

The Human Intestinal Microbiome in Health and Disease.

Susan V. Lynch, Ph.D., and Oluf Pedersen, M.D., D.M.Sc.

N Engl J Med 2016; 375:2369-2379 December 15, 2016 DOI: 10.1056/NEJMra1600266

The large majority of studies on the role of the microbiome in the pathogenesis of disease are correlative and preclinical; several have influenced clinical practice.

The Use of Probiotics in Pediatric Gastroenterology: A Review of the Literature and Recommendations by Latin-American Experts.

Sylvia Cruchet, Raquel Furnes, Aldo Maruy, Eduardo Hebel, Jorge Palacios, Fernando Medina, Nelson Ramirez, Marina Orsi, Lysette Rondon, Vera Sdepanian, Luis Xo chihua, Manuel Ybarra, Roberto Arturo Zablah

Pediatr Drugs (2015) 17:199—216 DOI 10.1007/s40272-015-0124-6

Published online: 24 March 2015 Ó The Author(s) 2015. This article is published with open access at Springerlink.com

ABSTRACT

Objective: The stability and composition of intestinal flora plays a vital role in human wellbeing throughout life from as early as birth. Over the past 50 years, several studies have been conducted to evaluate the effect of probiotic administration in pediatric gastroenterology. This document aims to provide a recommendation score on probiotic utilization in pediatric gastroenterology, together with a review of current knowledge concerning its benefits, tolerability, and safety. **Study Design:** Published literature was selected without study design restriction: clinical guidelines, meta-analyses, randomized controlled trials (RCTs), cohort studies, out-comes research and case-controlled studies were selected using the following MESH-validated terms: probiotics, diarrhea, acute diarrhea, antibiotic-associated diarrhea, traveler's diarrhea, bacterial diarrhea, nosocomial diarrhea, prophylactic diarrhea, *Helicobacter pylori* infection, colic, infantile colic, necrotizing enterocolitis (NEC), inflammatory bowel disease, constipation, and allergy. Once the validity and the quality of results were evaluated, a recommendation score and level of evidence were assigned for pediatric gastrointestinal-related conditions, according to the updated Evidence-Based Medicine guidelines: 1a for systematic review (SR) of RCTs, 1b for individual RCT, 1c for SR and individual RCT, 2a for SR of cohort studies, 2b for individual cohort studies, 2c for outcomes research, and 3a for SR of case-control studies. **Results and Conclusions:** The Latin American Expert group consensus recommends the use of the following probiotics for pediatric gastrointestinal conditions: prevention of acute infectious diarrhea (AID): 1b for *Bifidobacterium lactis*, *Lactobacillus rhamnosus* GG (LGG), and *L. reuteri*; prevention of nosocomial diarrhea: 1b for *B. lactis* Bb12, *B. bifidum*, LGG and *Streptococcus thermophiles*; treatment of AID: 1a for LGG and *S. boulardii*, 1b for *L. reuteri*; prevention of antibiotic-associated diarrhea: 1b for LGG and *S. boulardii*; prevention of traveler's diarrhea: 1b for *S. boulardii*; prevention of infantile colic: 1a for *L. reuteri* DSM 17938; treatment of infantile colic: 1b for *L. reuteri* DSM 17938; prevention of NEC: 1a for *B. breve*, mixtures of *Bifidobacterium* and *Streptococcus*, LGG, *L. acidophilus* and *L. reuteri* DSM 17938; induction and maintenance of remission in ulcerative colitis: 1b for VSL#3; improving symptoms of irritable bowel syndrome: 2c for LGG and VSL#3.

Aerophagia Induced Reflux in Breastfeeding Infants with Ankyloglossia and Shortened Maxillary Labial Frenula (Tongue and Lip Tie).

Scott A. Siegel

Int J Clin Pediatr 2016;5(1):6-8

ABSTRACT

Background: Infants with tongue and possible lip tie often have a poor latch in which there is often an inadequate seal around the breast and disorganized swallowing. As a result, many of these infants swallow air during breastfeeding. Many of these infants suffer from symptoms of reux. **Methods:** This was a retrospective analysis of questionnaire/intake surveys of 1,000 infants over 5 years in private surgical practice. The inclusion of these infants was determined based on painful breast-feeding, poor lip seal, infant taking H2 blockers or proton pump inhibitors. These infants underwent release of their restrictions with CO2 laser. **Results:** This study shows a correlation between aerophagia in infants with short maxillary labial frenula (maxillary lip tie) and ankyloglossia and reux. A new term has been created to describe this entity: aerophagia induced re ux (AIR). Five hundred twenty (52%) showed improvement or complete reversal of symptoms of reux to the end point of cessation of reux medication. Two hundred eighty-three (28.3%) had no change in reux, and 191 (19.1%) showed post- surgical improvement in post-feed irritability and less reux symptoms but not successfully weaned off medications. **Conclusion:** There appears to be a relationship between maxillary lip tie (ankyloglossia and shortened maxillary labial frenula) and AIR. Treatment of these infants with a relatively simple frenotomy procedure may reduce or eliminate reux. As a result, many of these infants may be spared from invasive testing or medications that have been shown to have potentially significant side effects. This may change diagnostic and treatment algorithms.

Keywords: Aerophagia; Reflux; Ankyloglossia; Infants; Breastfeeding; Lip tie

Suck-Swallow-Breathe Dynamics in Breastfed Infants.

Vanessa S. Sakalidis, BHLth Sc (Hons), PhD, Donna T. Geddes, DMU, Post Grad Dip (Sc), PhD

<http://journals.sagepub.com/doi/pdf/10.1177/0890334415601093>

Journal of Human Lactation, Vol 32, Issue 2, 2016

ABSTRACT

Despite the importance of the suck-swallow-breathe reflex during breastfeeding, a large proportion of our understanding is derived from bottle-feeding studies. Given the differences in the delivery of milk during breast and bottle feeding, it is imperative that a more general view of the suck-swallow-breathe and milk removal process during breastfeeding is available. This systematic review aimed to assess the evidence for the mechanism of milk removal during breastfeeding; evaluate how the term infant coordinates sucking, swallowing, breathing (SSwB) and cardiorespiratory patterns; and how these patterns change with maturation during breastfeeding. A literature search of PubMed and MEDLINE was performed to assess the mechanism of milk removal and patterns of sucking, swallowing, breathing, and cardiorespiratory control during breastfeeding in healthy term infants. Seventeen studies were selected and a narrative synthesis was performed. Nine studies assessing the infant sucking mechanism consistently provided evidence that vacuum is essential to milk removal from the breast. The limited data on swallowing and breathing and cardiorespiratory control showed mixed results. Overall, results highlighted the high variability in breastfeeding studies and suggested that swallowing, breathing, and cardiorespiratory patterns change with maturation, and within a breastfeed. These findings show potential for devising breastfeeding interventions for populations at risk of SSwB problems. However, consistent methods and definitions of breastfeeding parameters are required before interventions can be adequately developed and tested.

Manipulation Peak Forces Across Spinal Regions for Children Using Mannequin Simulators.

John J. Triano, DC, PhD, Steven Lester, DC, MSc, David Starmer, DC, MHS, and Elise G. Hewitt, DC

Journal of Manipulative and Physiological Therapeutics March/April 2017

ABSTRACT

Objective: The purpose of this work was to create an exploratory database of manipulation treatment force variability as a function of the intent of an experienced clinician sub-specializing in the care of children to match treatment to childhood category. Data of this type are necessary for realistic planning of dose-response and safety studies on therapeutic benefit. **Methods:** The project evaluated the transmitted peak forces of procedures applied to mannequins of different stature for younger and older children. Common procedures for the cervical, thoracic, and lumbar spine and sacroiliac joint were administered to estimate variability by a single experienced practitioner and educator in pediatric manipulation attempting to modulate for childhood category. Results described for peak components in the cardinal axes and for peak total forces were cataloged and compared with consensus estimates of force from the literature. **Results:** Mean force values for both components and total force peaks monotonically increased with childhood category analogous to consensus expectations. However, a mismatch was observed between peak values measured and consensus predictions that ranged by a factor of 2 to 3.5, particularly in the upper categories. Quantitative data permit a first estimate of effect size for future clinical studies. **Conclusions:** The findings of this study indicate that recalibration of spinal manipulation performance of experienced clinicians toward arbitrary target values similar to consensus estimates is feasible. What is unclear from the literature or these results is the identity of legitimate target values that are both safe and clinically effective based on childhood categories in actual practice. (*J Manipulative Physiol Ther* 2017;40:139-146)

Key Indexing Terms: Chiropractic; Manipulation; Pediatrics; Biomechanics; Simulation

Impact of physical activity during pregnancy on obstetric outcomes in obese women.

Tinius RA, Cahill AG, Cade WT.

J Sports Med Phys Fitness. 2017 May;57(5):652-659. doi: 10.23736/S0022-4707.17.06222-3. Epub 2015 Nov 12.

ABSTRACT

Background: Maternal obesity is associated with complications and adverse outcomes during the labor and delivery process. In pregnant women with a healthy body weight, maternal physical activity during pregnancy is associated with better obstetric outcomes; however, the effect of maternal physical activity during pregnancy on obstetric outcomes in obese women is not known. The purpose of the study was to determine the influence of self-reported physical activity levels on obstetric outcomes in pregnant obese women. **Methods:** A retrospective chart review was performed on 48 active obese women and 48 inactive obese women (N.=96) who received prenatal care and delivered at the medical center during the past five years. Obstetric and neonatal outcomes were compared between the active and inactive groups. **Results:** Obese women who were active during pregnancy spent less total time in labor (13.4 hours vs. 19.2 hours, P=0.048) and were less likely to request an epidural (92% vs. 100%, P=0.04). When stratified by parity, active multiparous women spent significantly less total time in labor compared to inactive multiparous (6.2 hours vs. 16.7 hours, P=0.018). There were no statistical differences between groups in rates of cesarean deliveries or neonatal outcomes. **Conclusions:** Maternal physical activity during pregnancy appears to improve obstetric outcomes in obese women, and this improvement may be more pronounced among multiparous women. Our finding is of particular importance as pregnant obese women are at higher risk for adverse labor and delivery outcomes.

Musculoskeletal Effects of Pregnancy on the Lower Extremity: A Literature Review.

Anselmo DS, Love E, Tango DN, Robinson L.

J Am Podiatr Med Assoc. 2017 Jan;107(1):60-64. doi: 10.7547/15-061.

ABSTRACT

Pregnant women are often burdened with musculoskeletal symptoms of the lower extremity due to the physical, hormonal, and anatomical changes that occur throughout pregnancy. These symptoms are associated with musculoskeletal dysfunctions, modified gait, joint laxity, muscle imbalance, and increased body mass. This article reviews the literature involving the lower-extremity changes experienced by women during pregnancy and their respective pathophysiologic causes.

Medicinal Plants for Management of Gastroesophageal Reflux Disease: A Review of Animal and Human Studies.

Salehi M, Karegar-Borzi H, Karimi M, Rahimi R.

J Altern Complement Med. 2017 Feb;23(2):82-95. doi: 10.1089/acm.2016.0233. Epub 2016 Dec 20.

ABSTRACT

Objectives: Gastroesophageal reflux disease (GERD) is a prevalent gastrointestinal disease that causes troublesome symptoms and/or complications. The major therapeutic strategy for GERD focuses mainly on symptom alleviation using proton pump inhibitors (PPIs), which does not produce a perfect response in all patients. An approach with new therapeutic agents for GERD seems to be essential. The aim of this study was to review animal and human studies investigating the effect of medicinal plants in GERD as well as mechanisms underlying their therapeutic effects. **Methods:** Medline, Scopus, and Cochrane Central Register of Controlled Trials were searched for animal or human studies. The data collected covered January 1966-October 2015. **Results:** A total of 22 studies were included in this review, of which nine were animal studies and 13 were human studies. *Ceratonia siliqua* as a medicinal plant and rikkunshito as a multicomponent herbal preparation were the most frequently studied herbal medicines in GERD. Antioxidant and anti-inflammatory activities were the main mechanisms demonstrated in animal studies for ameliorating the effects of medicinal plants in GERD. Other mechanisms include downregulation of genes encoding inflammatory proteins, improvement of barrier function and gastric mucus, a decrease in gastric acid, and induction of tonic contractions of the lower esophageal sphincter. All herbal preparations used in human studies have led to the alleviation of symptoms related to GERD. *Myrtus communis* and *Cydonia oblonga* showed marked reduction in GERD symptoms comparable to omeprazole. The therapeutic effect of *Cydonia oblonga* persisted after discontinuation of the drug. *Tongjlang* and rikkunshito showed therapeutic effects for non-erosive reflux disease (NERD) where PPIs failed to show a promising effect. Studies on *Ceratonia siliqua* have been solely focused on regurgitation in infants, and a remarkable decrease in the number of regurgitations was demonstrated. **Conclusion:** The multiple mechanisms of action of medicinal plants in GERD other than anti-secretory properties appear to provide more efficient treatment and helped to manage the histopathological changes associated with this disorder. Further studies are needed to understand the effects of medicinal plants on GERD better.

Herbal medicines in children with attention deficit hyperactivity disorder (ADHD): A systematic review.

Anheyer D, Lauche R, Schumann D, Dobos G, Cramer H.

Complement Ther Med. 2017 Feb;30:14-23. doi: 10.1016/j.ctim.2016.11.004. Epub 2016 Nov 18.

ABSTRACT

Objective: The purpose of this review is to identify evidence in herbal therapy in the treatment of ADHD concerning effectiveness and drug tolerability. **Method:** For this Medline/PubMed, Scopus and the Cochrane Central Register of Controlled Trials (Central) were searched from their inception to 15 July 2016. Only randomized controlled trials (RCT) with children (0-18years) suffering from ADHD were included in this review. **Results:** Nine RCTs with 464 patients comparing herbal pharmaceuticals to placebo or active control were included. Seven different herbs were tested in the treatment of ADHD symptoms. Low evidence could be found for *Melissa officinalis*, *Valeriana officinalis* and *Passiflora incarnata*. Limited evidence could be found for pine bark extract and *Gingko biloba*. The other herbal preparations showed no efficacy in the treatment of ADHD symptoms. **Conclusion:** While there is still a lack of sufficient numbers of RCTs no concrete recommendations for use can be made so far.

Keywords: ADHD; Children; Herbal medicine; Systematic review

Copyright © 2016 Elsevier Ltd. All rights reserved.

Complementary and alternative medicine among hospitalized pediatric patients.

Oren-Amit A, Berkovitch M, Bahat H, Goldman M, Kozler E, Ziv-Baran T, Abu-Kishk I.

Complement Ther Med. 2017 Apr;31:49-52. doi: 10.1016/j.ctim.2017.02.002. Epub 2017 Feb 7.

ABSTRACT

Objectives: To estimate the prevalence and describe the characteristics of complementary and alternative medicine (CAM) use among hospitalized children, and to discover the awareness of medical staff regarding CAM use. **Design/Setting:** Parents of children aged 0-18 years admitted to the Pediatric Division at Assaf Harofeh Medical Center in Israel between January and July of 2015 (n=146) were provided a questionnaire regarding socio-economic status and evaluating the CAM use. The medical charts of the participants were reviewed in order to establish whether or not CAM use was documented. **Results:** Of those who completed the questionnaire, 78 (54.3%) were using CAM. The major indications for CAM use were colic and teething. CAM use was advised by the family in 44.9%, physician 34.6%, pharmacist 34.6%, friends 30.8%, previous experience 23.1, advertisements 18%, nurses 6.4%, and homeopaths 2.6%. The family physician was aware of CAM use was in 42%. During the admission, only five patients were asked about CAM use (3.4%) by the medical staff. Reviewing the medical charts revealed there was no documentation of CAM use in any of the participants. Socio-demographic analysis of our population revealed no differences between users and non users of CAM, but significant differences in belief in CAM (p=0.018) were found. CAM use was age related; the older the child the less the use (p=0.010). **Conclusion:** CAM use is common among hospitalized pediatric patients and is often overlooked by the medical staff. CAM use should be included in the medical history.

Copyright © 2017 Elsevier Ltd. All rights reserved.

High-Protein and High-Dietary Fiber Breakfasts Result in Equal Feelings of Fullness and Better Diet Quality in Low-Income Preschoolers Compared with Their Usual Breakfast.

Kranz S, Brauchla M, Campbell WW, Mattes RD, Schwichtenberg AJ.

J Nutr. 2017 Mar;147(3):445-452. doi: 10.3945/jn.116.234153. Epub 2017 Jan 11.

ABSTRACT

Background: In the United States, 17% of children are currently obese. Increasing feelings of fullness may prevent excessive energy intake, lead to better diet quality, and promote long-term maintenance of healthy weight. **Objective:** The purpose of this study was to develop a fullness-rating tool (aim 1) and to determine whether a high-protein (HP), high-fiber (HF), and combined HP and HF (HPHF) breakfast increases preschoolers' feelings of fullness before (pre) and after (post) breakfast and pre-lunch, as well as their diet quality, as measured by using a composite diet quality assessment tool, the Revised Children's Diet Quality Index (aim 2). **Methods:** Children aged 4 and 5 y (n = 41; 22 girls and 19 boys) from local Head Start centers participated in this randomized intervention trial. Sixteen percent of boys and 32% of girls were overweight or obese. After the baseline week, children rotated through four 1-week periods of consuming ad libitum HP (19-20 g protein), HF (10-11 g fiber), HPHF (19-21 g protein, 10-12 g fiber), or usual (control) breakfasts. Food intake at breakfast was estimated daily, and for breakfast, lunch, and snack on day 3 of each study week Student's t tests and ANOVA were used to determine statistical differences. **Results:** Children's post-breakfast and pre-lunch fullness ratings were ≥ 1 point higher than those of pre-breakfast (aim 1). Although children consumed, on average, 65 kcal less energy during the intervention breakfasts ($P < 0.007$) than during the control breakfast, fullness ratings did not differ ($P = 0.76$). Relative to the control breakfast, improved diet quality (12%) was calculated for the HP and HF breakfasts ($P < 0.027$) but not for the HPHF breakfast (aim 2). **Conclusions:** Post-breakfast fullness ratings were not affected by the intervention breakfasts relative to the control breakfast. HP and HF breakfasts resulted in higher diet quality. Serving HP or HF breakfasts may be valuable in improving diet quality without lowering feelings of satiation or satiety. This trial was registered at clinicaltrials.gov as NCT02122224.

Keywords: RCDQI; breakfast; diet quality; fiber; fullness; hunger; preschool; protein; spontaneous compensation

Musculoskeletal Traumatic Injuries in Children: Characteristic Imaging Findings and Mimickers.

Ho-Fung VM, Zapala MA, Lee EY.

Radiol Clin North Am. 2017 Jul;55(4):785-802. doi: 10.1016/j.rcl.2017.02.011. Epub 2017 Mar 27.

ABSTRACT

Musculoskeletal traumatic injuries in children demonstrate characteristic imaging findings. The physis is the most susceptible structure to traumatic injury. The periosteum in children plays a key role in rapid bone healing and stability. The main complications of fractures in children are premature physal closure, potential limb length discrepancy, and angular deformities. Understanding the normal bone growth, healing, and complications of pediatric fractures is crucial for appropriate imaging diagnosis. This article discusses currently available imaging modalities with up-to-date techniques, underlying mechanisms, and characteristic imaging findings of musculoskeletal traumatic injuries and mimickers encountered in daily clinical practice.

KEYWORDS: Bone bridge; Bone growth disturbance; Greenstick fracture; Pediatric musculoskeletal injury; Salter-Harris classification

Copyright © 2017 Elsevier Inc. All rights reserved.

Beverage Consumption Patterns at Age 13 to 17 Years Are Associated with Weight, Height, and Body Mass Index at Age 17 Years.

Marshall TA, Van Buren JM, Warren JJ, Cavanaugh JE, Levy SM.

J Acad Nutr Diet. 2017 May;117(5):698-706. doi: 10.1016/j.jand.2017.01.010. Epub 2017 Mar 2.

ABSTRACT

Background: Sugar-sweetened beverages (SSBs) have been associated with obesity in children and adults; however, associations between beverage patterns and obesity are not understood. **Objective:** Our aim was to describe beverage patterns during adolescence and associations between adolescent beverage patterns and anthropometric measures at age 17 years. **Design:** We conducted a cross-sectional analyses of longitudinally collected data. **Participants/Setting:** Data from participants in the longitudinal Iowa Fluoride Study having at least one beverage questionnaire completed between ages 13.0 and 14.0 years, having a second questionnaire completed between 16.0 and 17.0 years, and attending clinic examination for weight and height measurements at age 17 years (n=369) were included. **Exposure:** Beverages were collapsed into four categories (ie, 100% juice, milk, water and other sugar-free beverages, and SSBs) for the purpose of clustering. Five beverage clusters were identified from standardized age 13 to 17 years mean daily beverage intakes and named by the authors for the dominant beverage: juice, milk, water/sugar-free beverages, neutral, and SSB. **Outcomes:** Weight, height, and body mass index (BMI; calculated as kg/m²) at age 17 years were analyzed. **Statistical Analyses:** We used Ward's method for clustering of beverage variables, one-way analysis of variance and χ^2 tests for bivariable associations, and y-regression for associations of weight or BMI (outcomes) with beverage clusters and demographic variables. Linear regression was used for associations of height (outcome) with beverage clusters and demographic variables. **Results:** Participants with family incomes <\$60,000 trended shorter (1.5±0.8 cm; P=0.070) and were heavier (2.0±0.7 BMI units; P=0.002) than participants with family incomes ≥\$60,000/year. Adjusted mean weight, height, and BMI estimates differed by beverage cluster membership. For example, on average, male and female members of the neutral cluster were 4.5 cm (P=0.010) and 4.2 cm (P=0.034) shorter, respectively, than members of the milk cluster. For members of the juice cluster, mean BMI was lower than for members of the milk cluster (by 2.4 units), water/sugar-free beverage cluster (3.5 units), neutral cluster (2.2 units), and SSB cluster (3.2 units) (all P<0.05). **Conclusions:** Beverage patterns at ages 13 to 17 years were associated with anthropometric measures and BMI at age 17 years in this sample. Beverage patterns might be characteristic of overall food choices and dietary behaviors that influence growth.

Keywords: Beverage; Body mass index (BMI); Height; Milk; Sugar-sweetened beverages

Copyright © 2017 Academy of Nutrition and Dietetics. Published by Elsevier Inc. All rights reserved.

Association between maternal intake of n-6 to n-3 fatty acid ratio during pregnancy and infant neurodevelopment at 6 months of age: results of the MOCEH cohort study.

Kim H, Kim H, Lee E, Kim Y, Ha EH, Chang N.

Nutr J. 2017 Apr 18;16(1):23. doi: 10.1186/s12937-017-0242-9.

ABSTRACT

Background & Aims: Long-chain polyunsaturated fatty acids (LC-PUFAs) are essential for infant neurodevelopment. The nutritional adequacy of dietary LC-PUFAs depends not only on the LC-PUFAs intake but also on the n-6 to n-3 fatty acid ratio (n-6/n-3 PUFAs). This study aimed to identify the association between the maternal dietary n-6/n-3 PUFAs and motor and cognitive development of infants at 6-months of age. **Methods:** We used data from 960 participants in the Mothers and Children's Environmental Health (MOCEH) study, which is a multi-center prospective cohort study. Dietary intake of pregnant women was assessed by a one-day 24-hour recall method. Food consumption of infants was estimated based on the volume of breast milk and weaning foods. The duration of each feed was used to estimate the likely volume of milk consumed. Dietary intake of infants at six months was also assessed by a 24-hour recall method. Cognitive and motor development of infants at 6 months of age was assessed by the Korean Bayley scales of infant development edition II (BSID-II) including the mental developmental index (MDI) and the psychomotor developmental index (PDI). **Results:** Maternal intakes of n-6/n-3 PUFAs and linoleic acid (LA)-to-a-linolenic acid (ALA) ratio (LA/ALA) were 9.7 ± 6.3 and 11.12 ± 6.9 , respectively. Multiple regression analysis, after adjusting for covariates, showed that n-6/n-3 PUFAs was negatively associated with both the MDI ($\beta = -0.1674$, $P = 0.0291$) and PDI ($\beta = -0.1947$, $P = 0.0380$) at 6 months of age. These inverse associations were also observed between LA/ALA and both the MDI and PDI (MDI; $\beta = -0.1567$; $P = 0.0310$, PDI; $\beta = -0.1855$; $P = 0.0367$). Multiple logistic regression analysis, with the covariates, showed that infants whose mother's LA/ALA were ranked in the 2nd, 3rd, and 4th quartile were at approximately twice the risk with more than twice the risk of delayed performance on the PDI compared to the lowest quartile (1st vs. 2nd; OR = 2.965; 95% CI = 1.376-6.390, 1st vs. 3rd; OR = 3.047; 95% CI = 1.374-6.756 and 1st vs. 4th; OR = 2.551; 95% CI = 1.160-5.607). **Conclusions:** Both the maternal dietary n-6/n-3 PUFAs and LA/ALA intake were significantly associated with the mental and psychomotor development of infants at 6 months of age. Thus, maintaining low n-6/n-3 PUFAs and LA/ALA is encouraged for women during pregnancy.

Keywords: Bayley scales of infant development; Infants; Linoleic acid-to-a-linolenic acid ratio; Long-chain polyunsaturated fatty acids; Psychomotor development

Prospective associations of meat consumption during childhood with measures of body composition during adolescence: results from the GINIplus and LISApplus birth cohorts.

Harris C, Buyken A, von Berg A, Berdel D, Lehmann I, Hoffmann B, Koletzko S, Koletzko B, Heinrich J, Standl M.

Nutr J. 2016 Dec 5;15(1):101.

ABSTRACT

Background: Higher meat and protein intakes have been associated with increased body weight in adults, but studies evaluating body composition are scarce. Furthermore, our knowledge in adolescents is limited. This study aimed to investigate the prospective associations of intakes of different meat types, and their respective protein contents during childhood, with body composition during adolescence. **Methods:** Dietary (using food frequency questionnaires) and body composition (measured by bioelectrical impedance) data were collected from the 10- and 15-year follow-up assessments respectively, of the GINIplus and LISApplus birth cohort studies. Sex-stratified prospective associations of meat and meat protein intakes (total, processed, red meat and poultry) with fat mass index (FMI) and fat free mass index (FFMI), were assessed by linear regression models (N=1610). Results: Among males, higher poultry intakes at age 10 years were associated with a higher FMI at age 15 years $\beta = 0.278$ (SE = 0.139), $p = 0.046$]; while higher intakes of total and red meat were prospectively associated with higher FFMI [0.386 (0.143), $p = 0.007$, and 0.333 (0.145), $p = 0.022$, respectively]. Additionally in males, protein was associated with FFMI for total and red meat [0.285 (0.145) and 0.356 (0.144), respectively]. **Conclusions:** Prospective associations of meat consumption with subsequent body composition in adolescents may differ by sex and meat source.

Keywords: Adolescence; Body composition; Fat free mass; Fat mass; longitudinal study; Meat intake; Protein

A Systematic Review of the Soft-Tissue Connections Between Neck Muscles and Dura Mater: The Myodural Bridge.

Palomeque-Del-Cerro L, Arráez-Aybar LA, Rodríguez-Blanco C, Guzmán-García R, Menendez-Aparicio M, Oliva-Pascual-Vaca A.

Spine (Phila Pa 1976). 2017 Jan 1;42(1):49-54. doi: 10.1097/BRS.0000000000001655.

ABSTRACT

Study Design: Systematic review. **Objective:** To elucidate the existence of soft tissue connections between the neck muscles and cervical dura mater. **Summary Of Background Data:** Several studies discuss the existence of a cervical myodural bridge; however, conflicting data have been reported. **Methods:** Searches were conducted in the PubMed, Web of Science, Cochrane Library, and PEDro databases. Studies reporting original data regarding the continuity of non-post-surgical soft tissue between the cervical muscles and dura mater were reviewed. Two reviewers independently selected articles, and a third one resolved disagreements. Another two researchers extracted the methodology of the study, the anatomical findings, and evaluated the quality of the studies using Quality Appraisal for Cadaveric Studies Scale. A different third researcher resolved disagreements. **Results:** Twenty-six studies were included. A soft tissue connection between the rectus capitis posterior minor, the rectus capitis posterior major, and the obliquus capitis inferior muscles seems to be proved with a strong level of evidence for each one of them. Controversy exists about the possible communication between the dura mater and the upper trapezius, rhomboideus minor, serratus posterior superior, and splenius capitis by means of the ligamentum nuchae. Finally, there is limited evidence about the existence of a soft tissue connection between rectus capitis anterior muscle and the dura mater. **Conclusion:** There is a continuity of soft tissue between the cervical musculature and the cervical dura mater; this might have physiological, pathophysiological, and therapeutic implications, and going some way to explaining the effect of some therapies in craniocervical disorders.

Level Of Evidence: N/A.

Impact of imposed exercise on energy intake in children at risk for overweight.

Fearnbach SN, Masterson TD, Schlechter HA, Ross AJ, Rykaczewski MJ, Loken E, Downs DS, Thivel D, Keller KL.

Nutr J. 2016 Oct 21;15(1):92.

ABSTRACT

Background: Exercise not only has a direct effect on energy balance through energy expenditure (EE), but also has an indirect effect through its impact on energy intake (EI). This study examined the effects of acute exercise on daily ad libitum EI in children at risk for becoming overweight due to family history. **Methods:** Twenty healthy-weight children (ages 9-12 years, 12 male/8 female) with at least one overweight biological parent (body mass index ≥ 25 kg/m²) participated. Children reported to the laboratory for one baseline and two experimental visits (EX = exercise, SED = sedentary) each separated by one week in a randomized crossover design. Two hours into the EX day session, children exercised at 70% estimated VO₂max for 30 minutes on a cycle ergometer. Objective EI (kcal) was measured at a standard breakfast (~285 kcal) and ad libitum lunch, snack and dinner. Meals were identical on the EX and SED days. Activity-related EE (kcal) was estimated with accelerometers worn on the non-dominant wrist and ankle. Relative EI (kcal) was computed as the difference between Total EI and Activity-related EE for each testing day. Paired t-tests were performed to test differences in Total EI, Activity-related EE and Relative EI between the EX and SED days. **Results:** Across all meals, Total EI was not statistically different between the EX and SED days ($t=1.8$, $p=0.09$). Activity-related EE was greater on the EX day compared to the SED day ($t=10.1$, $p<0.001$). By design, this difference was predominantly driven by activity during the morning ($t=20.4$, $p<0.001$). Because children consumed a similar number of kcal on each day, but had greater Activity-related EE on the EX day, Relative EI was lower ($t=-5.15$, $p<0.001$) for the EX day (1636 ± 456 kcal) relative to the SED day (1862 ± 426 kcal). **Conclusions:** Imposed exercise was effective in reducing Relative EI compared to being sedentary. Morning exercise may help children at risk for becoming overweight to better regulate their energy balance within the course of a day.

Keywords: Children; Energy balance; Energy expenditure; Energy intake; Exercise; Obesity

Application of Kinesio Taping method for newborn swallowing difficulty: A case report and literature review.

Chien-Lin Lin, MD, BS, Wei-Ting Wu, MD, Ke-Vin Chang, MD, PhD, Hong-Yi Lin, MD, Li-Wei Chou, MD, PhD

Medicine (2016) 95:31 www.md-journal.com

ABSTRACT

Background: Preterm infants are at an increased risk of sucking problems, swallowing difficulty, and poor nourishment. During the neonatal period, the neurobehavioral organization of a preterm baby is poor compared with that of appropriate gestational age infants. Kinesio Taping has been widely used for edema control, joint protection, and proprioception training. With the help of augmentation of the sensory input for muscle facilitation and inhibition through tapping, the coordination of the target muscle groups can be improved. Until now, no research is available on the use of Kinesio Taping for the swallowing difficulty of infant. **Methods:** We reported a preterm infant suffering from brain edema at birth and swallowing difficulty until 40 weeks. The swallowing reflex was delayed. Moreover, lip closure and rooting reflex combined with the dysfunction grade of jaw movement were poor. We performed KT methods on the baby under the theory of the direction of the tape for facilitate or inhibit the muscle. **Result:** After the Kinesio Taping treatment, the sucking function was improved with good lip closure. One week later, the baby was discharged without the use of an oral gastric tube. **Conclusion:** Kinesio Taping contributed significantly to the improvement of impaired sucking and swallowing and could be implemented as a regular rehabilitative approach for infants suffering from these difficulties.

Abbreviation: KT = Kinesio Taping.

Keywords: facilitation, inhibition, Kinesio Taping method, swallowing difficulty

Association between sports type and overuse injuries of extremities in children and adolescents: a systematic review.

Chéron C, Le Scanff C, Leboeuf-Yde C.

Chiropr Man Therap. 2016 Nov 15;24:41. eCollection 2016.

ABSTRACT

Background: Sporting activities can cause injuries and overuse injuries of the extremities (OIE) in children have been shown to be more common than injuries caused by trauma. The lower extremity is more frequently affected than the upper extremity in OIE, but it is not known whether injury site and diagnosis vary in different sporting activities. **Purpose:** To identify any differences between sports in relation to diagnoses and anatomical areas most likely to be injured. **Methods:** A search was made in November 2014 and again in June 2016 in PubMed, SportDiscus, PsycInfo and Web of Sciences. Search terms were: « overuse injuries OR cumulative trauma disorders OR musculoskeletal injuries » AND « extremity OR limb » AND « physical activity OR sport OR risk factor OR predictors OR exercises » AND « child OR adolescent OR young adults ». Inclusion criteria were: 1) prospective, retrospective, or cross-sectional study design; 2) age ≤19 years; 3) the articles must clearly state if reported cases were classified as traumatic or overuse injuries; 4) reporting on OIE in relation to a particular sports type, and 5) sample size >50. A blinded systematic review was conducted. **Results:** In all, nine of the 736 identified articles were included, studying soccer, handball, orienteering, running, dance, and gymnastics. The incidence of OIE was given only in a few articles but at least the site and diagnosis of OIE were identifiable. The lower limb is more often affected than the upper in all sports covered, and, in general, the lower leg and knee are the two most often affected areas. However, in handball, the elbow was the second most often reported area, and in gymnastics injuries of the foot appeared to be more frequent than in the other sports. No differences in diagnoses were observed between sports types. **Conclusion:** Our work contributes new information, namely that the site of OIE in children and adolescents appears to vary only somewhat between different types of sports. Further well-designed surveillance studies are needed to improve knowledge that can help prevent injuries in children and adolescents participating in sports activities.

Keywords: Adolescent; Children; Epidemiology; Extremities; Overuse injuries; Pediatrics; Sports type

Case Report: Severe Breast Pain Resolved with Pectoral Muscle Massage.

Edith Kernerman, IBCLC and Eileen Park, MSc, IBCLC, ND

Journal of Human Lactation 2014, Vol. 30(3) 287–291 © The Author(s) 2014 Reprints and permissions: sagepub.com/journalsPermissions.nav DOI: 10.1177/0890334414535842 jhl.sagepub.com

ABSTRACT

Many mothers stop breastfeeding because of breast and/or nipple pain, despite recommendations by the World Health Organization to exclusively breastfeed for the first 6 months. Most commonly, such pain is thought to be caused by fungal or bacterial infection; however, many women do not respond to usual treatments for such diagnoses. Furthermore, there is much dispute in the literature about these diagnoses and treatments. We submit a series of three cases of mothers who presented with severe mastalgia (breast pain) and who did not respond to conventional treatments. After treating the patients with pectoral muscle massage and stretching, they each had complete resolution of their pain. We suggest that each of these mothers experienced constriction of the upper thoracic muscles on their mammary neurovasculature.

Keywords: ankyloglossia, assessment tool, breastfeeding, breast milk, breast pain, constriction, lactation, latch, latching, mammary, mastalgia, neurovasculature, nipple pain, pectoral muscle massage, thoracic, tongue tie, vasoconstriction

Primary Care Interventions to Support Breastfeeding: Updated Evidence Report and Systematic Review for the US Preventive Services Task Force.

Patnode CD, Henninger ML, Senger CA, Perdue LA, Whitlock EP.

JAMA. 2016 Oct 25;316(16):1694-1705. doi: 10.1001/jama.2016.8882.Erratum in

ABSTRACT

Importance: Although 80% of infants in the United States start breastfeeding, only 22% are exclusively breastfed up to around 6 months as recommended by a number of professional organizations. **Objective:** To systematically review the evidence on the benefits and harms of breastfeeding interventions to support the US Preventive Services Task Force in updating its 2008 recommendation. **Data Sources:** MEDLINE, PubMed, Cumulative Index for Nursing and Allied Health Literature, Cochrane Central Register of Controlled Trials, and PsycINFO for studies published in the English language between January 1, 2008, and September 25, 2015. Studies included in the previous review were re-evaluated for inclusion. Surveillance for new evidence in targeted publications was conducted through January 26, 2016. **Study Selection:** Review of randomized clinical trials and before-and-after studies with concurrent controls conducted in a developed country that evaluated a primary care-relevant breastfeeding intervention among mothers of full- or near-term infants. Of 211 full-text articles reviewed, 52 studies met inclusion criteria. Thirty-one studies were newly identified, and 21 studies were carried forward from the previous review. **Data Extraction and Synthesis:** Independent critical appraisal of all provisionally included studies. Data were independently abstracted by one reviewer and confirmed by another. **Main Outcomes and Measures:** Child and maternal health outcomes, rates and duration of breastfeeding, and harms related to interventions as prespecified before data collection. **Results:** Fifty-two studies (n = 66 757) in 57 publications were included. Six trials (n = 2219) reported inconsistent effects of the interventions on infant health outcomes; no studies reported maternal health outcomes. Pooled estimates based on random-effects meta-analyses using the DerSimonian and Laird method indicated beneficial associations between individual-level breastfeeding interventions and any breastfeeding for less than 3 months (risk ratio [RR], 1.07 [95% CI, 1.03-1.11]; 26 studies [n = 11 588]), at 3 to less than 6 months (RR, 1.11 [95% CI, 1.04-1.18]; 23 studies [n = 8942]), and for exclusive breastfeeding for less than 3 months (RR, 1.21 [95% CI, 1.11-1.33]; 22 studies [n = 8246]), 3 to less than 6 months (RR, 1.20 [95% CI, 1.05-1.38]; 18 studies [n = 7027]), and at 6 months (RR, 1.16 [95% CI, 1.02-1.32]; 17 studies [n = 7690]). Absolute differences in the rates of any breastfeeding ranged from 14.1% in favor of the control group to 18.4% in favor of the intervention group. There was no significant association between interventions and breastfeeding initiation (RR, 1.00 [95% CI, 0.99-1.02]; 14 studies [n = 9428]). There was limited mixed evidence of an association between system-level interventions and rates of breastfeeding from well-controlled studies as well as for harms related to breastfeeding interventions, including maternal anxiety scores, decreased confidence, and concerns about confidentiality. **Conclusions and Relevance:** The updated evidence confirms that breastfeeding support interventions are associated with an increase in the rates of any and exclusive breastfeeding. There are limited well-controlled studies examining the effectiveness of system-level policies and practices on rates of breastfeeding or child health and none for maternal health.

Comment in: [Interventions Intended to Support Breastfeeding: Updated Assessment of Benefits and Harms.](#) [JAMA. 2016]

Breastfeeding Improvement Following Tongue-Tie and Lip-Tie Release: A Prospective Cohort Study.

Bobak A. Ghaheri, MD; Melissa Cole, IBCLC; Sarah C. Fausel, BA; Maria Chuop, BS; Jess C. Mace, MPH, CCRP

The Laryngoscope VC 2016 The American Laryngological, Rhinological and Otological Society, Inc.

ABSTRACT

Objectives/Hypothesis: Numerous symptoms may arise that prevent mother-infant dyads from maintaining desired breastfeeding intervals. Investigations into treatments that positively influence breastfeeding outcomes allow for improved patient counseling for treatment decisions to optimize breastfeeding quality. This investigation aimed to determine the impact of surgical tongue-tie/lip-tie release on breastfeeding impairment. **Study Design:** Prospective, cohort study from June 2014 to April 2015 in a private practice setting. **Methods:** Study participants consisted of breastfeeding mother—infant (0—12 weeks of age) dyads with untreated ankyloglossia and/or tethered maxillary labial frenula who completed preoperative, 1 week, and 1 month postoperative surveys consisting of the Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF), visual analog scale (VAS) for nipple pain severity, and the revised Infant Gastroesophageal Reflux Questionnaire (I-GERQ-R). Breastmilk intake was measured preoperatively and 1 week postoperatively. **Results:** A total of 237 dyads were enrolled after self-electing laser lingual frenotomy and/or maxillary labial frenectomy. Isolated posterior tongue-tie was identified in 78% of infants. Significant postoperative improvements were reported between mean preoperative scores compared to 1 week and 1 month scores of the BSES-SF ($F(2) = 5.212.3$; $P < .001$), the I-GERQ-R ($F(2) = 5.85.3$; $P < .001$), and VAS pain scale ($F(2) = 5.259.8$; $P < .001$). Average breastmilk intake improved 155% from 3.0 (2.9) to 4.9 (4.5) mL/min ($P < .001$). **Conclusions:** Surgical release of tongue-tie/lip-tie results in significant improvement in breastfeeding outcomes. Improvements occur early (1 week postoperatively) and continue to improve through 1 month postoperatively. Improvements were demonstrated in both infants with classic anterior tongue-tie and less obvious posterior tongue-tie. This study identifies a previously under-recognized patient population that may benefit from surgical intervention if abnormal breastfeeding symptoms exist.

Key Words: Breastfeeding, ankyloglossia, patient outcome assessment, outcome assessment (healthcare), visual analog scale, gastroesophageal reflux.

Level of Evidence: 2c

Laryngoscope, 00:000—000, 2016

Dietary Inflammatory Potential during Pregnancy Is Associated with Lower Fetal Growth and Breastfeeding Failure: Results from Project Viva

Sarbattama Sen, Sheryl L Rifas-Shiman, Nitin Shivappa, Michael D Wirth, James R Hebert, Diane R Gold, Matthew W Gillman, and Emily Oken⁶

The Journal of Nutrition Nutrition and Disease 2016 American Society for Nutrition.
First published online March 2, 2016; doi:10.3945/jn.115.225581.

ABSTRACT

Background: Inflammation during pregnancy has been linked to adverse maternal and infant outcomes. There is limited information available on the contribution of maternal diet to systemic inflammation and pregnancy health. **Objective:** The objective of this study was to examine associations of maternal prenatal dietary inflammatory index (DII), a composite measure of the inflammatory potential of diet, with markers of maternal systemic inflammation and pregnancy outcomes. **Methods:** We studied 1808 mother-child pairs from Project Viva, a pre-birth cohort study in Massachusetts. We calculated the DII from first- and second-trimester food-frequency questionnaires by standardizing the dietary intakes of participants to global means, which were multiplied by the inflammatory effect score and summed. We examined associations of DII with maternal plasma C-reactive protein and white blood cell count in the second trimester and the following perinatal outcomes: gestational diabetes, preeclampsia, length of gestation, fetal growth, mode of delivery, and duration of breastfeeding. We used multivariable linear and logistic regression models to analyze the strength of these associations. **Results:** Maternal age was (mean \pm SD) 32.2 \pm 5.0 y, prepregnancy body mass index (BMI; in kg/m²) was 24.9 \pm 5.2, and DII was 22.56 \pm 1.42 units with a range of 25.4 to 3.7. DII was positively correlated with prepregnancy BMI (Pearson's $r = 0.13$, $P < 0.0001$). Higher DII scores, reflecting more proinflammatory dietary potential, were associated with higher second-trimester plasma CRP (b: 0.08 mg/L per 1-unit increase in maternal DII; 95% CI: 0.02, 0.14) and lower birth weight for gestational age z score in infants born to obese mothers (b: 20.10 z score per 1-unit increase in maternal DII; 95% CI: 20.18, 20.02). Higher DII scores were associated with lower odds of breastfeeding for at least 1 mo (OR = 0.85; 95% CI: 0.74, 0.98). **Conclusion:** A proinflammatory diet during pregnancy is associated with maternal systemic inflammation and may be associated with impaired fetal growth and breastfeeding failure. *J Nutr* 2016;146:728–36.

Keywords: obesity, inflammation, pregnancy, diet, breastfeeding, fetal growth