outcome. However there are concerns whether preterms accumulate excess fat during NICU stay.

Aim Aim of this study was to compare skinfold thickness of preterms when they reached 35 weeks corrected age (CA) with that of 35 week born controls.

Methods Appropriate for gestational age (AGA) preterms born ≤ 32 weeks gestational age (GA) had skinfold thickness measured from 5 body sites by using Holtain caliper at 35 weeks CA as well as weight, length, head circumference (HC) and ponderal index (PI), results were compared with gender matched AGA near term controls born at 35 weeks gestation with nonparametric tests. Data are expressed as median and range.

Results 26 preterms (10 males GA:30.5 w (28–31), BW: 1500g (1040–1700)), 16 females GA:29 w (25–32), BW: 985g (610–1800)) were compared to 20 controls (10 males BW:2175g (1837–2356), 10 females BW: 2115g (1815–2362)). Skinfold thickness measured from triceps, biceps, subscapular, suprailiac and midhigh regions were significantly higher in patients compared to controls both in girls and boys (Figure 1.2). However weight, length, HC and PI were similar.

Abstract 340 Figure 1 Girls

Abstract 340 Figure 2 Boys

Conclusion Enriched feeding with increased protein and calories is essential for preterms during NICU stay however the way we do it does not seem to lead to in utero body composition which is considered ideal.

341 CHOLESTEROL BIOSYNTHESIS IN PRETERM INFANTS ON PARENTERAL NUTRITION WITH A LIPID EMULSION CONTAINING 10% FISH OIL (FO): A PILOT STUDY

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Background and Aims Limited data are available on the metabolic effects of intravenous fish oil (FO) in premature infant. We reported on the plasma cholesterol lowering effect of an intravenous lipid emulsion containing 10% FO or FMS (10% FO, 50% MCT, 40% soybean oil-SO) when compared with MS (50% MCT, 50% SO) (D'Ascenzo et al. JPediatr 2011). Aim of this study was to ascertain if the lower plasma cholesterol concentrations resulted from reduced biosynthesis or enhanced clearance.

Methods Eighteen premature infants were randomised to receive FMS (n=9, GA 199 $\pm$ 17 days, BW 983 $\pm$ 138 g) or MS (n=9, GA 202 $\pm$ 17 days, BW 992 $\pm$ 178 g). The IV lipids were increased to 2.5 g·kg⁻¹·d⁻¹ in the first week of life. On day 7 patients received an oral dose of deuterated water for the measurement of cholesterol and palmitate biosynthesis. The incorporation of deuterium from water into cholesterol (cholesterol biosynthesis) was measured by Gas Chromatography and Combustion Isotope Ratio Mass Spectrometry (GC-C-IRMS). Fractional and Absolute Synthesis Rates (ASR) were obtained and compared by Mann-Whitney Test.

Results Plasma free cholesterol concentrations were significantly lower in FMS than in MS (53 $\pm$ 5 vs 64 $\pm$ 9 mg/dl, p=0.01). ASR were 8.5 $\pm$ 3.4 vs 8.4 $\pm$ 2.6 mg/kg/d in FMS and MS respectively (p=0.93).

Conclusions Intravenous FO in preterm infants has marked cholesterol lowering effect but cholesterol biosynthesis was not reduced. Measurements of cholesterol catabolism are in progress.

342 MATERNAL PREDICTORS OF HUMAN MILK INTAKE IN EXTREMELY PRETERM INFANTS

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Background and Aims Mother's own breast milk (MBM) is the most advantageous enteral food for extremely preterm infants (EPIs). Mothers of EPIs are at risk for inadequate expression of breast milk but determinants of MBM production are not well identified. The aim of the study was to investigate maternal predictors for MBM intake in EPIs during the neonatal period and at discharge.

Methods The sample consisted of 109 mothers and their 117 EPIs born at Karolinska University Hospital from 2005–2009. Maternal data was retrieved from prenatal and obstetrical medical charts. In infants, birth data and information on enteral intake was collected from neonatal charts during the first 6 weeks of life and at discharge.

Results Mean maternal age was 31.3 years. Mean infant gestational age and birth weight were 26+0 weeks and 850 grams. Only mothers with high MBM production at 3 weeks (MBM >90% of total enteral food intake) maintained their lactation over time. Predictors of low neonatal MBM production were unemployment, use of nicotine, low educational level, non-Swedish origin, non-cohabiting status

and prenatal steroids ($p<0.05$). At discharge 64/108 (59%) infants were fully or partly fed with MBM. Mothers of exclusively formula fed infants were younger, less educated, had lower incomes, history of pre-pregnancy nicotine use and prenatal steroids ($p<0.05$).

Conclusions Special efforts should be made in young mothers of low socioeconomic status and foreign origin as well as mothers receiving prenatal steroids to help them sustain adequate breast milk production for their EPIs.

343 A RANDOMISED TRIAL OF TWO TECHNIQUES OF BOTTLE FEEDING FOR PRETERM INFANTS

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Background and Aims Preterm infants will begin the transition from tube to suck feeds at ~34 weeks' corrected age. Our aim was to compare physiological stability in two positions for bottle feeding preterm infants, the "cradle hold" versus a "side-lying" position.

Methods Randomised crossover trial of infants < 34 weeks' gestation at birth, ≥ 34 weeks' corrected gestation at study, receiving $\geq$ two suckling feeds/day. Feeds were studied on successive days. A pulse oximeter (PO) measured oxygen saturation (SpO_2) and heart rate (HR), before, during and for 30 minutes after feeds. Continuous data were compared with paired t-tests, proportions compared with χ^2 .

Results 25 study infants were, mean (SD) 29(3) weeks gestation and 1158(479)g at birth and mean (SD) 37(2.4) wks corrected age and 2740 (589)g at study.

Abstract 343 Table 1

	Cradle	Side-lying	p value
SpO_2 mean(SD)	94(6)	95(6)	0.55
HR mean(SD)	163(14)	156(15)	0.09
$SpO_2 < 80\%$ n(%)	17(68%)	14(56%)	0.39
HR <100bpm n(%)	5(20%)	10(40%)	0.12
Proportion of feed consumed mean (SD)	82(25)	87(20)	0.08

Eight study infants were receiving oxygen or respiratory support. In these 8 infants 5/8 (62%) versus 7/8 (87%) in side and cradle feeding positions experienced a $SpO_2 < 80\%$ ($p=0.25$) during study feeds.

Conclusions Little difference in physiological stability was seen between the two bottle feeding positions. Both methods may be appropriate for the transition from tube to bottle feeding in preterm infants.

344 ADIPOCYTOKINE LEVELS IN CORD BLOOD OF PRETERM AND TERM NEWBORN INFANTS

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Background Few studies have presented data on adiponectin and leptin levels comparing small and appropriate for gestational age, and very low birth weight preterm and term newborns.

Aim To compare levels of adiponectin and leptin in cord blood of full term and very low birth weight preterm infants, and determine its relation with birth weight and being small for gestational age.

Methods Cross sectional study of preterm with gestational age (GA) ≤ 32 weeks and birth weight ≤ 1500 grams (VLBW), and term newborns born at tertiary hospital between January 2010 and May

2011. Exclusion criteria were presence of major congenital malformation, metabolism inborn errors, chromosomal anomalies. Adiponectin and leptin cord blood levels were determined by ELISA kits (R&D Systems).

Results Included 127 newborns: 55 VLBW preterm and 72 term newborns. There were no statistical differences regarding maternal gestational diabetes, urinary tract infection, age and BMI. Adiponectin levels were significantly higher in term than in preterm newborns: 2.4 ± 0.22 pg/ml versus 1.57 ± 0.74 pg/ml ($p<0.001$), respectively; leptin levels were similar in both groups: 1.25 ± 0.90 pg/ml and 1.38 ± 0.99 pg/ml ($p=0.481$), respectively. Despite being adequate or small for gestational age, VLBW preterm newborns showed lower levels of adiponectin than term newborns ($p<0.001$), and there were no statistically significant differences for leptin levels. In the linear regression, prematurity was the only independent variable associated to low levels of adiponectin ($p<0.001$).

Conclusion Prematurity is the main determinant factor for lower adiponectin levels in umbilical cord blood of newborns.

345 ANALYSIS OF ANTIOXIDATIVE STATUS OF HUMAN MILK AND ITS VARIATIONS AT DAY AND NIGHT TIME

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Introduction Human milk (HM) contains antioxidant enzymes such as superoxide dismutase (SOD), glutathione peroxidase (GSH-Px) and catalase. Melatonin (MT) shows antioxidative properties both directly by stimulating the activities of antioxidant enzymes and indirectly by scavenging free radicals. The aim of this study was to evaluate the effect of MT status on the level of SOD, GSH-Px 3 and the total antioxidant capacity (TAC) of HM.

Material and Methods 114 samples of HM were collected from 22 healthy women during daytime (DT; 10a.m.-9.59p.m.) and nighttime (NT; 10p.m.-9.59a.m.). MT, SOD, GSH-Px3 levels and TAC were assayed and compared between DT-HM and NT-HM. Moreover, the Pearson's correlation coefficient was calculated between MT and SOD, GSH-Px3 and TAC.

Results MT showed a circadian rhythm with high levels at NT and low levels at DT (mean $\pm$ SEM; 9.2 ± 1.2 vs. 2.0 ± 0.3 pg/ml, respectively, $p<0.0001$), while SOD, GSH-Px3 and TAC had no circadian changes in HM ($p>0.05$). There was no correlation between MT levels and SOD, GSH-Px3 levels and TAC.

Conclusion The MT status influence neither SOD and GSH-Px3 levels nor TAC of HM. It should be pointed that our results represent only the effect of MT on the extracellular component of the antioxidant system and it does not exclude the possibility that high MT concentrations in HM may induce the intracellular and mitochondrial antioxidant enzyme system in the gastrointestinal tract.

346 EFFECTS OF BOLUS AND CONTINUOUS ENTERAL FEEDING ON SPLANCHNIC AND CEREBRAL TISSUE OXYGENATION EVALUATED BY NEAR INFRARED SPECTROSCOPY

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Background and Aims Bolus and continuous tube feeding represent the most frequently used enteral feeding techniques in preterm infants, but the best strategy is not yet established. Near-Infrared-Spectroscopy (NIRS) provides a noninvasive monitoring of splanchnic