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BREASTFEEDING AND CHILDHOOD OVERWEIGHT

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Background and aims: Childhood obesity and overweight predict short and long-term morbidity as well as obesity in adulthood. Evidence is not consistent about the association of breastfeeding and childhood overweight.

This study aims to evaluate the impact of breastfeeding on the risk of overweight and obesity in school-aged children.

Methods: Cross-sectional study with 125 children, aged 5 to 10 years old, attending a primary health care center in Lisbon.

Height and weight were measured during routine consultation. Other variables were collected based on questionnaires, such as breastfeeding duration, birth weight, diet, lifestyle factors, mother body mass index (BMI) and education. Overweight and obesity were defined as BMI per age equal or above the 85th percentile based on the 2000 Centers for Disease Control and Prevention growth charts.

Results: Prevalence of overweight and obesity was 23,2%. Among the 125 children, 25,6% were never breastfed and only 28,8% were breastfed for 6 or more months.

A dose-response effect was identified between the duration of breastfeeding and the prevalence of overweight and obesity: prevalence was 5,6% for 1 month of exclusive breastfeeding, 4% for 1-2 months, 2,4% for 3-5 months, 0,8% for 6-11 months, and 0% for 12 or more months. After adjusting for other variables, breastfeeding remained a significant protective factor against the development of overweight.

Conclusion: In our study prolonged breastfeeding is associated with a reduced risk of overweight. These results emphasize the importance and possible preventive potential of early nutrition in childhood overweight.

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POSTNATAL EARLY CATCH-UP GROWTH AND INSULIN SENSITIVITY IN SMALL FOR GESTATIONAL AGE INFANTS.

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Objective: To explore the relationship of postnatal catch-up growth and insulin sensitivity.

Methods: Fasting glucose, insulin and HOMA value in 44 small for gestational age (SGA) infants and 74 appropriate for gestational age (AGA) infants at age 3 month were studied by a prospective study, and the relations with catch up growth were analyzed in 44 SGA infants.

Results: SGA infants had significantly higher fasting insulin concentration and HOMA value than did AGA infants. Adjustment for gestation, there was a negative association between velocity of catch-up growth and insulin concentration and HOMA value in SGA infants ($P < 0.05$). 12 non-catch-up growth in weight and length infants had significantly higher fasting insulin concentration and HOMA value than did they on the third day after birth in SGA group respectively [insulin: (21.92 ± 14.25) mU/L vs (11.08 ± 9.59) mU/L $P < 0.05$; HOMA: (4.15 ± 2.96) vs (1.86 ± 1.71), $P < 0.05$].

Conclusions: Catch-up growth is closely related with insulin sensitivity in early postnatal life, and poor growth might result in worse insulin sensitivity in SGA infants during that time.

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PREVALENCE AND CLINICAL FEATURES OF METABOLIC SYNDROME IN OVERWEIGHT AND OBESE CHILDREN

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Aim of the study: To evaluate the prevalence of metabolic syndrome (MetS) and its clinical and biochemical features in an overweight or obese pediatric population.

Methods: 202 consecutive subjects (M/F 94/108; mean age 10.9 ± 2.6 years, range 4-16 years) with overweight or obesity according to WHO definition

were enrolled at the outpatient pediatric clinic of our Institution from January 2008 to December 2009. All subjects had physical examination with measurement of body weight, waist and hip circumference, and blood pressure. Serum levels of glucose, insulin, HDL-cholesterol, tryglicerides and C-reactive protein were assessed. MetS was diagnosed according to modified ATP III criteria.

Results: MetS was demonstrated in 19.3% of cases. 76.9% of them presented BMI >95th percentile, 64.1% HDL-cholesterol < 5th percentile, 76.9% tryglicerides >95th percentile, and 51.3% systolic blood pressure >95th percentile. MetS prevalence was greater, although not statistically significant, in males than in females (24.5% vs 15%, respectively). Waist/Hip ratio and basal glicemia were significantly higher in males ($p=0.02$ and $p=0.05$, respectively). HDL-cholesterol levels were significantly lower in females than in males ($p=0.04$). Children with MetS showed significantly higher insulin levels, but HOMA index values were not significantly greater than in subjects without MetS. Linear regression analysis demonstrated that predisposing factors for MetS were HDL-cholesterol values < 5th percentile ($p=0.001$), tryglicerides values >95th percentile ($p=0.03$) and systolic blood pressure values >95th percentile ($p=0.045$).

Conclusions: Our data confirm that a correct diet, through tryglicerides decrease, and physical activity, through HDL-cholesterol increase, are the basis for the treatment of pediatric obesity.

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NEWBORN BODY COMPOSITION ON DAY TWO OF LIFE MEASURED USING AIR-DISPLACEMENT BODY PLETHYSMOGRAPHY

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Background and aims: In addition to the immediate neonatal risks, fetal growth restriction has been increasingly recognised as a risk for long term metabolic disease. Most studies have relied on standardised birth weight centiles to categorise fetal growth. We wished to examine the true rate of growth abnormal fetal growth and compare this to the use of indirect methods.

Methods: Infant were recruited antenatally as part of a prospective birth cohort study, the BASELINE study. Body fat and fat free mass were measured on day 2 of life in infants using air displacement body plethysmography . Gender, gestation, birth weight(BW), weight, length, mid arm circumference (MAC), Ponderal Index (PI) were recorded .

Results: To date 200 infants have been recruited, with mean (SD) gestational age of 39.7 (1.2)weeks and mean (SD) BW = 3.520 (0.472) kg. The mean (SD) fat mass was 0.389 kg (0.272), giving a mean (SD) percentage body fat of 11(4)%. In the 22 infants with a body fat mass < 10th centile birth weight was 3.12(2.7-3.88)kg. Only one baby had a BW < 10th centile using standard centiles. MAC correlated with total body mass ($R=0.705$, $p<0.001$) and showed a negative correlation with lean body mass $R=-0.263$, $p<0.001$).

Conclusion: We have provided normal ranges for infant fat mass on day 2 of life. Standard birth centiles do not accurately detect low body fat or fetal growth restriction.

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CORTISOL CONCENTRATIONS IN PREGNANCY AND ARTERIAL ELASTICITY IN CHILDHOOD

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Prenatal overexposure to glucocorticoids may programme a range of tissue-specific effects in the foetus. The objective of this study was to assess the relationship between cortisol concentrations in the last trimester of pregnancy and arterial elasticity in childhood. The study is part of a cohort involving 130 Brazilian pregnant women and their children, ages 5 to 7 years. Maternal cortisol was determined in saliva by an enzyme immunoassay utilizing the mean concentration of 9 samples of saliva (3 in each different day), collected at the same time, early in the morning. The large arterial elasticity index (LAEI) and the small arterial elasticity index (SAEI) were assessed by the HDI/PulseWave CR-2000 Cardiovascular Profiling System®. Socioeconomic and demographic characteristics and life style factors were determined by a questionnaire. The nutritional status of the women and children was assessed by