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**Professor Nadia Badawi AM**

Macquarie Group Foundation Chair of Cerebral Palsy

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## Interventions and Management

**1. Early Hum Dev. 2015 Jun 9;91(8):479-482. doi: 10.1016/j.earlhumdev.2015.05.007. [Epub ahead of print]**

**General movements as a predictive tool of the neurological outcome in term born infants with hypoxic ischemic encephalopathy.**

Soleimani F, Badv RS, Momayezi A, Biglarian A, Marzban A.

**BACKGROUND:** At a time of increasing high risk neonates, an assessment method is needed that can reliably predict neurological deficits at an early age. **AIMS:** The objective of this study was to determine whether the assessment of fidgety movements (FMs) will predict the neurological outcome of infants with hypoxic ischemic encephalopathy (HIE). **STUDY DESIGN:** This study employed a prospective and descriptive plan. **SUBJECTS:** The study sample consisted of 15 infants (8 male and 7 female) born at term. Video recording of FMs were analyzed at 3 to 5 months' infants, who identified with perinatal asphyxia and neonatal HIE. FMs were classified as present or absent. **OUTCOME MEASURES:** At 12-18 months age, the infants' developmental outcome was classified as normal or abnormal according to the Infant Neurological International Battery test. "Abnormal outcome" was denoted as poor motor or neurological outcome such as cerebral palsy, whereas "Normal outcome" denotes normal motor and neurological outcomes. **RESULTS:** The predictive values of FMs were: a sensitivity 0.80 (95% CI: 0.44-0.96), a specificity 1.00 (95% CI: 0.47-1.00), and the accuracy 0.87 (0.57 to 1.00). **CONCLUSIONS:** FMs assessment improves our ability to predict later neurodevelopmental outcomes in term born children with neonatal HIE.

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**2. Hippokratia. 2014 Oct-Dec;18(4):310-4.**

**Manual ability and manual dexterity in children with cerebral palsy.**

Golubović Š, Slavković S.

**INTRODUCTION:** Manual ability and performance of dexterity tasks require both gross and fine hand motions and coordination. The aim of this study was to determine the level of manual dexterity (capacity) and investigate its relationship with manual ability (performance) in children with cerebral palsy. **METHOD:** This study was designed as a cross-sectional study of 30 children with cerebral palsy (aged 8-15 years). In order to assess gross manual dexterity the Box and Block Test was used. Manual ability was assessed according to Manual Ability Classification System (MACS). **RESULTS:** A relationship between the level of manual ability impairment and performance on

manual dexterity tasks was expressed. Participants at MACS level IV demonstrated slowest times and transferred the smallest number of blocks ( $p < 0.01$ ). This study also found that correlation between Gross Motor Function Classification Scale (GMFCS) and MACS is statistically significant ( $p < 0.001$ ). All hand skills were more impaired in the non-dominant hand compared to the dominant hand but there were no statistically significant difference ( $p = 0.06$ ). CONCLUSION: The results suggest that gross manual dexterity is a good predictor of manual abilities in children with cerebral palsy. These results provide better understanding of the relationship between manual dexterity and activity limitations and lend credibility to the use of these classification systems and assessments in order to optimize treatment planning and evaluate interventions and progress. Hippokratia 2014; 18 (4): 310-314.

[PMID: 26052196](#) [PubMed] [PMCID: PMC4453803](#) Free PMC Article

### 3. J Neural Eng. 2015 Jun 10;12(4):046017. [Epub ahead of print]

#### Muscle synergy analysis in children with cerebral palsy.

Tang L, Li F, Cao S, Zhang X, Wu, Chen X.

OBJECTIVE: To explore the mechanism of lower extremity dysfunction of cerebral palsy (CP) children through muscle synergy analysis. APPROACH: Twelve CP children were involved in this study, ten adults (AD) and eight typically developed (TD) children were recruited as a control group. Surface electromyographic (sEMG) signals were collected bilaterally from eight lower limb muscles of the subjects during forward walking at a comfortable speed. A nonnegative matrix factorization algorithm was used to extract muscle synergies. In view of muscle synergy differences in number, structure and symmetry, a model named synergy comprehensive assessment (SCA) was proposed to quantify the abnormality of muscle synergies. MAIN RESULTS: There existed larger variations between the muscle synergies of the CP group and the AD group in contrast with the TD group. Fewer mature synergies were recruited in the CP group, and many abnormal synergies specific to the CP group appeared. Specifically, CP children were found to recruit muscle synergies with a larger difference in structure and symmetry between two legs of one subject and different subjects. The proposed SCA scale demonstrated its great potential to quantitatively assess the lower-limb motor dysfunction of CP children. SCA scores of the CP group ( $57.00 \pm 16.78$ ) were found to be significantly less ( $p < 0.01$ ) than that of the control group (AD group:  $95.74 \pm 2.04$ ; TD group:  $84.19 \pm 11.76$ ). SIGNIFICANCE: The innovative quantitative results of this study can help us to better understand muscle synergy abnormality in CP children, which is related to their motor dysfunction and even the physiological change in their nervous system.

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### 4. Zhongguo Zhen Jiu. 2015 Mar;35(3):217-20.

#### Impacts on adductor muscle tension in children of spasmodic cerebral palsy treated with acupuncture at the three-spasm-needle therapy.

[Article in Chinese]

Jin B, Zhao Y, Li N.

OBJECTIVE: To explore the effective therapeutic method for reducing adductor muscle tension in the children of spasmodic cerebral palsy. METHODS: One hundred and forty cases of spasmodic cerebral palsy met the inclusive criteria were randomized into an observation group and a control group, 70 cases in each one. In the control group, the conventional physical therapies (Bobath therapy and lower extremities therapy) and scalp acupuncture (seven-intelligent needles, motor area, sensory area, foot-motor-sensory area and balance area) were adopted. In the observation group, on the basis of the treatment as the control group, the three-spasm-needle therapy was applied to Jiejian, Xuehaishang and Houxuehai. The physical therapies were given once every day, acupuncture was given once every two days, the treatment of 20 days made one session. There were 15 to 20 days at the interval among the sessions and 3 sessions were required totally. Separately before and after treatment, the modified Ashworth scale was used to evaluate the adductor muscle tension, and measure the adductor muscle angle, and D and E regions of gross motor function measure (GMFM-88) were adopted for clinical efficacy evaluation. RESULTS: After treatment, the scores of the adductor muscle tension were decreased to different extends in the two groups (both  $P < 0.01$ ), the adductor muscle angle was increased as compared with that before treatment (both  $P < 0.01$ ) and the scores of D and F regions in GMFM-88 were all improved (all  $P < 0.01$ ). The efficacy in the observation group was more significant than that in the control group (all  $P < 0.01$ ). CONCLUSION: The three-spasm-needle therapy

effectively reduces adductor muscle tension and improves the range of motion in hip joint, independent walking, running and jumping abilities in the children of spasmodic cerebral palsy.

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**5. J Physiother. 2015 Jun 8. pii: S1836-9553(15)00042-9. doi: 10.1016/j.jphys.2015.05.004. [Epub ahead of print]**

**A web-based therapy program enhances occupational performance and visual perception in children with unilateral cerebral palsy [commentary].**

Kerr C.

[PMID: 26067641](#) [PubMed - as supplied by publisher]

**6. Res Dev Disabil. 2015 Jun 5;41-42C:52-57. doi: 10.1016/j.ridd.2015.05.006. [Epub ahead of print]**

**Foot pressure distribution in children with cerebral palsy while standing.**

Galli M, Cimolin V, Pau M, Leban B, Brunner R, Albertini G.

Foot deformity is a major component of impaired functioning in cerebral palsy (CP). While gait and balance issues related to CP have been studied extensively, there is little information to date on foot-ground interaction (i.e. contact area and plantar pressure distribution). This study aimed to characterize quantitatively the foot-ground contact parameters during static upright standing in hemiplegia and diplegia. We studied 64 children with hemiplegia (mean age 8.2 years; SD 2.8 years) and 43 with diplegia (mean age 8.8 years; SD 2.3 years) while standing on both legs statically on a pressure sensitive mat. We calculated pressure data for the whole foot and sub-regions (i.e. rearfoot, midfoot and forefoot) and average contact pressure. The Arch Index (AI) served for classifying the feet as flat, normal or cavus feet. The data were compared with those from a sample of age- and gender-matched participants (control group, 68 children). Most of the feet showed very high AI values, thus indicating a flat foot. This deformity was more common in diplegia (74.4%) than in hemiplegia (54.7%). In both diplegic and hemiplegic children, average plantar pressure was significantly increased in the forefoot and midfoot and decreased in the rearfoot ( $p < 0.001$ ). The present data indicate an increased load on the front parts of the foot, which may be due to plantarflexor overactivity or knee flexion, combined with an increased incidence of low foot arches. As a low foot arch does not necessarily increase forefoot load, this deformity can be regarded as secondary.

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**7. J Pediatr Orthop. 2015 Jun 5. [Epub ahead of print]**

**Hip Reconstruction in Children With Unilateral Cerebral Palsy and Hip Dysplasia.**

Abousamra O, Er MS, Rogers KJ, Nishnianidze T, Dabney KW, Miller F.

**BACKGROUND:** Highly functioning children with unilateral cerebral palsy (CP) who have hip involvement (type IV hemiplegia) may present with hip dysplasia during their adolescence. The aim of this report is to assess the outcomes of combined femoral and acetabular reconstruction in this population. **METHODS:** This study is a retrospective review of all patients with unilateral CP, Gross Motor Function Classification System types I and II, who had hip reconstruction for unilateral dysplasia between 1989 and 2013. Clinical variables (pain and hip passive range of motion) were reviewed. Hip morphology was assessed radiographically according to Melbourne Cerebral Palsy Hip Classification System. Three-dimensional gait analyses were also reviewed to evaluate the effect of surgery on these patients' gaits. **RESULTS:** Twelve patients were included with a mean age at surgery of 14 years (range, 7 to 19 y) and follow-up mean of 4 years (range, 1 to 8 y). Nine hips were improved according to Melbourne Cerebral Palsy Hip Classification System. Migration percentage decreased significantly ( $P < 0.001$ ) from 45% (30% to 86%) to 15% (0% to 28%). Neck shaft angle decreased ( $P < 0.001$ ) from 144 degrees (range, 129 to 156 degrees) to 125 degrees (range, 114 to 139 degrees). Tonnis angle and Sharp angle also decreased significantly. All

patients were pain free at the last visit. Overall level of gait function as measured by Gait Deviation Index and Gait Profile Score [78 (61 to 89) and 12 (8 to 16), respectively] for all patients was maintained without significant changes. CONCLUSIONS: In hemiplegic type IV CP, with high functional level (Gross Motor Function Classification System I and II), hip dysplasia is a rare occurrence during adolescent years. Combined hip reconstruction improves hip morphology, relieves pain, and maintains a high level of function. LEVEL OF EVIDENCE: Level IV-therapeutic study.

[PMID: 26057069](#) [PubMed - as supplied by publisher]

#### 8. J Pediatr Orthop. 2015 Jun 5. [Epub ahead of print]

##### **Ability of PROMIS Pediatric Measures to Detect Change in Children With Cerebral Palsy Undergoing Musculoskeletal Surgery.**

Mulcahey MJ, Haley SM, Slavin MD, Kisala PA, Ni P, Tulsy DS, Jette AM.

**BACKGROUND:** The Patient Reported Outcomes Measurement Information System (PROMIS) was developed to provide patient-reported outcome measures that are designed as being universally relevant across health conditions, low burden, and precise. A major problem for research and clinical practice in cerebral palsy (CP) is the void of outcomes instruments that are capable of evaluating the wide range of abilities and broad age spectrum inherent in this clinical population. Given the tremendous potential of PROMIS, the research questions for this study were "How do PROMIS pediatric computer adaptive tests and short forms detect change in children with CP following elective musculoskeletal surgery?" and "How do PROMIS instruments compare to the Pediatric Quality of Life Inventory Cerebral Palsy Module Version 3.0 (PedsQL CP), Pediatric Outcomes Data Collection Instrument (PODCI), the Timed Up and Go (TUG), and the Gross Motor Functional Measure (GMFM)." **METHODS:** PROMIS Pediatric computer adaptive tests and short forms and the PedsQL, PODCI, TUG, and GMFM were administered before and after surgery. Effect size (ES) and standardized response mean (SRM) were calculated. Floor and ceiling effects were evaluated and, exposure rates for the PROMIS item banks were examined. **RESULTS:** ES and SRM for all PROMIS Pediatric Measures were nonsignificant. PedsQL CP detected significant, positive change in mobility at 6 (ES=0.26; SRM=0.31) and 12 (ES=0.36; SRM=0.36) months; pain at 12 months (ES=0.29; SRM=0.34); and fatigue at 6 (ES=0.24; SRM=0.22) and 12 (ES=0.36; SRM=0.41) months. Significant negative changes were detected by the PODCI (ES=-0.20; SRM=-0.26), GMFM (ES=-0.13; SRM=-0.24), and TUG (ES=-0.29; SRM=-0.25). Ceiling effects were high. Exposure to an appropriate range of the PROMIS Mobility item bank was limited. **CONCLUSIONS:** PROMIS measures were less able to detect change than other measures. PROMIS measures may be improved by tailoring start/stop rules or by adding items to include content appropriate for children with mobility impairments. LEVEL OF EVIDENCE: Level III-diagnostic study.

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#### 9. Drug Ther Bull. 2015 Jun;53(6):66-8. doi: 10.1136/dtb.2015.6.0331.

##### **Challenges in managing drooling in children.**

[No authors listed]

Drooling is the unintentional loss of saliva from the mouth, either anteriorly (visible) or posteriorly (with a risk of coughing, vomiting, aspiration and chronic respiratory disorders).(1,2) Anterior drooling is normal in infancy, but is considered neuro-developmentally abnormal if it occurs in children over the age of 4 years old, and is commonly seen in those with physical, intellectual and learning disability, and poor neuromuscular coordination and oral control.(1,3-7) For example, drooling occurs in 10-38% of children with cerebral palsy.(6,8) Drooling is usually due to failure to clear saliva rather than hyper-salivation (sialorrhoea), and a head-down posture and sucking on fingers or clothing may be contributory factors.(1,2,5-7) Here we review the challenges associated with the management of drooling in children.

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**10. IEEE Trans Neural Syst Rehabil Eng. 2015 Jun 8. [Epub ahead of print]****Single-trial analysis of inter-beat interval perturbations accompanying single-switch scanning: case series of three children with severe spastic quadriplegic cerebral palsy.**

Leung B, Chau T.

Single-switch access in conjunction with scanning remains a fundamental solution in restoring communication for many children with profound physical disabilities. However, untimely switch inaction and unintentional switch activations can lead to user frustration and impede functional communication. A previous preliminary study, in the context of a case series with three single-switch users, reported that correct, accidental and missed switch activations could elicit cardiac deceleration and increased phasic skin conductance on average, while deliberate switch non-use was associated with autonomic non-response. The present study investigated the possibility of using blood volume pulse recordings from the same three paediatric single-switch users to track the aforementioned switch events on a single-trial basis. Peaks of the line length time series derived from the empirical mode decomposition of the inter-beat interval time series matched, on average, a high percentage (above 80%) of single-switch events, while unmatched peaks coincided moderately (below 37%) with idle time during scanning. These results encourage further study of autonomic measures as complementary information channels to enhance single-switch access.

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**11. Augment Altern Commun. 2015 Jun 9:1-16. [Epub ahead of print]****"Social Media has Opened a World of 'Open communication:'" Experiences of Adults with Cerebral Palsy who use Augmentative and Alternative Communication and Social Media.**

Caron J, Light J.

An online focus group was used to investigate the experiences of nine individuals with cerebral palsy who use augmentative and alternative communication (AAC) and social media. Information was gathered related to (a) advantages of social media, (b) disadvantages of social media, (c) barriers to successful use, (d) supports to successful use, and (e) recommendations for other individuals using AAC, support personnel, policy makers, and technology developers. Participants primarily chose to focus on social media as a beneficial tool and viewed it as an important form of communication. The participants did describe barriers to social media use (e.g., technology). Despite barriers, all the participants in this study took an active role in learning to use social media. The results are discussed as they relate to themes and with reference to published literature.

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**12. Child Neuropsychol. 2015 Jun 12:1-13. [Epub ahead of print]****Working memory and fine motor skills predict early numeracy performance of children with cerebral palsy.**

Van Rooijen M, Verhoeven L, Steenbergen B.

Early numeracy is an important precursor for arithmetic performance, academic proficiency, and work success. Besides their apparent motor difficulties, children with cerebral palsy (CP) often show additional cognitive disturbances. In this study, we examine whether working memory, non-verbal intelligence, linguistic skills, counting and fine motor skills are positively related to the early numeracy performance of 6-year-old children with CP. A total of 56 children ( $M = 6.0$ ,  $SD = 0.61$ , 37 boys) from Dutch special education schools participated in this cross-sectional study. Of the total group, 81% of the children have the spastic type of CP (33% unilateral and 66% bilateral), 9% have been diagnosed as having diskynetic CP, 8% have been diagnosed as having spastic and diskynetic CP and 2% have been diagnosed as having a combination of diskynetic and atactic CP. The children completed standardized tests assessing early numeracy performance, working memory, non-verbal intelligence, sentence understanding and fine motor skills. In addition, an experimental task was administered to examine their basic counting performance. Structural equation modeling showed that working memory and fine motor skills were significantly related to the early numeracy performance of the children ( $\beta = .79$  and  $p < .001$ ,  $\beta = .41$  and  $p < .001$ , respectively). Furthermore, counting was a mediating variable between working memory and early numeracy ( $\beta$

= .57,  $p < .001$ ). Together, these findings highlight the importance of working memory for early numeracy performance in children with CP and they warrant further research into the efficacy of intervention programs aimed at working memory training.

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### 13. Disabil Rehabil. 2015 Jun 9:1-7. [Epub ahead of print]

#### **The effects of progressive resistance training on daily physical activity in young people with cerebral palsy: a randomised controlled trial.**

Bania TA, Dodd KJ, Baker RJ, Kerr GH, Taylor NF.

**PURPOSE:** To examine if individualised resistance training increases the daily physical activity of adolescents and young adults with bilateral spastic cerebral palsy (CP). **METHOD:** Young people with bilateral spastic CP were randomly assigned to intervention or to usual care. The intervention group completed an individualised lower limb progressive resistance training programme twice a week for 12 weeks in community gymnasiums. The primary outcome was daily physical activity (number of steps, and time sitting and lying). Secondary outcomes included muscle strength measured with a one-repetition maximum (1RM) leg press and reverse leg press. Outcomes were measured at baseline, 12 weeks and 24 weeks. **RESULTS:** From the 36 participants with complete data at 12 weeks, there were no between-group differences for any measure of daily physical activity. There was a likely increase in leg press strength in favour of the intervention group (mean difference 11.8 kg; 95% CI -1.4 to 25.0). No significant adverse events occurred during training. **CONCLUSIONS:** A short-term resistance training programme that may increase leg muscle strength was not effective in increasing daily physical activity. Other strategies are needed to address the low-daily physical activity levels of young people with bilateral spastic CP. Implications for Rehabilitation Progressive resistance training may increase muscle strength but does not lead to increases in daily physical activity of young people with bilateral spastic cerebral palsy (CP) and mild to moderate walking disabilities. Other strategies apart from or in addition to resistance training are needed to address the low daily physical activity levels of young people with bilateral spastic CP and mild to moderate walking disabilities.

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## Prevention and Cure

### 14. Acta Obstet Gynecol Scand. 2015 Jun 5. doi: 10.1111/aogs.12688. [Epub ahead of print]

#### **Association between cerebral palsy and microscopically verified placental infarction in extremely preterm infants.**

Vinnars MT, Vollmer B, Nasiell J, Papadogiannakis N, Westgren M.

**INTRODUCTION:** Previously, cerebral palsy has been associated with placental infarctions diagnosed macroscopically by midwives. However, the risk of misclassification of infarctions is high without a histological verification. Therefore, the objective of this study was to study placental histopathology in relation to developmental outcome at 2.5 years corrected age in a population born extremely preterm. **MATERIAL AND METHODS:** A prospective cohort study was carried out at Karolinska University Hospital, Stockholm, Sweden on a population of 139 live born infants delivered < 27 gestational weeks during 2004-2007. A senior perinatal pathologist, who was blinded to outcome data, evaluated all placental slides microscopically. Neuromotor and -sensory functions of the children were evaluated. Bayley Scales of Infant and Toddler Development-III (Bayley-III) were used to assess development at corrected age 2.5 years. The outcome data were evaluated without reference to obstetrical and pathology data. The primary outcome measure was neurological and developmental status at 2.5 years of corrected age. This was measured as diagnosis of cerebral palsy, visual impairment, hearing impairment as well as performance on Bayley-III scales evaluating cognitive, language and motor functions. **RESULTS:** Two out of seven children with placental infarction were diagnosed with cerebral palsy compared with one child of 51 without

placental infarction ( $p=0.036$ ). For developmental outcome according to Bayley-III at 2.5 years no statistically significant associations with placental pathology were found. **CONCLUSION:** A possible association between placental infarction, verified by microscopic examination, and cerebral palsy has been identified in this extremely preterm population. This article is protected by copyright. All rights reserved.

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**15. J Neurosci. 2015 Jun 10;35(23):8855-65. doi: 10.1523/JNEUROSCI.2868-12.2015.**

### **Mechanisms of Mouse Neural Precursor Expansion after Neonatal Hypoxia-Ischemia.**

Buono KD, Goodus MT, Guardia Clausi M, Jiang Y, Loporchio D, Levison SW.

Neonatal hypoxia-ischemia (H-I) is the leading cause of brain damage resulting from birth complications. Studies in neonatal rats have shown that H-I acutely expands the numbers of neural precursors (NPs) within the subventricular zone (SVZ). The aim of these studies was to establish which NPs expand after H-I and to determine how leukemia inhibitory factor (LIF) insufficiency affects their response. During recovery from H-I, the number of Ki67(+) cells in the medial SVZ of the injured hemisphere increased. Similarly, the number and size of primary neurospheres produced from the injured SVZ increased approximately twofold versus controls, and, upon differentiation, more than twice as many neurospheres from the damaged brain were tripotential, suggesting an increase in neural stem cells (NSCs). However, multimarker flow cytometry for CD133/LeX/NG2/CD140a combined with EdU incorporation revealed that NSC frequency diminished after H-I, whereas that of two multipotential progenitors and three unique glial-restricted precursors expanded, attributable to changes in their proliferation. By quantitative PCR, interleukin-6, LIF, and CNTF mRNA increased but with significantly different time courses, with LIF expression correlating best with NP expansion. Therefore, we evaluated the NP response to H-I in LIF-haplodeficient mice. Flow cytometry revealed that one subset of multipotential and bipotential intermediate progenitors did not increase after H-I, whereas another subset was amplified. Altogether, our studies demonstrate that neonatal H-I alters the composition of the SVZ and that LIF is a key regulator for a subset of intermediate progenitors that expand during acute recovery from neonatal H-I.

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**16. Acta Paediatr. 2015 Jun 8. doi: 10.1111/apa.13074. [Epub ahead of print]**

### **Randomised trial of early neonatal hydrocortisone demonstrates potential undesired effects on neurodevelopment at preschool age.**

Peltoniemi OM, Lano A, Yliherva A, Kari MA, Hallman M; Neonatal Hydrocortisone Working Group.

**AIM:** We evaluated the neurodevelopment and growth of five to seven-year-old children who had participated in a randomised trial of early low-dose hydrocortisone treatment to prevent bronchopulmonary dysplasia. **METHODS:** The 51 infants in the original study had birth weights of 501-1,250 g and gestational ages of 23-30 weeks, required mechanical ventilation during the first 24 hours and received hydrocortisone or a placebo for 10 days. The majority (80%) of the 90% who survived to five to seven-years-of-age participated in this follow-up study and their growth, neuromotor, cognitive and speech development were evaluated. **RESULTS:** Some neurodevelopment impairment was observed in 61% of the hydrocortisone group and 39% of the placebo group, ranging from minor neurological dysfunction to severe neurological conditions ( $p=0.182$ ). The mean full-scale intelligence quotient (IQ) was 87.8 (15.3) in the hydrocortisone group and 95.7 (15.0) in the placebo group ( $p=0.135$ ) and the mean performance IQ was 88.3 (14.5) and 99.1 (14.0) ( $P=0.034$ ), respectively. A fifth (22%) of the hydrocortisone group required physiotherapy but none of the placebo group did ( $p=0.034$ ). The age-standardised growth was comparable between both groups. **CONCLUSION:** Early hydrocortisone treatment may have undesired effects on neurodevelopment at preschool age and further safety studies are required. This article is protected by copyright. All rights reserved. This article is protected by copyright. All rights reserved.

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**17. Am J Perinatol. 2015 Jun 9. [Epub ahead of print]****Association between Cerebral Palsy or Death and Umbilical Cord Blood Magnesium Concentration.**

Palatnik A, Rouse DJ, Stamilio DM, McPherson JA, Grobman WA.

**Objective** This study aims to evaluate whether magnesium sulfate (MgSO<sub>4</sub>) infusion at the time of delivery or magnesium cord blood concentration is associated with cerebral palsy (CP) or death diagnosed by the age of 2 years. **Methods** Secondary analysis of data from a randomized trial of MgSO<sub>4</sub> versus placebo for prevention of CP or death among offspring of women with anticipated preterm delivery. This study cohort included singleton, nonanomalous fetuses, whose mothers received MgSO<sub>4</sub> as neuroprophylaxis. The primary outcomes were CP or death diagnosed by the age of 2 years. **Results** A total of 936 neonates (93 with CP or death, 843 controls) were included in the analysis. Infants in the group with CP or death had MgSO<sub>4</sub> infusing at delivery at a similar frequency to that of controls (49 [52.7%] vs. 463 [54.9%],  $p = 0.68$ ). Mean concentrations of cord blood magnesium, available for 596 neonates, also were not different between the two groups ( $2.7 \pm 0.9$  vs.  $2.6 \pm 0.9$  mEq/L,  $p = 0.66$ , respectively). Multivariable analyses did not alter these findings. **Conclusion** Among the offspring of women exposed to MgSO<sub>4</sub>, in utero, neither MgSO<sub>4</sub> infusion at the time of delivery nor magnesium cord blood concentration is associated with CP or death.

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**18. Dev Med Child Neurol. 2015 Jun 8. doi: 10.1111/dmcn.12825. [Epub ahead of print]  
More funding, better lives: the case for cerebral palsy research.**

Habiby J, Aisen M.

This commentary is on the original article by Wu et al. To view this paper visit <http://dx.doi.org/10.1111/dmcn.12789>.

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