

Vitamin D Supplementation in Infants, Children, and Adolescents.

Catherine F. Casey, MD; David C. Slawson, MD; and Lindsey R. Neal, MD
Am Fam Physician, 2010;81(6):745-748, 750.
University of Virginia Medical Center, Charlottesville, Virginia

ABSTRACT

Vitamin D deficiency in children can have adverse health consequences, such as growth failure and rickets. In 2008, the American Academy of Pediatrics increased its recommended daily intake of vitamin D in infants, children, and adolescents to 400 IU. Infants who are breastfed and children and adolescents who consume less than 1 L of vitamin D—fortified milk per day will likely need supplementation to reach 400 IU of vitamin D per day. This recommendation is based on expert opinion and recent clinical trials measuring biomarkers of vitamin D status. It is also based on the precedent of preventing and treating rickets with 400 IU of vitamin D. In addition to dietary sources, exposure to ultraviolet B sunlight provides children and adults with additional vitamin D. Although the American Academy of Pediatrics recommends keeping infants out of direct sunlight, decreased sunlight exposure may increase children's risk of vitamin D deficiency. No randomized controlled trials assessing patient-oriented outcomes have been performed on universal vitamin D supplementation. However, vitamin D may reduce the risk of certain infections and chronic diseases. Physicians should help parents choose the appropriate vitamin D supplement for their child.

(FULL TEXT ACCESSED AT: <https://www.aafp.org/afp/2010/0315/p745.pdf>)

Vitamin D: Current Guidelines and Future Outlook.

Pilz S¹, Trummer C², Pandis M², Schwetz V², Aberer F², Grubler M^{2,3}, Verheyen N⁴, Tomaschitz A^{5,6}, März W^{6,7,8}.
Anticancer Res. 2018 Feb;38(2):1145-1151.

ABSTRACT

Vitamin D is of public health interest because its deficiency is common and is associated with musculoskeletal diseases, as well as extraskeletal diseases, such as cancer, cardiovascular diseases, and infections. Several health authorities have reviewed the existing literature and published nutritional vitamin D guidelines for the general population. There was a wide consensus that serum 25-hydroxyvitamin D [25(OH)D] concentration should be used to assess vitamin D status and intake, and that musculoskeletal, and not extraskeletal, effects of vitamin D should be the basis for nutritional vitamin D guidelines. Recommended target levels for 25(OH)D range from 25 to 50 nmol/l (10 to 20 ng/ml), corresponding to a vitamin D intake of 400 to 800 International Units (10 to 20 µg) per day. It is of concern that significant sections of the general population do not meet these recommended vitamin D levels. This definitely requires action from a public health perspective.

Keywords: 25(OH)D, Vitamin D, epidemiology, guidelines, review, upplementation.

Improving Vitamin D Administration to Breastfeeding Newborns Using a Quality Improvement Model.

Suhagi Kadakia, Alan Cabasso, Anita Siu, Rose St. Fleur
Pediatrics, January 2018, Volume 141 / Issue 1
Meeting Abstract Section on Breastfeeding Program

ABSTRACT

Introduction: In November 2008, the American Academy of Pediatrics (AAP) doubled the recommended daily intake of vitamin D for infants and children, from 200 IU/day (2003 recommendation) to 400 IU/day. Vitamin D should also be offered to any mother giving less than 500 mL of breast milk per day. Although breast milk is the best source of food for infants, it only contains 25 to 50 IU/L of vitamin D and, thus, is insufficient by itself. Vitamin D deficiency can cause nutritional rickets in severe cases but can also cause impaired growth, developmental delays and lethargy.

National Trends in Hospitalizations for Opioid Poisonings Among Children and Adolescents, 1997 to 2012.

Gaither JR; Leventhal JM; Ryan SA; Camenga DR
JAMA Pediatr. 2016; 170(12):1195-1201 (ISSN: 2168-6211)

ABSTRACT

Importance: National data show a parallel relationship between recent trends in opioid prescribing practices and hospitalizations for opioid poisonings in adults. No similar estimates exist describing hospitalizations for opioid poisonings in children and adolescents. **Objective:** To describe the incidence and characteristics of hospitalizations attributed to opioid poisonings in children and adolescents. **Design, Setting, and Participants:** Retrospective analysis of serial cross-sectional data from a nationally representative sample of US pediatric hospital discharge records collected every 3 years from January 1, 1997, through December 31, 2012. The Kids' Inpatient Database was used to identify 13 052 discharge records for patients aged 1 to 19 years who were hospitalized for opioid poisonings. Data were analyzed within the collection time frame. **Main Outcomes and Measures:** Poisonings attributed to prescription opioids were identified by codes from the International Classification of Diseases, Ninth Revision, Clinical Modification. In adolescents aged 15 to 19 years, poisonings attributed to heroin were also identified. Census estimates were used to calculate incidence per 100 000 population. The Cochran-Armitage test for trend was used to assess for changes in incidence over time. **Results:** From 1997 to 2012, a total of 13,052 (95% CI, 12,500-13,604) hospitalizations for prescription opioid poisonings were identified. The annual incidence of hospitalizations for opioid poisonings per 100,000 children aged 1 to 19 years rose from 1.40 (95% CI, 1.24-1.56) to 3.71 (95% CI, 3.44-3.98), an increase of 165% (P for trend, <.001). Among children 1 to 4 years of age, the incidence increased from 0.86 (95% CI, 0.60-1.12) to 2.62 (95% CI, 2.17-3.08), an increase of 205% (P for trend, <.001). For adolescents aged 15 to 19 years, the incidence increased from 3.69 (95% CI, 3.20-4.17) to 10.17 (95% CI, 9.48-10.85), an increase of 176% (P for trend, <.001). In this age group, poisonings from heroin increased from 0.96 (95% CI, 0.75-1.18) to 2.51 (95% CI, 2.21-2.80), an increase of 161% (P for trend, <.001); poisonings involving methadone increased from 0.10 (95% CI, 0.03-0.16) to 1.05 (95% CI, 0.87-1.23), an increase of 950% (P for trend, <.001). **Conclusions and Relevance:** During the course of 16 years, hospitalizations attributed to opioid poisonings rose nearly 2-fold in the pediatric population. Hospitalizations increased across all age groups, yet young children and older adolescents were most vulnerable to the risks of opioid exposure. Mitigating these risks will require comprehensive strategies that target opioid storage, packaging, and misuse.

Twenty-Year Trends in Diagnosed Attention-Deficit/Hyperactivity Disorder Among US Children and Adolescents, 1997-2016.

Original Investigation
Pediatrics August 31, 2018
JAMA Network Open. 2018;1(4):e181471. [doi:10.1001/jamanetworkopen.2018.1471](https://doi.org/10.1001/jamanetworkopen.2018.1471)

ABSTRACT

Importance: Attention-deficit/hyperactivity disorder (ADHD) is common in US children and adolescents. It is important to understand the most recent prevalence of ADHD and its long-term trends over the past decades. **Objective:** To estimate the prevalence of diagnosed ADHD and 20-year trends from 1997 to 2016 among US children and adolescents using nationally representative data. **Design, Setting, and Participants:** In this population-based, cross-sectional survey study (National Health Interview Survey), surveys were conducted annually from 1997 to 2016. A total of 186,457 children and adolescents aged 4 to 17 years from 1997 to 2016 were included in this analysis. Data were collected through in-person household interviews with a parent or guardian. The data analysis was performed in January 2018. **Main Outcomes and Measures:** Attention-deficit/hyperactivity disorder diagnosed by a physician or other health care professional. **Results:** Among the included 186,457 children and adolescents (96 017 boys [51.5%], 51 350 Hispanic [27.5%], 91 374 non-Hispanic white [49.0%], 28,808 non-Hispanic black [15.5%], 14 925 non-Hispanic other race [8.0%]), 14,704 children and adolescents (7.9%; 10 536 boys [71.7%], 2,497 Hispanic [17.0%], 9,010 non-Hispanic white [61.3%], 2,328 non-Hispanic black [15.8%], and 869 non-Hispanic other race [5.9%]) were reported to have ever been diagnosed with ADHD. The weighted prevalence of diagnosed ADHD was 10.2% (95% CI, 9.6%-10.8%) in 2015-2016. There were significant sex and racial/ethnic disparities in the prevalence of diagnosed ADHD. The prevalence was 14.0% (95% CI, 13.1%-15.0%) in boys and 6.3% (95% CI, 5.6%-7.0%) in girls, 6.1% (95% CI, 5.2%-7.0%) in Hispanic individuals, 12.0% (95% CI, 11.1%-12.9%) in non-Hispanic white individuals, and 12.8% (95% CI, 11.0%-14.5%) in non-Hispanic black individuals. Over the 20-year period, the estimated prevalence of diagnosed ADHD in US children and adolescents increased from 6.1% in 1997-1998 to 10.2% in 2015-2016 (P for trend <.001). All subgroups by age, sex, race/ethnicity, family income, and geographic regions showed a significant increase in the prevalence from 1997-1998 to 2015-2016. **Conclusions and Relevance:** This study's findings suggest that among US children and adolescents, the estimated prevalence of diagnosed ADHD increased significantly between 1997-1998 and 2015-2016. This study suggests that additional research is needed to better understand the cause of this apparent rise in prevalence.

Association of Prenatal Maternal Depression and Anxiety Symptoms with Infant White Matter Microstructure

Douglas C. Dean III, PhD¹; Elizabeth M. Planalp, PhD^{1,2}; William Wooten, MS³; et al
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ABSTRACT

Importance: Maternal: Depression and anxiety can have deleterious and lifelong consequences on child development. However, many aspects of the association of early brain development with maternal symptoms remain unclear. Understanding the timing of potential neurobiological alterations holds inherent value for the development and evaluation of future therapies and interventions. **Objective:** To examine the association between exposure to prenatal maternal depression and anxiety symptoms and offspring white matter microstructure at 1 month of age. **Design, Setting, and Participants:** This cohort study of 101 mother-infant dyads used a composite of depression and anxiety symptoms measured in mothers during the third trimester of pregnancy and measures of white matter microstructure characterized in the mothers' 1-month offspring using diffusion tensor imaging and neurite orientation dispersion and density imaging performed from October 1, 2014, to November 30, 2016. Magnetic resonance imaging was performed at an academic research facility during natural, nonsedated sleep. **Main Outcomes and Measures:** Brain mapping algorithms and statistical models were used to evaluate the association between maternal depression and anxiety and 1-month infant white matter microstructure as measured by diffusion tensor imaging and neurite orientation dispersion and density imaging findings. **Results:** In the 101 mother-infant dyads (mean [SD] age of mothers, 33.22 [3.99] years; mean age of infants at magnetic resonance imaging, 33.07 days [range, 18-50 days]; 92 white mothers [91.1%]; 53 male infants [52.5%]), lower 1-month white matter microstructure (decreased neurite density and increased mean, radial, and axial diffusivity) was associated in right frontal white matter microstructure with higher prenatal maternal symptoms of depression and anxiety. Significant sex × symptom interactions with measures of white matter microstructure were also observed, suggesting that white matter development may be differentially sensitive to maternal depression and anxiety symptoms in males and females during the prenatal period. **Conclusions and Relevance:** These data highlight the importance of the prenatal period to early brain development and suggest that the underlying white matter microstructure is associated with the continuum of prenatal maternal depression and anxiety symptoms.

Infant Analgesia with a Combination of Breast Milk, Glucose, or Maternal Holding

Stefano Bembich, Gabriele Cont, Enrica Causin, Giulia Paviotti, Patrizia Marzari, Sergio Demarini
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ABSTRACT

Objectives: We studied neonatal cortical brain response to 4 types of nonpharmacological analgesia (oral glucose, expressed breast milk, maternal holding plus oral glucose, breastfeeding). We aimed to assess the differential effect of oral solutions (glucose, breast milk) given alone or combined with the maternal-infant relationship (holding, breastfeeding). **Methods:** Eighty healthy term newborns undergoing a heel stick were randomly assigned to 4 parallel groups of 20 infants each: group 1, infants received a glucose solution on a changing table; group 2, infants received expressed breast milk on a changing table; group 3, infants received a glucose solution in their mothers' arms; and group 4, infants were breastfed by their mothers. Cortical activation in parietal, temporal, and frontal cortices was assessed by multichannel near-infrared spectroscopy. Pain expression was also evaluated. **Results:** Oral glucose alone or combined with maternal holding was associated with no cortical activation during heel stick. Expressed breast milk was associated with localized bilateral activation of somatosensory and motor cortices ($P < .01$). Breastfeeding was associated with extensive bilateral activation of somatomotor, somatosensory, and right parietal cortices ($P < .01$). Pain expression was lower with the maternal-infant relationship ($P = .007$). **Conclusions:** Oral glucose, either alone or combined with maternal holding, appears to block or weaken cortical pain processing. Breast milk alone is associated with localized cortical activation. Breastfeeding is associated with extensive activation and may act by extending cortical processing. Maternal relationship, both combined with oral glucose and in breastfeeding, shows the greatest analgesic effect, although the neural patterns involved are distributed differently.

Association of Maternal Insecticide Levels with Autism in Offspring From a National Birth Cohort.

Alan S. Brown, Keely Cheslack-Postava, Panu Rantakokko, Hannu Kiviranta
Susanna Hinkka-Yli-Salomäki, Ian W. McKeague

The American Journal of Psychiatry

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ABSTRACT

Objective: Autism is a complex neurodevelopmental disorder with a largely unknown etiology. To date, few studies have investigated prenatal exposure to toxins and risk of autism by using maternal biomarkers of exposure. Persistent organic pollutants are lipophilic halogenated organic compounds and include the insecticide dichlorodiphenyltrichloroethane (DDT), as well as its metabolite p,p'-dichlorodiphenyl dichloroethylene (p,p'-DDE), and polychlorinated biphenyls (PCBs). The objective of this study was to test whether elevated maternal levels of persistent organic pollutants are associated with autism among offspring. **Method:** The investigation was derived from the Finnish Prenatal Study of Autism, a national birth cohort study based on a nested case-control design. Cases of autism among children born between 1987 and 2005 were ascertained by national registry linkages. In cases of childhood autism and matched control subjects (778 matched case-control pairs), maternal serum specimens from early pregnancy were assayed for levels of p,p'-DDE and total levels of PCBs. **Results:** The odds of autism among offspring were significantly increased with maternal p,p'-DDE levels that were in the highest 75th percentile, with adjustment for maternal age, parity, and history of psychiatric disorders (odds ratio=1.32, 95% CI=1.02, 1.71). The odds of autism with intellectual disability were increased by greater than twofold with maternal p,p'-DDE levels above this threshold (odds ratio=2.21, 95% CI=1.32, 3.69). There was no association between total levels of maternal PCBs and autism. **Conclusions:** These findings provide the first biomarker-based evidence that maternal exposure to insecticides is associated with autism among offspring. Although further research is necessary to replicate this finding, this study has implications for the prevention of autism and may provide a better understanding of its pathogenesis.

Gestalt Breastfeeding: Helping Mothers and Infants Optimize Positional Stability and Intraoral Breast Tissue Volume for Effective, Pain-Free Milk Transfer.

Pamela Douglas, MBBS, FRACGP, IBCLC, PhD, Renee Keogh, RN, IBCLC,

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ABSTRACT

In the past decade, biological nurturing and activation of maternal and infant instincts after birth have constituted a major advance in clinical breastfeeding support. Yet, physiologic breastfeeding initiation is not enough to ensure ongoing pain-free and effective breastfeeding for many pairs. Current interventions, including “hands-off” mammalian approaches, do not improve breastfeeding outcomes, including in randomized controlled trials. Back-arching, difficulty latching or staying on the breast, and fussing at the breast are common signs of infant positional instability during breastfeeding. These cues are, however, often misdiagnosed as signs of medical conditions or oral connective tissue abnormalities, and underlying positional instability is not addressed. New clinical approaches are urgently required. This article offers a clinical approach to fit and hold (or latch and positioning)–gestalt breastfeeding, which aims to optimize positional stability and intraoral breast tissue volumes for pain-free effective breastfeeding. The word gestalt (pronounced “ger-shtolt”) means a whole that is more than the sum of its parts. Gestalt breastfeeding builds on the theoretical foundations of complexity science, physiologic breastfeeding initiation, and new understandings of the biomechanics of infant suck elucidated in ultrasound studies. It also integrates simple psychological strategies from applied functional contextualism, popularly known as Acceptance and Commitment Therapy, empowering women to attend mindfully to breast sensations and their infant’s cues. Gestalt breastfeeding can be reproduced for research purposes, including in comparison studies with oral surgery, and has the potential to improve breastfeeding outcomes.

Keywords: breastfeeding, breastfeeding difficulties, breast pain, infant behavior, lactation management, latch-on.

Interventions to Improve Breastfeeding Self-Efficacy and Resultant Breastfeeding Rates: A Systematic Review and Meta-Analysis.

Meredith Brockway, RN, IBCLC, Karen Benzies, PhD, RN, K. Alix Hayden, PhD,

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ABSTRACT

Background: Maternal breastfeeding self-efficacy (BSE) is reflective of a mother's confidence in breastfeeding and is a modifiable factor that may improve breastfeeding rates. Breastfeeding self-efficacy theory purports that women with higher BSE will have better breastfeeding outcomes. **Research aim:** The aim of this systematic review was to explore the theoretical link between BSE and breastfeeding outcomes by investigating (a) if interventions to improve BSE were successful and (b) if improvements in BSE resulted in improved breastfeeding rates. **Methods:** The authors performed a systematic search of 10 databases for studies that investigated the effect of interventions for mothers of full-term infants on BSE and breastfeeding rates. They used an inverse-variance, random-effects meta-analysis. **Results:** Of 1,366 titles and abstracts identified, 58 full-text articles were screened and 11 met the study criteria. Compared with mothers in control groups, mothers in intervention groups had significantly higher BSE, scoring 4.86 points higher, 95% confidence interval [3.11, 6.61], at 2 months postpartum. Mothers in the intervention groups were 1.56 and 1.66 times more likely to be breastfeeding at 1 month and 2 months postpartum, respectively. Interventions that were implemented in the postpartum period, used combined delivery settings, or were informed by BSE theory had the greatest influence on breastfeeding outcomes. Meta-regression indicated that for each 1-point increase in the mean BSE score between the intervention and control groups, the odds of exclusive breastfeeding increased by 10% in the intervention group. **Conclusion:** Breastfeeding self-efficacy is a modifiable factor that practitioners can target to improve breastfeeding rates in mothers of full-term infants.

Keywords: breastfeeding, breastfeeding duration, breastfeeding promotion, breastfeeding rates, breastfeeding support, exclusive breastfeeding

Efficacy of an Osteopathic Treatment Coupled With Lactation Consultations for Infants' Biomechanical Sucking Difficulties A Randomized Controlled Trial.

Juliette Herzhaft-Le Roy, MD, DO, IBCLC, Marianne Xhignesse, MD, MSc, Isabelle Gaboury, PhD

Journal of Human Lactation, Volume: 33 issue: 1, page(s): 165-172

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ABSTRACT

Background: Despite well-known recommendations from national and international bodies including the World Health Organization, few mothers achieve the goal of breastfeeding exclusively for 6 months. Half of mothers stop breastfeeding due to biomechanical issues in the first month, despite increasing support from lactation consultants. Osteopaths worldwide work with these babies, but there is little empirical evidence for this type of treatment. **Research aim:** This study aimed to determine the efficacy of an osteopathic treatment coupled with usual lactation consultations on infants' ability to latch. Secondary objectives included assessment of nipple pain and mothers' perceptions of the effect of treatment. **Methods:** We conducted a single blind, randomized controlled trial at a mother-to-mother support group between January and December 2015. Data were collected at four different times over a 10-day period (T0-T10) from 97 mother—infant dyads using the LATCH assessment tool, a visual analog scale (VAS) to document mothers' nipple pain, and a de novo questionnaire for breastfeeding management and potential treatment side effects. **Results:** There were consistent statistical and clinical differences in the mean LATCH scores between the treatment and the control groups ($p < .001$). However, no significant differences in the VAS scores were reported over time ($p = .713$). Mothers reported no serious or unexpected side effects during the follow-up period. **Conclusion:** This study is one of the first to bring together lactation consultants and osteopaths to address infants with biomechanical sucking difficulties. Findings support the hypothesis that the addition of osteopathy to regular lactation consultations is beneficial and safe.

Keywords: breastfeeding, dysfunctional suck, lactation consultant, LATCH assessment tool, mother—infant dyad, sucking difficulties, osteopathic treatment

Association of Nausea and Vomiting in Pregnancy with Prenatal Marijuana Use

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ABSTRACT

Use of marijuana, an antiemetic, is increasing among pregnant women,^{1,2} and data from two small surveys indicate that women self-report using marijuana to alleviate nausea and vomiting in pregnancy (NVP).^{3,4} To date, only one epidemiologic study has examined whether women with NVP are at elevated risk of using marijuana. A study of 4,735 pregnant women in Hawaii from 2009-2011 found that self-reported prenatal marijuana use was more prevalent among those with (3.7%) versus without (2.3%) self-reported severe nausea during pregnancy.⁵ We used data from a large California healthcare system with gold-standard universal screening for prenatal marijuana use via self-report and urine toxicology from 2009-2016 to test whether prenatal marijuana use is elevated among females with a diagnosis of NVP. **Methods:** Kaiser Permanente Northern California (KPNC) is a multispecialty healthcare system serving >4 million members representative of the Northern California area. The sample comprised KPNC pregnant females aged >12 who completed a self-reported substance use questionnaire and urine toxicology test in the first trimester (at ~8 weeks gestation) from 2009-2016 during standard prenatal care. The KPNC Institutional Review Board approved and waived consent for this study. NVP in the first trimester was based on ICD diagnoses in the electronic health record and categorized into: severe (hyperemesis gravidarum), mild (other NVP diagnoses), or no NVP. We estimated the adjusted odds of prenatal marijuana use among females with NVP using multi-level logistic regression in SAS 9.3, controlling for age, race/ethnicity, median neighborhood household income, year, and self-reported marijuana use in the year before pregnancy. Two-sided P-values <.05 were considered statistically significant. **Results:** Of 279,457 screened pregnancies from 2009-2016, 220,510 (78.9%) received the screening in the first trimester. The sample was 36.7% white, 27.1% Hispanic, 16.8% Asian, 5.7% black, and 13.7% other; 1.2% were aged 12-17, 15.3% 18-24, 62.7% 25-34 and 20.9% >35; 17.9% had >1 pregnancy from 2009-2016. The average median neighborhood household income was \$74,651 (SD=\$30,650) and 8.3% self-reported marijuana use in the year before pregnancy. The prevalence of severe and mild NVP was 2.3% and 15.3%, respectively. The prevalence of prenatal marijuana use by self-report or toxicology was 5.3%, and was greater among females with severe (11.3%) and mild (8.4%) versus no NVP (4.5%). Relative to females without NVP, those with severe (aOR=3.80, 95%CI, 3.19-4.52, P<.0001) and mild (aOR=2.37, 95%CI 2.17-2.59, P<.0001) NVP had increased odds of marijuana use (Table). **Discussion:** In a large sample of diverse California pregnant females from 2009-2016 with universal gold-standard marijuana screening, those with severe NVP had nearly 4 times greater odds of prenatal marijuana use, and those with mild NVP had more than 2 times greater odds of prenatal marijuana use than females without NVP. While results are consistent with the hypothesis that women use marijuana to self-medicate NVP, it is also possible that marijuana use contributes to NVP, or that providers diagnose NVP more frequently among women who report using marijuana to treat it. This study was limited to KPNC pregnant females screened for marijuana use at ~8 weeks gestation and results may not generalize to females without healthcare or those who enter prenatal care late. Providers may not diagnose very mild NVP, and our sample may reflect a more severe subset of NVP patients. We could not distinguish prenatal marijuana use before versus after females knew they were pregnant, and misclassification is possible given variability in the duration that marijuana is detectable in urine. The health effects of prenatal marijuana use are unclear and national guidelines recommend that pregnant women discontinue use.⁶ Patients with NVP should be screened for marijuana use and educated about effective and safe NVP treatments.

PREPUBLICATION MANUSCRIPT WITH REFERENCES AVAILABLE AT --<https://share.kaiserpermanente.org/article/nausea-and-vomiting-in-pregnancy-is-associated-with-prenatal-marijuana-use-research-letter/>

Obesity as a Predictor of Delayed Lactogenesis II.

Irma Preusting, MD, Jessica Brumley, PhD, CNM, Linda Odibo, et al

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ABSTRACT

Background: Lactogenesis II is the onset of copious milk production. A delay in this has been associated with an increased risk of formula supplementation and early cessation of breastfeeding. Prepregnancy obesity has also been associated with decreased breastfeeding rates and early cessation. **Research aim:** This study aimed to evaluate the effect of prepregnancy obesity on self-reported delayed lactogenesis II. **Methods:** We conducted a prospective observational cohort study of 216 women with a singleton pregnancy and who planned to breastfeed. We compared the onset of lactogenesis II between women with a body mass index (BMI) < 30 kg/m² and women with a BMI ≥ 30 kg/m². Using multivariate logistic regression analyses, we assessed the relationship between maternal BMI and delay of lactogenesis II. **Results:** The prevalence of delayed lactogenesis II among women with prepregnancy BMI < 30 kg/m² and BMI ≥ 30 kg/m² was 46.4% and 57.9%, respectively. Delayed lactogenesis II occurred more frequently among women who were obese at the time of delivery (p < .05). After controlling for the covariates, age, prepregnancy BMI, and gestational weight gain were positively associated with delayed lactogenesis II. **Conclusion:** Prepregnancy obesity and excessive gestational weight gain are associated with an increased risk of delayed lactogenesis II. Women who are at risk for delay in lactogenesis II and early breastfeeding cessation will need targeted interventions and support for them to achieve their personal breastfeeding goals.

Keywords: breastfeeding, breastfeeding duration, breastfeeding initiation, breastfeeding rates, lactation, lactogenesis.

Human milk oligosaccharides in premature infants: absorption, excretion, and influence on the intestinal microbiota.

Underwood MA¹, Gaerlan S², De Leoz ML², Dimapasoc L², Kalanetra KM³, Lemay DG⁴, German JB⁵, Mills DA^{3,5}, Lebrilla CB².

Pediatr Res. 2015 Dec;78(6):670-7. doi: 10.1038/pr.2015.162. Epub 2015 Aug 31.

ABSTRACT

Background: Human milk oligosaccharides (HMOs) shape the intestinal microbiota in term infants. In premature infants, alterations in the intestinal microbiota (dysbiosis) are associated with risk of necrotizing enterocolitis (NEC) and sepsis, and the influence of HMOs on the microbiota is unclear. **Methods:** Milk, urine, and stool specimens from 14 mother-premature infant dyads were investigated by mass spectrometry for HMO composition. The stools were analyzed by next-generation sequencing to complement a previous analysis. **Results:** Percentages of fucosylated and sialylated HMOs were highly variable between individuals but similar in urine, feces, and milk within dyads. Differences in urine and fecal HMO composition suggest variability in absorption. Secretor status of the mother correlated with the urine and fecal content of specific HMO structures. Trends toward higher levels of Proteobacteria and lower levels of Firmicutes were noted in premature infants of nonsecretor mothers. Specific HMO structures in the milk, urine, and feces were associated with alterations in fecal Proteobacteria and Firmicutes. **Conclusion:** HMOs may influence the intestinal microbiota in premature infants. Specific HMOs, for example those associated with secretor mothers, may have a protective effect by decreasing pathogens associated with sepsis and NEC, while other HMOs may increase dysbiosis in this population.

FREE ACCESS TO FULL TEXT: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4689671/>

Pediatric ADHD Medication Exposures Reported to US Poison Control Centers.

Samantha A. King, Marcel J. Casavant, Henry A. Spiller, Nichole L. Hodges, Thitphalak Chounthirath, Gary A. Smith
Pediatrics, May 2018

ABSTRACT

Objectives: To describe the characteristics and trends of exposures to attention-deficit/hyperactivity disorder (ADHD) medications among individuals 0 to 19 years old reported to US poison control centers. **Methods:** National Poison Data System data from 2000 through 2014 were retrospectively analyzed to examine pediatric ADHD medication exposures. **Results:** From 2000 through 2014, there were 156,365 exposures reported to US poison control centers related to ADHD medications. The overall rate of reported exposures increased 71.2% from 2000 to 2011, followed by a 6.2% decrease from 2011 to 2014. Three-fourths (76.0%) of exposures involved children ≤ 12 years old. Methylphenidate and amphetamine medications accounted for 46.2% and 44.5% of exposures, respectively. The most common reason for exposure was therapeutic error (41.6%). Intentional medication exposures (including suspected suicide and medication abuse and/or misuse) were reported most often among adolescents (13–19 years old), accounting for 50.2% of exposures in this age group. Overall, the majority of exposed individuals (60.4%) did not receive health care facility treatment; however, 6.2% were admitted to a hospital for medical treatment, and there were 3 deaths. The increasing number and rate of reported ADHD medication exposures during the study period is consistent with increasing trends in ADHD diagnosis and medication prescribing. Exposures associated with suspected suicide or medication abuse and/or misuse among adolescents are of particular concern. **Conclusions:** Unintentional and intentional pediatric exposures to ADHD medications are an increasing problem in the United States, affecting children of all ages.

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Intriguing findings regarding the association between asthma and ADHD.

Jessica Agnew-Blais

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ABSTRACT

Attention deficit hyperactivity disorder (ADHD) is one of the most common childhood neurodevelopmental disorders and asthma the most common chronic disease in children; diagnosis of both disorders has increased in the past few decades. Given their high prevalence and associated morbidity and mortality, insights that improve diagnosis and lead to better understanding of the mechanisms underlying these disorders are crucial.

Additional commentary from Medscape write up (https://www.medscape.com/viewarticle/900856?nlid=124647_2045&src=WNL_mdplsnews_180824_mscpedit_peds&uac=39819EY&spon=9&impID=1721145&faf=1): Researchers examined data from 49 smaller studies that included a total of 210,363 people with ADHD and more than 3.1 million individuals without ADHD. Almost 17 percent of people with ADHD had asthma, compared with 11.5 percent of those without ADHD, the analysis found. And, 8.8 percent of people with asthma had ADHD, compared with 5.6 percent of people without asthma. The study team also did a separate analysis of almost 1.6 million individuals in the Swedish population, including 259,253 with asthma and 57,957 with ADHD. In this analysis 24.8 percent of people with ADHD had asthma, compared with 16.1 percent of people without ADHD. And, 5.5 percent of people with asthma had ADHD, compared with 3.3 percent of people without asthma. Overall, the two analyses found that having either asthma or ADHD increased the risk of having the other condition by about 45 percent to 53 percent.

Vitamin D in adolescents: Are current recommendations enough?

Smith TJ¹, Lanham-New SA², Hart KH²

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ABSTRACT

Vitamin D is essential for bone development during adolescence and low vitamin D status during this critical period of growth may impact bone mineralization, potentially reducing peak bone mass and consequently increasing the risk of osteoporosis in adulthood. Therefore, the high prevalence of vitamin D inadequacy and deficiency in adolescent populations is of great concern. However, there is currently a lack of consensus on the 25-hydroxyvitamin D [25(OH)D] concentration, the widely accepted biomarker of vitamin D status, that defines adequacy, and the vitamin D intake requirements to maintain various 25(OH)D thresholds are not well established. While the current intake recommendations of 10-15µg/day may be sufficient to prevent vitamin D deficiency (25(OH)D<25-30nmol/l), greater intakes may be needed to achieve the higher threshold levels proposed to represent adequacy (25(OH)D>50nmol/l). This review will address these concerns and consider if the current dietary recommendations for vitamin D in adolescents are sufficient.

Keywords: adolescents, recommendations, requirements, Vitamin D.

US Emergency Department Visits for Adverse Drug Events From Antibiotics in Children, 2011—2015.

Maribeth C Lovegrove, Andrew I Geller, Katherine E Fleming-Dutra, Nadine Shehab, Mathew R P Sapiano, Daniel S Budnitz

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ABSTRACT

Background: Antibiotics are among the most commonly prescribed medications for children; however, at least one-third of pediatric antibiotic prescriptions are unnecessary. National data on short-term antibiotic-related harms could inform efforts to reduce overprescribing and to supplement interventions that focus on the long-term benefits of reducing antibiotic resistance. **Methods:** Frequencies and rates of emergency department (ED) visits for antibiotic adverse drug events (ADEs) in children were estimated using adverse event data from the National Electronic Injury Surveillance System—Cooperative Adverse Drug Event Surveillance project and retail pharmacy dispensing data from QuintilesIMS (2011—2015). **Results:** On the basis of 6542 surveillance cases, an estimated 69,464 ED visits (95% confidence interval, 53,488—85,441) were made annually for antibiotic ADEs among children aged ≤19 years from 2011 to 2015, which accounts for 46.2% of ED visits for ADEs that results from systemic medication. Two-fifths (40.7%) of ED visits for antibiotic ADEs involved a child aged ≤2 years, and 86.1% involved an allergic reaction. Amoxicillin was the most commonly implicated antibiotic among children aged ≤9 years. When we accounted for dispensed prescriptions, the rates of ED visits for antibiotic ADEs declined with increasing age for all antibiotics except sulfamethoxazole-trimethoprim. Amoxicillin had the highest rate of ED visits for antibiotic ADEs among children aged ≤2 years, whereas sulfamethoxazole-trimethoprim resulted in the highest rate among children aged 10 to 19 years (29.9 and 24.2 ED visits per 10000 dispensed prescriptions, respectively). **Conclusions:** Antibiotic ADEs lead to many ED visits, particularly among young children. Communicating the risks of antibiotic ADEs could help reduce unnecessary prescribing. Prevention efforts could target pediatric patients who are at the greatest risk of harm.

FULL TEXT AVAILABLE AT: <https://academic.oup.com/jpids/advance-article/doi/10.1093/jpids/piy066/5063274>