.213–0.524; model-2: beta 0.292, CI: 0.028–0.556). Hb was also associated with iron intake adequacy by percentage to RDA (model-1: beta 0.026, CI: 0.015–0.037; model-2: beta 0.021, CI: 0.002–0.040). Children with less than the median iron intake adequacy had 4.35 times more risk for anaemia (CI: 2.035–9.29).
Conclusions: Iron intake adequacy was associated with haemoglobin levels in Indonesian urban children aged 1-3 years. It is important to fulfil the iron intake adequacy of young children to prevent anaemia.