Obstetrics

Current Awareness Newsletter

November 2015

Outreach

We can help with literature searching, obtaining journal articles and books, and setting up individual current awareness alerts. We also offer one-to-one or small group training in literature searching, accessing electronic journals, and critical appraisal.

Literature Searching

We provide a literature searching service for any library member. For those embarking on their own research it is advisable to book some time with one of the librarians for a 1 to 1 session where we can guide you through the process of creating a well-focused literature research and introduce you to the health databases access via NHS Evidence. Please email requests to library@uhbristol.nhs.uk

Books

Books can be searched for using SWIMS our online catalogue at www.swims.nhs.uk.

Inter-Library Loans

Books and journals that are not available on site or electronically may be requested from other locations. Please email requests to ills@UHBrisol.nhs.uk
| **Tables of Contents from relevant journals** | Click here British Journal of Obstetrics and Gynaecology  
Click here American Journal of Obstetrics and Gynecology  
Click here Obstetrics and Gynaecology |
<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Latest Cochrane Systematic Reviews</strong></td>
<td>November 2015 Guidance In development Preterm labour and birth</td>
</tr>
<tr>
<td><strong>UptoDate</strong></td>
<td><a href="http://www.uptodate.com/contents/whats-new-in-obstetrics-and-gynecology">http://www.uptodate.com/contents/whats-new-in-obstetrics-and-gynecology</a></td>
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Search History:
1. EMBASE; ("Intrapartum care" OR pre-eclampsia OR "preterm labour" OR "maternal medicine" OR "fetal abnormality" OR "maternal abnormality")ti,ab; 31021 results.
2. EMBASE; 1 [Limit to: Latest Update and English Language]; 24 results.

Title: Placental and fetal growth restriction, size at birth and neonatal growth alter cognitive function and behaviour in sheep in an age- and sex-specific manner

Citation: Physiology and Behavior, December 2015, vol./is. 152/(1-10), 0031-9384;1873-507X (December 01, 2015)


Language: English

Abstract: Intrauterine growth restriction and slow neonatal growth in humans are each associated with poorer learning, memory and cognitive flexibility in childhood and adulthood. The relative contributions of pre- and post-natal growth to cognitive outcomes are unclear, however. We therefore compared performance in learning, memory and reversal tasks using a modified Y-maze at 18 and 40. weeks of age in offspring of placenta-restricted (PR: 10 M, 13 F) and control (23 M, 17 F) ovine pregnancies. We also investigated relationships between size at birth, neonatal growth rates and cognitive outcomes. PR had limited effects on cognitive outcomes, with PR males requiring more trials to solve the initial learning task than controls (P. =. 0.037) but faster completion of reversal tasks in both sexes at 18. weeks of age. In males, neonatal growth rate correlated inversely with numbers of trials and total time required to solve memory tasks at 40. weeks of age. In females, bleat frequency in the first reversal task at 18. weeks of age correlated positively with birth weight (r. =. 0.734, P. <. 0.05) and neonatal growth rate (r. =. 0.563, P. <. 0.05). We conclude that PR induces limited effects on cognitive outcomes in sheep, with some evidence of impaired learning in males, but little effect on memory or cognitive flexibility in either sex. Rapid neonatal growth predicted improved memory task performance in males, suggesting that strategies to optimize neonatal growth may have long-term cognitive benefits but that these may be sex-specific.

Publication Type: Journal: Article

Source: EMBASE

Title: How does tobacco smoke influence the morphometry of the fetus and the umbilical cord?-Research on pregnant women with intrauterine growth restriction exposed to tobacco smoke

Citation: Reproductive Toxicology, December 2015, vol./is. 58/(79-84), 0890-6238;1873-1708 (December 01, 2015)

Author(s): Milnerowicz-Nabzdyk E., Bizon A.

Language: English

Abstract: Proper structure of the umbilical cord is important for the fetal development. We evaluated effects of toxic factors from tobacco smoke on fetal and umbilical cord morphometry. 109 women in weeks 29–40 of pregnancy (31 smokers with intrauterine growth restriction (IUGR); 28 non-smoking women with IUGR; 50 healthy pregnancies) were included. In smokers with IUGR, cotinine, cadmium and lead concentrations were significantly higher than in controls (mean 55.23. ng/l; 1.52. ng/ml; 14.85. ng/ml vs 1.07; 0.34; 9.42) and inverse correlation between lead concentration and uncoiled umbilical cord was significant ( r= -0.80). In smokers with IUGR, area of Wharton’s jelly was increased compared to nonsmokers and controls. Inverse correlations occurred between cotinine and cadmium concentration and fetal percentile in smokers ( r= -0.87; r= -0.87) and non-smokers ( r= -0.47; r= -0.78) with IUGR. Exposure to tobacco smoke measured by cotinine, cadmium and lead concentration has an impact on fetal growth and umbilical cord morphometry and correlates with intensity of IUGR.

Publication Type: Journal: Article
Source: EMBASE

Title: Cord blood irisin at the extremes of fetal growth

Citation: Metabolism: Clinical and Experimental, November 2015, vol./is. 64/11(1515-1520), 0026-0495;1532-8600 (November 2015)

Author(s): Baka S., Malamitsi-Puchner A., Boutsikou T., Boutsikou M., Marmarinos A., Hassiakos D., Gourgiotis D., Briana D.D.

Language: English

Abstract: Background/aims Irisin, a novel myokine with antiobesity properties, drives brown-fat-like conversion of white adipose tissue, thus increasing energy expenditure and improving glucose tolerance. We aimed to investigate circulating irisin concentrations in large-for-gestational-age (LGA) and intrauterine-growth-restricted (IUGR) fetuses, both associated with metabolic dysregulation and long-term susceptibility to obesity and metabolic syndrome development. Methods Plasma irisin and insulin concentrations were determined by ELISA and IRMA, respectively, in 80 mixed arteriovenous cord blood samples from LGA (n = 30), IUGR (n = 30) and appropriate-for-gestational-age (AGA, n = 20) singleton full-term pregnancies. Fetuses were classified as LGA, IUGR or AGA, based on customized birth-weight standards adjusted for significant determinants of fetal growth. Results Fetal irisin concentrations were lower in IUGR cases than AGA controls (p = 0.031). Cord blood irisin concentrations were similar in LGA and AGA groups and positively correlated with birth-weight, as well as customized centiles (r = 0.245, p = 0.029 and r = 0.247, p = 0.027, respectively). Insulin concentrations were higher in LGA, compared to AGA fetuses (p = 0.036). In the LGA group, fetal irisin concentrations positively correlated with fetal insulin concentrations (r = 0.374, p = 0.042). Conclusions Impaired skeletal muscle metabolism in IUGR fetuses may account for their irisin deficiency, which may be part of the fetal programming process, leading to increased susceptibility to later metabolic syndrome development. Furthermore, irisin down-regulation may predispose IUGR infants to hypothermia at birth, by inducing less “browning” of their adipose tissue and consequently less non-shivering thermogenesis. Irisin upregulation with increasing birth-weight may contribute to a slower fat gain during early infancy (“catch-down”), by promoting higher total energy expenditure. The positive correlation between irisin and insulin in the LGA group may reflect a counterbalance of the documented hyperinsulinemia, which is partly responsible for the excessive fat deposition in the LGA fetus.

Publication Type: Journal: Article

Source: EMBASE

Title: Patterns of fetal growth in an Asian Indian cohort in the USA

Citation: International Journal of Gynecology and Obstetrics, November 2015, vol./is. 131/2(178-182), 0020-7292;1879-3479 (November 2015)

Author(s): Parilla B.V., McCulloch C., Sulo S., Curran L., McSherry D.

Language: English

Abstract: Objective To determine whether a greater proportion of fetuses in an Asian Indian cohort are classified as small for gestational age than would be expected from a normally distributed population. Methods A retrospective analysis of fetal growth pattern and neonatal outcome was conducted among Asian Indian women who were referred to a maternal-fetal medicine center in Park Ridge, IL, USA, for evaluation of fetal growth between January 1, 2012, and December 31, 2013. The primary outcome was an abdominal circumference or estimated weight of lower than the 10th percentile for gestational age according to the Hadlock formula. Results Overall, 207 women and 210 fetuses were included. Forty-eight (22.9%) fetuses had an abdominal circumference lower than the 10th percentile. The total number of neonates classified as small for gestational age at delivery was 22 (10.5%), a value indicative of a normally distributed population. Conclusion Fetal size was smaller than expected among the present Asian Indian cohort, but most neonates were classified
as appropriate for gestational age at birth. Population specific growth curves are needed to improve assessment of fetal growth.

**Publication Type:** Journal: Conference Paper

**Source:** EMBASE

**Title:** Postnatal growth standards for preterm infants: The Preterm Postnatal Follow-up Study of the INTERGROWTH-21st Project

**Citation:** The Lancet Global Health, November 2015, vol./is. 3/11(e681-e691), 2214-109X (November 2015)


**Language:** English

**Abstract:** Background: Charts of size at birth are used to assess the postnatal growth of preterm babies on the assumption that extratuterine growth should mimic that in the uterus. Methods: The INTERGROWTH-21st Project assessed fetal, newborn, and postnatal growth in eight geographically defined populations, in which maternal health care and nutritional needs were met. From these populations, the Fetal Growth Longitudinal Study selected low-risk women starting antenatal care before 14 weeks' gestation and monitored fetal growth by ultrasonography. All preterm births from this cohort were eligible for the Preterm Postnatal Follow-up Study, which included standardised anthropometric measurements, feeding practices based on breastfeeding, and data on morbidity, treatments, and development. To construct the preterm postnatal growth standards, we selected all live singletons born between 26 and before 37 weeks' gestation without congenital malformations, fetal growth restriction, or severe postnatal morbidity. We did analyses with second-degree fractional polynomial regression models in a multilevel framework accounting for repeated measures. Fetal and neonatal data were pooled from study sites and stratified by postmenstrual age. For neonates, boys and girls were assessed separately. Findings: From 4607 women enrolled in the study, there were 224 preterm singleton births, of which 201 (90%) were enrolled in the Preterm Postnatal Follow-up Study. Variance component analysis showed that only 02% and 40% of the total variability in postnatal length and head circumference, respectively, could be attributed to between-site differences, justifying pooling the data from all study sites. Preterm growth patterns differed from those for babies in the INTERGROWTH-21st Project. They overlapped with the WHO Child Growth Standards for term babies by 64 weeks' postmenstrual age. Interpretation: Our data have yielded standards for postnatal growth in preterm infants. These standards should be used for the assessment of preterm infants until 64 weeks' postmenstrual age, after which the WHO Child Growth Standards are appropriate. Size-at-birth charts should not be used to measure postnatal growth of preterm infants. Funding: Bill & Melinda Gates Foundation.

**Publication Type:** Journal: Article
Title: A systematic review and meta-analysis of metformin among patients with polycystic ovary syndrome undergoing assisted reproductive technology procedures

Citation: International Journal of Gynecology and Obstetrics, November 2015, vol./is. 131/2(111-116), 0020-7292:1879-3479 (November 2015)

Author(s): Huang X., Wang P., Tal R., Lv F., Li Y., Zhang X.

Language: English

Abstract: Background Metformin is used among patients with polycystic ovary syndrome (PCOS), but findings for its effects on outcomes of assisted reproductive technology (ART) have been conflicting. Objectives To compare ART outcomes among women with PCOS who were and were not given metformin. Search strategy Databases were searched for reports published in English between 2002 and 2013, using combinations of the terms "polycystic ovary syndrome," "PCOS," "insulin-sensitizing," and "metformin." Selection criteria Randomized controlled trials of metformin versus placebo among women with PCOS undergoing ART were included if they assessed rates of pregnancy, live birth, spontaneous abortion, multiple pregnancy, and/or ovarian hyperstimulation syndrome (OHSS). Data collection and analysis Data were extracted from included studies. The Mantel-Haenzel random-effects model was used for meta-analyses. Main results Twelve studies (1516 participants) were included. No significant differences were recorded between metformin and placebo groups for rates of pregnancy (risk ratio [RR] 1.11, 95% CI 0.92-1.33), live birth (RR 1.12, 0.92-1.36), spontaneous abortion (RR 1.00, 0.60-1.67), or multiple pregnancy (RR 0.96, 0.47-1.96). However, OHSS rate was significantly lower among patients who received metformin than among those who received placebo (RR 0.44, 0.26-0.77). Conclusions Metformin does not improve ART outcomes among patients with PCOS, but does significantly reduce their risk of OHSS.

Publication Type: Journal: Article

Source: EMBASE

Title: Sex-specific differences in fetal growth in newborns exposed prenatally to traffic-related air pollution in the PELAGIE mother-child cohort (Brittany, France)

Citation: Environmental Research, October 2015, vol./is. 142/(680-687), 0013-9351;1096-0953 (October 01, 2015)

Author(s): Bertin M., Chevrier C., Serrano T., Monfort C., Cordier S., Viel J.-F.

Language: English

Abstract: Background: Numerous studies have linked prenatal traffic-related air pollution exposure to fetal growth. Recently, several studies have suggested exploring this association independently among boys and girls because of potential sex-specific biological vulnerability to air pollution. Residence-based factors can also influence fetal growth by enhancing susceptibility to the toxic effects of air pollution and must also be considered in these relations. Objective: We examined sex-specific associations between prenatal air pollution exposure and fetal growth and explored whether they differed by the urban-rural status of maternal residence. Methods: This study relied on the PELAGIE mother-child cohort (2521 women, Brittany, France, 2002-2006). Fetal growth was assessed through birth weight, head circumference and small weight (SGA) and small head circumference (SHC) for gestational age. Nitrogen dioxide (NO$_2$) concentrations at mothers' homes were estimated by using a land use regression model taking into account temporal variation during pregnancy. Associations between estimated NO$_2$ concentrations and fetal growth were assessed with linear regression or logistic regression models, depending on the outcome investigated. Results: An interquartile range (8.8µgm<sup>-3</sup>) increase in NO$_2$ exposure estimates was associated with a 27.4g (95% CI 0.8 to 55.6) increase in birth weight and a 0.09cm (95% CI 0.00-0.17) significant increase in head circumference, among newborn boys only. Their risks of SGA and SHC were reduced (OR 0.70, 95% CI 0.53-0.92, OR 0.76, 95% CI 0.56-1.03, respectively, for an increase of 8.8µgm<sup>-3</sup>).
statistically significant trends were observed among girls. Urban-rural status modified the effect of air pollution only for SHC and again only for newborn boys. Conclusion: Findings from this study confirm the need to consider sex-specific associations between air pollution and fetal growth and to investigate possible mechanisms by which traffic-related air pollution may increase anthropometric parameters at birth.

**Publication Type:** Journal: Article

**Source:** EMBASE

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**Title:** Area-level socioeconomic deprivation, nitrogen dioxide exposure, and term birth weight in New York City

**Citation:** Environmental Research, October 2015, vol./is. 142/(624-632), 0013-9351;1096-0953 (October 01, 2015)

**Author(s):** Shmool J.L.C., Bobb J.F., Ito K., Elston B., Savitz D.A., Ross Z., Matte T.D., Johnson S., Dominici F., Clougherty J.E.

**Language:** English

**Abstract:** Numerous studies have linked air pollution with adverse birth outcomes, but relatively few have examined differential associations across the socioeconomic gradient. To evaluate interaction effects of gestational nitrogen dioxide (NO$_2$) and area-level socioeconomic deprivation on fetal growth, we used: (1) highly spatially-resolved air pollution data from the New York City Community Air Survey (NYCCAS); and (2) spatially-stratified principle component analysis of census variables previously associated with birth outcomes to define area-level deprivation. New York City (NYC) hospital birth records for years 2008-2010 were restricted to full-term, singleton births to non-smoking mothers (n=243,853). We used generalized additive mixed models to examine the potentially non-linear interaction of nitrogen dioxide (NO$_2$) and deprivation categories on birth weight (and estimated linear associations, for comparison), adjusting for individual-level socio-demographic characteristics and sensitivity testing adjustment for co-pollutant exposures. Estimated NO$_2$ exposures were highest, and most varying, among mothers residing in the most-affluent census tracts, and lowest among mothers in residing in mid-range deprivation tracts. In non-linear models, we found an inverse association between NO$_2$ and birth weight in the least-deprived and most-deprived areas (p-values<0.001 and 0.05, respectively) but no association in the mid-range of deprivation (p=0.8). Likewise, in linear models, a 10ppb increase in NO$_2$ was associated with a decrease in birth weight among mothers in the least-deprived and most-deprived areas of -16.2g (95% CI: -21.9 to -10.5) and -11.0g (95% CI: -22.8 to 0.9), respectively, and a non-significant change in the mid-range areas [beta=0.5g (95% CI: -7.7 to 8.7)]. Linear slopes in the most- and least-deprived quartiles differed from the mid-range (reference group) (p-values<0.001 and 0.09, respectively). The complex patterning in air pollution exposure and deprivation in NYC, however, precludes simple interpretation of interactive effects on birth weight, and highlights the importance of considering differential distributions of air pollution concentrations, and potential differences in susceptibility, across deprivation levels.

**Publication Type:** Journal: Article

**Source:** EMBASE

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**Title:** The association between maternal dietary micronutrient intake and neonatal anthropometry - Secondary analysis from the ROLO study

**Citation:** Nutrition Journal, October 2015, vol./is. 14/1, 1475-2891 (07 Oct 2015)

**Author(s):** Horan M.K., McGowan C.A., Gibney E.R., Donnelly J.M., McAuliffe F.M.

**Language:** English

**Abstract:** Background: Micronutrients are necessary for fetal growth. However increasingly pregnant women are nutritionally replete and little is known about the effect of maternal micronutrient intakes on fetal adiposity
in mothers with increased BMI. The aim of this study was to examine the association of maternal dietary micronutrient intake with neonatal size and adiposity in a cohort at risk of macrosomia. Methods: This was a cohort analysis of 554 infants from the ROLO study. Three day food diaries from each trimester were collected. Neonatal weight, length, circumferences and skinfold thicknesses were measured at birth. Multiple linear regression was used to identify associations between micronutrient intakes and neonatal anthropometry. Results: Birthweight was negatively associated with maternal trimester 3 vitamin D intake and positively associated with trimester 3 vitamin B12 intake R2adj 19.8 % (F=13.19, p <0.001). Birth length was positively associated with trimester 3 magnesium intake R2adj 12.9 % (F=8.06, p <0.001). In terms of neonatal central adiposity; abdominal circumference was positively associated with maternal trimester 3 retinol intake and negatively associated with trimester 3 vitamin E and selenium intake R2adj 11.9 % (F=2.93, p=0.002), waist:length ratio was negatively associated with trimester 3 magnesium intake R2adj 20.1 % (F=3.92, p <0.001) and subscapular:triceps skinfold ratio was negatively associated with trimester 1 selenium intake R2adj7.2 % (F=2.00, p=0.047). Conclusions: Maternal micronutrient intake was associated with neonatal anthropometry even in women not at risk of malnutrition. Further research is necessary to determine optimal micronutrient intake in overweight and obese pregnant women. Trial registration: Current Controlled Trials ISRCTN54392969.

Publication Type: Journal: Article

Source: EMBASE

Full Text: Available from National Library of Medicine in Nutrition Journal
Available from BioMed Central in Nutrition Journal
Available from ProQuest in Nutrition Journal

Title: The effect of an oxytocin receptor antagonist (Retosiban, GSK221149A) on the response of human myometrial explants to prolonged mechanical stretch

Citation: Endocrinology, October 2015, vol./is. 156/10(3511-3516), 0013-7227;1945-7170 (01 Oct 2015)

Author(s): Moraitis A.A., Cordeaux Y., Charnock-Jones D.S., Smith G.C.S.

Language: English

Abstract: Multiple pregnancy is a major cause of spontaneous preterm birth, which is related to uterine overdistention. The objective of this study was to determine whether an oxytocin receptor antagonist, retosiban (GSK221149A), inhibited the procontractile effect of stretch on human myometrium. Myometrial biopsies were obtained at term planned cesarean delivery (n = 12). Each biopsy specimen was dissected into 8 strips that were exposed in pairs to low or high stretch (0.6 or 2.4 g) in the presence of retosiban (1 -M) or vehicle (dimethylsulfoxide) for 24 hours. Subsequently, we analyzed the contractile responses to KCl and oxytocin in the absence of retosiban. We found that incubation under high stretch in vehicle alone increased the response of myometrial explants to both KCl (P=.007) and oxytocin (P=.01). However, there was no statistically significant effect of stretch when explants were incubated with retosiban (P = .3 and .2, respectively). Incubation with retosiban in low stretch had no statistically significant effect on the response to either KCl or oxytocin (P = .8 and >.9, respectively). Incubation with retosiban in high stretch resulted in a statistically significant reduction (median fold change, interquartile range, P in the response to both KCl (0.74, 0.60-1.03, P=.046) and oxytocin (0.71, 0.53-0.91, P=.008). The greater the effect of stretch on explants from a given patient, the greater was the inhibitory effect of retosiban (r = -0.65, P = .02 for KCl and r=-0.73, P = .007 for oxytocin). These results suggest that retosiban prevented stretch-induced stimulation of human myometrial contractility. Retosiban treatment is a potential approach for preventing preterm birth in multiple pregnancy.

Publication Type: Journal: Article

Source: EMBASE

Title: Moving beyond silos: How do we provide distributed personalized medicine to pregnant women everywhere at scale? Insights from PRE-EMPT
Abstract: While we believe that pre-eclampsia matters - because it remains a leading cause of maternal and perinatal morbidity and mortality worldwide - we are convinced that the time has come to look beyond single clinical entities (e.g. pre-eclampsia, postpartum hemorrhage, obstetric sepsis) and to look for an integrated approach that will provide evidence-based personalized care to women wherever they encounter the health system. Accurate outcome prediction models are a powerful way to identify individuals at incrementally increased (and decreased) risks associated with a given condition. Integrating models with decision algorithms into mobile health (mHealth) applications could support community and first level facility healthcare providers to identify those women, fetuses, and newborns most at need of facility-based care, and to initiate lifesaving interventions in their communities prior to transportation. In our opinion, this offers the greatest opportunity to provide distributed individualized care at scale, and soon.

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