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Interventions and Management

1. Measurement of upper limb movement acceleration and functions in children with cerebral palsy.

Kim DH, An DH, Yoo WG.

Technol Health Care. 2018 Feb 9. doi: 10.3233/THC-171148. [Epub ahead of print]

OBJECTIVE: The main purpose of this study was to measure the peak acceleration of the upper limb (UL) during reaching, and to calculate correlations between peak acceleration data and functional test results in children with cerebral palsy (CP). **METHODS:** We recruited 15 children with CP (10 boys and 5 girls) and measured peak acceleration and function as revealed by the Jebsen Taylor Hand Function Test (JTHF), the Quality of Upper Extremity Skills Test (QUEST), the Box and Blocks Test (BBT), and the ABILHAND-Kids questionnaire. We calculated correlations between peak acceleration data and scores on the functional tests. **RESULTS:** The peak acceleration of the more-affected UL was significantly higher than that of the less-affected UL ($p < 0.05$). The peak acceleration data were positively correlated with JTHFT scores. On the other hand, the peak acceleration data were negatively correlated with QUEST, BBT, and ABILHAND-Kids scores. The test-retest reliability of the peak acceleration was excellent, with an intra-class correlation coefficient (ICC) 0.87-0.98. **CONCLUSIONS:** Peak acceleration data correlated with UL functional test results; as this proved to be reliable, the tri-axial accelerometer is a clinically useful assessment tool for evaluating UL movement. Therefore, our results suggest that measurement of acceleration using a tri-axial accelerometer is appropriate when clinicians quantify UL movement during therapeutic rehabilitation in clinical settings.

[PMID: 29504548](#)

2. The relationship between trunk control and upper limb function in children with cerebral palsy.

Kim DH, An DH, Yoo WG.

Technol Health Care. 2018 Feb 9. doi: 10.3233/THC-171073. [Epub ahead of print]

BACKGROUND: Trunk control ability greatly influences functional movement of the upper limbs. **PURPOSE:** Our primary aims were to assess trunk control ability, sway, and upper limb functions in children with cerebral palsy (CP), and to investigate the relationship between trunk control ability and upper limb function. **METHODS:** We included 15 children (10 boys and 5 girls) with CP. We used the Trunk Control Measurement Scale (TCMS) to evaluate trunk control ability and sway. We employed the Jebsen-Taylor Hand Function Test (JTHFT), the Quality of Upper Extremity Skills Test (QUEST), the Box and Blocks Test (BBT), and the ABILHAND-Kids questionnaire to explore upper limb function and arm movement acceleration. We calculated correlations between trunk control ability and parameters of upper limb function. **RESULTS:** TCMS scores correlated positively with the QUEST, BBT, and ABILHAND-Kids data, but negatively with the JTHFT findings. Anteroposterior acceleration correlated positively with JTHFT data, but negatively with QUEST, BBT, and ABILHAND-Kids data. Mediolateral acceleration correlated positively with the JTHFT outcomes, but negatively with those of QUEST, BBT, and ABILHAND-Kids. **CONCLUSIONS:** Upper limb function test data exhibited moderate to strong correlations with trunk control ability, as measured via the TCMS and triaxial accelerometry, in children with CP. Our results suggest that trunk control ability should be assessed when evaluating upper limb function in such children.

[PMID: 29504546](#)

3. Intraoperative Traction May Be a Viable Alternative to Anterior Surgery in Cerebral Palsy Scoliosis ≥ 100 Degrees.

Jackson TJ, Yaszay B, Pahys JM, Singla A, Miyanji F, Shah SA, Sponseller PD, Newton PO, Flynn JM, Cahill PJ; Harms Study Group.

J Pediatr Orthop. 2018 Mar 8. doi: 10.1097/BPO.0000000000001151. [Epub ahead of print]

BACKGROUND: For large scoliosis, 2 strategies to maximize correction include intraoperative traction and/or anterior release. It is unclear which patients will benefit the most from either approach. The purpose of our study is to compare the radiographic, perioperative clinical outcomes, and health-related quality of life (HRQoL) outcomes of 2 approaches when used in severe neuromuscular scoliosis in the setting of cerebral palsy (CP). **METHODS:** In total, 23 patients with minimum 2-year follow-up, major curves ≥ 100 degrees, and in whom treatment included posterior spinal fusion were evaluated. Eighteen were treated with posterior spinal fusion with intraoperative traction and 5 with anterior/posterior spinal fusion (APSF). The baseline characteristics, perioperative outcomes, and preoperative and 2-year follow-up data for HRQoL and radiographic measures were compared. **RESULTS:** The groups had similar age, sex, nutritional and seizure status, GMFCS level, and change in CPCHILD scores. The groups had similar curve magnitude (120 vs. 105 degrees, $P=0.330$) and flexibility (28% vs. 40%, $P=0.090$), but the APSF group had less pelvic obliquity (POB) (24 vs. 42 degrees, $P=0.009$). There were similar postoperative major curves (37 vs. 40 degrees, $P=0.350$), but greater correction in POB (33.5 vs. 14 degrees of correction, $P=0.007$) in the traction group. The APSF group had longer anesthesia times (669 vs. 415 min, $P=0.005$), but similar hospital stays, intensive care unit and days intubated, estimated blood loss, cell saver, and red blood cells used. Although the APSF group had twice the rate of complications (22% vs. 40%) during the first 90 days postoperatively, this did not reach statistical significance. **CONCLUSIONS:** Both intraoperative traction and anterior surgery were used to aid correction in severe CP scoliosis. Anterior surgery did not offer superior correction or better HRQoL, and was associated with increased operative times, whereas intraoperative traction was associated with greater correction of POB. Intraoperative traction may be a viable alternative to an anterior release in severe CP scoliosis. **LEVEL OF EVIDENCE:** Level II.

[PMID: 29521937](#)

4. Hip Surveillance in Children with Cerebral Palsy.

Huser A, Mo M, Hosseinzadeh P.

Orthop Clin North Am. 2018 Apr;49(2):181-190. doi: 10.1016/j.ocl.2017.11.006. Epub 2018 Feb 3.

The hip is the second most common involved joint in cerebral palsy. Hip displacement occurs in more than 33% of children with cerebral palsy, with a higher prevalence in nonambulatory children. Hip displacement in this population is typically progressive. Hip dislocation can result in pain and difficulty with sitting and perineal care. Since early stage of hip displacement can be silent, and hip surveillance programs are recommended. Most programs use the degree of hip dysplasia and Growth Motor Function Classification System level for screening recommendations. Treatment depends on the degree of dysplasia, functional status of the patient, and patient's age.

[PMID: 29499819](#)

5. Improved parent-reported mobility and achievement of individual goals on activity and participation level after functional power-training in young children with cerebral palsy: a double-baseline controlled trial.

van Vulpen LF, de Groot S, Rameckers EA, Becher JG, Dallmeijer AJ.

Eur J Phys Rehabil Med. 2018 Mar 7. doi: 10.23736/S1973-9087.18.04921-3. [Epub ahead of print]

BACKGROUND: In children with cerebral palsy (CP), strength training programs to improve walking capacity and participation in activities of daily living are commonly used in clinical practice, despite lacking evidence of its effectiveness. It has been suggested that strength training with high movement velocity could be more effective than traditional resistance training to improve functional abilities such as walking. In a recently published study, we have demonstrated the positive effects of functional high-velocity resistance (power) training on muscle strength and walking capacity in young children with CP. Whether this type of training is also effective in achieving individual predefined goals in daily activities and self-reported mobility limitations, has not yet been described however. **AIM:** To evaluate the effect of functional power-training on parent-reported mobility and achievement of individual goals on activity and participation level in young children with CP. **DESIGN:** A double-baseline design was used to compare a 14-week period usual care with a 14-week period of functional power-training (3 times a week) and a follow-up period of 14-weeks. **POPULATION:** Twenty-two children with spastic CP (13 bilateral, GMFCS level I (N=10) and level II (N=12), mean age 7.5 years (SD 1.8, range 4-10 y)) and their parents participated. **METHODS:** Outcome measures were goal attainment scaling (GAS) of individual daily activity related treatment goals, mobility performance as measured using the Functional Mobility Scale (FMS-5m, 50m and 500m), and the parent-reported

Mobility Questionnaire (MobQues). RESULTS: After power-training, 86% of children achieved or exceeded their goal, compared with 14% in the usual care period ($p < .001$). The probability of improvement by one point or more on the FMS- 500 meter after functional power-training was 10 times higher, compared with the usual care period (Relative Risk=10.0 with 95% CI 1.4 - 71.3). No changes were found in the FMS-5m and FMS-50m categories. Improvement on the MobQues was significantly greater after power-training compared with usual care (7.9% (95% CI 2.7 - 13.0, $p = .005$)). The improvement in performance in the activities defined in the treatment goals continued during the follow-up period. CONCLUSIONS AND CLINICAL REHABILITATION IMPACT: The results indicated that functional power- training is an effective training to achieve personalized treatment goals for activities in daily life and parent-reported mobility performance in young children with cerebral palsy.

[PMID: 29517188](#)

6. The efficacy of functional gait training in children and young adults with cerebral palsy: a systematic review and meta-analysis.

Booth ATC, Buizer AI, Meyns P, Oude Lansink ILB, Steenbrink F, van der Krogt MM.

Dev Med Child Neurol. 2018 Mar 7. doi: 10.1111/dmcn.13708. [Epub ahead of print]

AIM: The aim of this systematic review was to investigate the effects of functional gait training on walking ability in children and young adults with cerebral palsy (CP). METHOD: The review was conducted using standardized methodology, searching four electronic databases (PubMed, Embase, CINAHL, Web of Science) for relevant literature published between January 1980 and January 2017. Included studies involved training with a focus on actively practising the task of walking as an intervention while reporting outcome measures relating to walking ability. RESULTS: Forty-one studies were identified, with 11 randomized controlled trials included. There is strong evidence that functional gait training results in clinically important benefits for children and young adults with CP, with a therapeutic goal of improved walking speed. Functional gait training was found to have a moderate positive effect on walking speed over standard physical therapy (effect size 0.79, $p = 0.04$). Further, there is weaker yet relatively consistent evidence that functional gait training can also benefit walking endurance and gait-related gross motor function. INTERPRETATION: There is promising evidence that functional gait training is a safe, feasible, and effective intervention to target improved walking ability in children and young adults with CP. The addition of virtual reality and biofeedback can increase patient engagement and magnify effects. WHAT THIS PAPER ADDS: Functional gait training is a safe, feasible, and effective intervention to improve walking ability. Functional gait training shows larger positive effects on walking speed than standard physical therapy. Walking endurance and gait-related gross motor function can also benefit from functional gait training. Addition of virtual reality and biofeedback shows promise to increase engagement and improve outcomes.

[PMID: 29512110](#)

7. Effect of botulinum toxin type A treatment in children with cerebral palsy: Sequential physical changes for 3 months after the injection.

Matsuda M, Tomita K, Yozu A, Nakayama T, Nakayama J, Ohguro H, Iwasaki N.

Brain Dev. 2018 Mar 3. pii: S0387-7604(18)30035-4. doi: 10.1016/j.braindev.2018.02.003. [Epub ahead of print]

PURPOSE: This study investigated the sequential physical changes after botulinum toxin type A (BTX-A) injected in children with cerebral palsy. METHODS: Nine children with cerebral palsy were included. Measurements were performed before treatment and 4 weeks, 8 weeks, and 12 weeks after treatment. We used video-recorded gait in the sagittal plane. The maximum flexion and extension angles of the hip, knee and ankle joints, step length, gait speed, and observational gait were measured using the Foot Contact Scale (FCS) and the Physician's Rating Scale (PRS). We also measured the lower limb range of motion (ROM), Modified Tardieu Scale (MTS), knee joint extension torque, and Gross Motor Function Measure-66 (GMFM-66). RESULTS: The ankle dorsiflexion ROM, GMFM-66, and the maximum dorsiflexion angle of the ankle during gait were significantly increased at 8 weeks after treatment, and knee joint extension torque was significantly increased at 12 weeks after treatment. CONCLUSION: Maximum effects of BTX-A treatment do not occur during the early stage after treatment. Therefore, long-term intervention with rehabilitation between BTX-A treatment may be more effective than implementing rehabilitation for only a brief period.

[PMID: 29510955](#)

8. Botulinum toxin: did the black box warning change how we treat children with cerebral palsy?

Kolaski K.

Dev Med Child Neurol. 2018 Mar 5. doi: 10.1111/dmcn.13719. [Epub ahead of print]

[This commentary is on the original article by Swinney et al.]

[PMID: 29504648](#)**9. Functional mobility and self-care outcomes after multilevel orthopaedic surgery in children with cerebral palsy.**

Thomason P.

Dev Med Child Neurol. 2018 Mar 8. doi: 10.1111/dmcn.13734. [Epub ahead of print]

[This commentary is on the original article by Dequeker et al.]

[PMID: 29517129](#)**10. Diagnostic performance of body mass index to identify excess body fat in children with cerebral palsy.**

Duran I, Schulze J, Martakis K, Stark C, Schoenau E.

Dev Med Child Neurol. 2018 Mar 7. doi: 10.1111/dmcn.13714. [Epub ahead of print]

AIM: To assess the diagnostic performance of body mass index (BMI) cut-off values according to recommendations of the World Health Organization (WHO), the World Obesity Federation (WOF), and the German Society for Adiposity (DAG) to identify excess body fat in children with cerebral palsy (CP). METHOD: The present study was a monocentric retrospective analysis of prospectively collected data among children and adolescents with CP participating in a rehabilitation programme. Excess body fat was defined as a body fat percentage above the 85th centile assessed by dual-energy X-ray absorptiometry. RESULTS: In total, 329 children (181 males, 148 females) with CP were eligible for analysis. The mean age was 12 years 4 months (standard deviation 2y 9mo). The BMI cut-off values for 'overweight' according to the WHO, WOF, and DAG showed the following sensitivities and specificities for the prediction of excess body fat in our population: WHO: sensitivity 0.768 (95% confidence interval [CI] 0.636-0.870), specificity 0.894 (95% CI 0.851-0.928); WOF: sensitivity 0.696 (95% CI 0.559-0.812), specificity 0.934 (95% CI 0.898-0.960); DAG: sensitivity 0.411 (95% CI 0.281-0.550), specificity 0.993 (95% CI 0.974-0.999). INTERPRETATION: Body mass index showed high specificity, but low sensitivity in children with CP. Thus, 'normal-weight obese' children with CP were overlooked, when assessing excess body fat only using BMI. WHAT THIS PAPER ADDS: Excess body fat in children with cerebral palsy (CP) is less common than previously reported. Body mass index (BMI) had high specificity but low sensitivity in detecting excess body fat in children with CP. BMI evaluation criteria of the German Society for Adiposity could be improved in children with CP.

[PMID: 29512149](#)**11. Consensus guidelines on the use of bisphosphonate therapy in children and adolescents.**

Simm PJ, Biggin A, Zacharin MR, Rodda CP, Tham E, Siafarikas A, Jefferies C, Hofman PL, Jensen DE, Woodhead H, Brown J, Wheeler BJ, Brookes D, Lafferty A, Munns CF; APEG Bone Mineral Working Group.

J Paediatr Child Health. 2018 Mar;54(3):223-233. doi: 10.1111/jpc.13768.

Bisphosphonate therapy is the mainstay of pharmacological intervention in young people with skeletal fragility. The evidence of its use in a variety of conditions remains limited despite over three decades of clinical experience. On behalf of the Australasian Paediatric Endocrine Group, this evidence-based consensus guideline presents recommendations and discusses the graded evidence (using the GRADE system) for these recommendations. Primary bone fragility disorders such as osteogenesis imperfecta are considered separately from osteoporosis secondary to other clinical conditions (such as cerebral palsy, Duchenne muscular dystrophy). The use of bisphosphonates in non-fragility conditions, such as fibrous dysplasia, avascular necrosis, bone cysts and hypercalcaemia, is also discussed. While these guidelines provide an evidence-based approach where possible, further research is required in all clinical applications in order to strengthen the recommendations made.

[PMID: 29504223](#)

12. Bone mineral density and nutritional status in children with quadriplegic cerebral palsy.

Alvarez Zaragoza C, Vasquez Garibay EM, García Contreras AA, Larrosa Haro A, Romero Velarde E, Rea Rosas A, Cabrales de Anda JL, Vega Olea I.

Arch Osteoporos. 2018 Mar 4;13(1):17. doi: 10.1007/s11657-018-0434-8.

This study demonstrated the relationship of low bone mineral density (BMD) with the degree of motor impairment, method of feeding, anthropometric indicators, and malnutrition in children with quadriplegic cerebral palsy (CP). The control of these factors could optimize adequate bone mineralization, avoid the risk of osteoporosis, and would improve the quality of life. **PURPOSE:** The purpose of the study is to explore the relationship between low BMD and nutritional status in children with quadriplegic CP. **METHODOLOGY:** A cross-sectional analytical study included 59 participants aged 6 to 18 years with quadriplegic CP. Weight and height were obtained with alternative measurements, and weight/age, height/age, and BMI/age indexes were estimated. The BMD measurement obtained from the lumbar spine was expressed in grams per square centimeter and Z score (Z). Unpaired Student's t tests, chi-square tests, odds ratios, Pearson's correlations, and linear regressions were performed. **RESULTS:** The mean of BMD Z score was lower in adolescents than in school-aged children ($p = 0.002$). Patients with low BMD were at the most affected levels of the Gross Motor Function Classification System (GMFCS). Participants at level V of the GMFCS were more likely to have low BMD than levels III and IV [odds ratio (OR) = 5.8 (confidence interval [CI] 95% 1.4, 24.8), $p = 0.010$]. There was a higher probability of low BMD in tube-feeding patients [OR = 8.6 (CI 95% 1.0, 73.4), $p = 0.023$]. The probability of low BMD was higher in malnourished children with weight/age and BMI indices [OR = 11.4 (1.3, 94), $p = 0.009$] and [OR = 9.4 (CI 95% 1.1, 79.7), $p = 0.017$], respectively. **CONCLUSION:** There was a significant relationship between low BMD, degree of motor impairment, method of feeding, and malnutrition. Optimizing these factors could reduce the risk of osteopenia and osteoporosis and attain a significant improvement of quality of life in children with quadriplegic CP.

[PMID: 29504042](#)

13. An Unreported Cause of Intrathecal Baclofen Withdrawal Symptoms in a Woman With Spastic Cerebral Palsy Who Received Intrathecal Gablofen.

Duraski SA, Sayyad A.

J Neurosci Nurs. 2018 Apr;50(2):116-119. doi: 10.1097/JNN.0000000000000355.

This article details an unreported potential cause of withdrawal symptoms in a patient with cerebral palsy who experienced intrathecal baclofen withdrawal shortly after placement of a baclofen pump with subsequent refill with Gablofen. Initial implantation of the baclofen pump with Lioresal occurred after a successful hospital trial of intrathecal injection via lumbar puncture. However, later, the patient did experience signs and symptoms of baclofen withdrawal after a pump refill was performed with Gablofen.

[PMID: 29521737](#)

14. Symptomatic hallux valgus and dorsal bunion in adolescents with cerebral palsy: clinical and biomechanical factors.

van de Velde SK, Cashin M, Johari R, Blackshaw R, Khot A, Graham HK.

Dev Med Child Neurol. 2018 Mar 8. doi: 10.1111/dmcn.13724. [Epub ahead of print]

AIM: The prevalence of severely symptomatic deformities of the first metatarsophalangeal (MTP) joint in adolescents with cerebral palsy (CP) requiring arthrodesis is unknown. Recent literature regarding these deformities is limited. We studied the presentation of severe, symptomatic deformities of the first ray in a large population of children and adolescents with CP and their association with gross motor function, CP subtype, and other musculoskeletal deformities. **METHOD:** We identified 41 patients with CP and a symptomatic deformity of the first MTP joint, managed by arthrodesis, from a large population based database over a 21-year period. Information recorded included demographics, CP subtype, Gross Motor Function Classification System (GMFCS), clinical presentation, and radiological features. **RESULTS:** Adolescents with spastic diplegia, at GMFCS levels II and III, were the most common group to develop symptomatic hallux valgus. In contrast, non-ambulant adolescents, at GMFCS levels IV and V, with dystonia or mixed tone, more commonly had dorsal bunions. **INTERPRETATION:** The type of first MTP joint deformity in patients with CP may be predicted by the type and distribution of movement disorder, and by GMFCS level. Specific patterns of associated musculoskeletal deformities may contribute to the development of these disorders and may provide a guide to surgical management. **WHAT THIS PAPER ADDS:** The prevalence of severe bunions requiring fusion surgery was 2%. The two types of bunion were hallux valgus and dorsal bunion. The type of bunion can be identified on both clinical and radiological grounds. The cerebral palsy subtype is predictive of the type of bunion.

[PMID: 29517110](#)

15. Caregivers' experiences of feeding children with cerebral palsy: a systematic review protocol of qualitative evidence.

Taylor C, Zhang M, Foster J, Novak I, Badawi N.

JBIS Database System Rev Implement Rep. 2018 Mar;16(3):589-593. doi: 10.11124/JBISRIR-2017-003521.

The overall objective of this systematic review is to identify, critically appraise and synthesize the literature regarding the feeding experiences of caregivers who care for children with cerebral palsy. The specific review question is: What are the experiences of caregivers feeding children with cerebral palsy?

[PMID: 29521856](#)

16. Sentence stress in children with dysarthria and cerebral palsy.

Kuschmann A, Lowit A.

Int J Speech Lang Pathol. 2018 Mar 8:1-11. doi: 10.1080/17549507.2018.1444093. [Epub ahead of print]

PURPOSE: This study aimed to advance our understanding of how children with dysarthria and cerebral palsy (CP) realise sentence stress acoustically, and how well listeners could identify the position of the stressed word within these utterances. **METHOD:** Seven children with CP and eight typically developing children participated in the experiment. Stress on target words in two sentence positions was elicited through a picture-based question-answer paradigm. Acoustic parameters of stress [duration, intensity and fundamental frequency (F0)] were measured and compared between stressed and unstressed target words. For the perception experiment, ten listeners were asked to determine the position of the stressed word in the children's productions. **RESULT:** Acoustic measures showed that at group level the typically developing children used all three acoustic parameters to mark sentence stress, whereas the children with CP showed changes in duration only. Individual performance variations were evident in both groups. Perceptually, listeners were significantly better at identifying the stressed words in the utterances produced by the typically developing children than those of the children with CP. **CONCLUSION:** The results suggest that children with CP can manipulate temporal speech properties to mark stress. This ability to modulate acoustic-prosodic features could be harnessed in intervention to enhance children's functional communication.

[PMID: 29516763](#)

17. Breast cancer screening in women with cerebral palsy: Could care delivery be improved?

Nandam N, Gaebler-Spira D, Byrne R, Wolfman J, Reis JP, Hung CW, Todd A, Durkin J, Marciniak C.

Disabil Health J. 2018 Feb 17. pii: S1936-6574(18)30037-2. doi: 10.1016/j.dhjo.2018.02.002. [Epub ahead of print]

BACKGROUND: Women with disabilities (WWD) have reported lower mammography rates than the general population, however rates for women with cerebral palsy (CP) have not been specifically studied. **OBJECTIVE:** To evaluate mammography rates in women with CP and to identify strengths and barriers with their screening experience. **METHODS:** Women with CP 40 years or older (n = 118) participating in a prospective cross-sectional survey were queried regarding screening status, imaging modality, and accommodation needs and availability. Categorical variables were summarized and Chi-square testing used to assess factors contributing to screening compliance. The effect of functional factors on screening was evaluated using logistic regression. **RESULTS:** 77 women (65.3%) had mammograms within the past two years; 56 (47.5%) were screening mammograms. Severity of fine motor deficits was associated with lack of screening (OR 0.559, p = 0.019). 85 (72.0%) experienced positive staff attitudes. Facilities most often met needs for ramps, elevators, and/or wide doorways (92.9%), exam explanations (84.4%), and accessible parking (82.5%). Needs least often met included accommodations for standing (59.3%) or for difficulties with arm/shoulder positioning (57.1%), and wheelchair-accessible mammogram machines (59.1%). **CONCLUSIONS:** The screening compliance rate for women with CP is low, although the 2-year mammography rate is comparable to that reported for WWD and the general female U.S. **POPULATION:** Women were usually offered respectful care. Adequate physical accommodations during the procedure were reported less often than overall facility environmental accommodations. These findings demonstrate the need for improved screening rates in women with CP, and highlight areas for improving their screening experience.

[PMID: 29500093](#)

18. Depression, posttraumatic stress and relationship distress in parents of very preterm infants.

Winter L, Colditz PB, Sanders MR, Boyd RN, Pritchard M, Gray PH, Whittingham K, Forrest K, Leeks R, Webb L, Marquart L, Taylor K, Macey J.

Arch Womens Ment Health. 2018 Mar 3. doi: 10.1007/s00737-018-0821-6. [Epub ahead of print]

To determine the prevalence, associated factors, and relationships between symptoms of depression, symptoms of posttraumatic stress (PTS), and relationship distress in mothers and fathers of very preterm (VPT) infants (<32 weeks). Mothers (n = 323) and fathers (n = 237) completed self-report measures on demographic and outcome variables at 38 days (SD = 23.1, range 9-116) postpartum while their infants were still hospitalised. Of mothers, 46.7% had a moderate to high likelihood of depression, 38.1% had moderate to severe symptoms of PTS, and 25.1% were in higher than average relationship distress. The corresponding percentages in fathers were 16.9, 23.7, and 27%. Depression was positively associated with having previous children (p = 0.01), speaking little or no English at home (p = 0.01), financial stress (p = 0.03), and recently accessing mental health services (p = 0.003) for mothers, and financial stress (p = 0.005) and not being the primary income earner (p = 0.04) for fathers. Similar associations were found for symptoms of PTS and relationship distress. Being in higher relationship distress increased the risk of depression in both mothers (p < .001) and fathers (p = 0.03), and PTS symptoms in mothers (p = 0.001). For both mothers and fathers, depression was associated with more severe PTS symptoms (p < .001). Fathers of VPT infants should be screened for mental health problems alongside mothers, and postpartum parent support programs for VPT infants should include strategies to improve the couple relationship.

[PMID: 29502280](#)

Prevention and Cure

19. Genetic Variation, Magnesium Sulfate Exposure, and Adverse Neurodevelopmental Outcomes Following Preterm Birth.

Clark EAS, Weiner SJ, Rouse DJ, Mercer BM, Reddy UM, Iams JD, Wapner RJ, Sorokin Y, Malone FD, O'Sullivan MJ, Peaceman AM, Hankins GDV, Dudley DJ, Caritis SN; Eunice Kennedy Shriver National Institute of Child Health Human Development Maternal-Fetal Medicine Units (MFMU) Network.

Am J Perinatol. 2018 Mar 6. doi: 10.1055/s-0038-1635109. [Epub ahead of print]

OBJECTIVE: To evaluate the association of magnesium sulfate (MgSO₄) exposure and candidate gene polymorphisms with adverse neurodevelopmental outcomes following preterm birth. **STUDY DESIGN:** We performed a nested case-control analysis of a randomized trial of maternal MgSO₄ before anticipated preterm birth for the prevention of cerebral palsy (CP). Cases were children who died within 1 year of life or were survivors with abnormal neurodevelopment at age 2 years. Controls were race- and sex-matched survivors with normal neurodevelopment. We analyzed 45 candidate gene polymorphisms in inflammation, coagulation, and vascular regulation pathways and their association with (1) psychomotor delay, (2) mental delay, (3) CP, and (4) combined outcome of death/CP. Logistic regression analyses, conditional on maternal race and child sex, and adjusted for treatment group, gestational age at birth and maternal education, were performed. **RESULTS:** Four hundred and six subjects, 211 cases and 195 controls, were analyzed. The strongest association was for IL6R (rs 4601580) in which each additional copy of the minor allele was associated with an increased risk of psychomotor delay (adjusted odds ratio 3.3; 95% confidence interval, 1.7-6.5; p < 0.001). **CONCLUSION:** Candidate gene polymorphisms are associated with death and adverse neurodevelopmental outcomes following preterm birth. MgSO₄ may abrogate this genotype association for some loci.

[PMID: 29510423](#)

20. Potential Impact on Development: More Evidence for Risk-Appropriate Neonatal Care.

Stark AR, Papile L.

J Pediatr. 2018 Mar 5. pii: S0022-3476(18)30024-6. doi: 10.1016/j.jpeds.2018.01.020. [Epub ahead of print]

[No abstract available]

[PMID: 29514742](#)

21. Skepticism, cerebral palsy, and the General Movements Assessment.

Maitre N.

Dev Med Child Neurol. 2018 Mar 8. doi: 10.1111/dmcn.13733. [Epub ahead of print]

[This commentary is on the systematic review by Kwong et al.]

[PMID: 29517109](#)