Cerebral palsy research news

Monday 27 April 2026

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Interventions and Management

1.Single cell analysis of muscle contracture in cerebral palsy reveals pro-fibrotic and anti-myogenic stem cell populations with altered cell–cell interactions

Madison Stewart, Lin-Ya Hu, Taryn Loomis, Sarah E Brashear, Lizbeth M De La Torre, Anas Mohamed Sulthan, Marie Villalba, Jon R Davids, Yue Wang, Vedant A Kulkarni, Lucas R Smith

Am J Physiol Cell Physiol – 2026 Apr 23 (Online ahead of print)

Abstract
Muscle contractures in cerebral palsy are characterized by increased stiffness that limits mobility, yet the state of resident stem cells remains unclear. Using single-cell RNA sequencing, skeletal muscle biopsies from children with cerebral palsy and typically developing controls were analyzed to identify alterations in muscle stem cells and fibro-adipogenic progenitors. Muscle stem cells in cerebral palsy demonstrated upregulation of fibrotic genes and downregulation of myogenic genes, while fibro-adipogenic progenitors showed emergence of a highly pro-fibrotic subpopulation. Altered cell–cell signaling between progenitors, muscle stem cells, and immune cells supported contracture progression. These findings identify molecular pathways that may serve as therapeutic targets to reduce muscle contracture in cerebral palsy.
PMID: 42021719

2.The gait performance, sensorimotor cortical activation and their correlation during walking task among children with cerebral palsy: a fNIRS study

Zhilin Jiang, Guocai Xu, Liuxin Qi, Wei Sun, Zhenxiang Tian, Jiangna Wang

BMC Pediatr – 2026 Apr 24 (Online ahead of print)

Abstract
No abstract available.
PMID: 42026514

3.Impact of optimized AFOs on functional outcomes in children with spastic cerebral palsy

Teresa Long Pierce, Alyssa LaForme Fiss, Mark Geil, Karl Barner

J Pediatr Rehabil Med – 2026 Apr 24 (Online ahead of print)

Purpose: This study aimed to compare the immediate functional impact of wearing ankle foot orthoses designed using the Optimal Segment Kinematics and Alignment approach to Rehabilitation versus standard ankle foot orthosis–footwear combinations in children with spastic diplegic cerebral palsy. Methods: Ten participants aged seven to 13 years wore both orthotic types in randomized order and were assessed using the Pediatric Balance Scale, Standardized Walking Obstacle Course, and Six-Minute Walk Test. Results: Pediatric Balance Scale scores were significantly higher when wearing optimized orthoses compared with standard orthoses, while other functional measures were comparable between conditions. Conclusions: Orthosis-footwear combinations designed using the Optimal Segment Kinematics and Alignment approach may improve functional balance and should be considered in orthotic prescription, with further investigation warranted.
PMID: 42029660

4.Constraint-Induced Movement Therapy in Children With Hemiplegic Cerebral Palsy: A Scoping Review of Functional Outcomes and Neuroplasticity-Related Evidence

Maria Grazia Maggio, Maria Chiara Valeri, Raffaela Maione, Angela Militi, Alex Martino Cinnera, Irene Ciancarelli, Rocco Salvatore Calabrò, Giovanni Morone

Ann Rehabil Med – 2026 Apr 22 (Online ahead of print)

Objective: To synthesize evidence on the effects of constraint-induced movement therapy in children with hemiplegic cerebral palsy, with emphasis on upper limb functional outcomes and neuroplasticity-related changes. Methods: A scoping review following PRISMA-ScR guidelines was conducted using four databases to identify studies of children receiving constraint-induced movement therapy with neuroplasticity assessed through neuroimaging or neurophysiological measures. Results: Eleven studies involving 221 children were included. Constraint-induced movement therapy protocols varied in duration, intensity, and setting. Across studies, improvements were reported in upper limb function and spontaneous use, alongside neuroplastic changes such as increased contralateral sensorimotor cortex activation, normalized somatosensory responses, and structural brain adaptations. Adjunctive therapies further enhanced outcomes. Conclusion: Constraint-induced movement therapy promotes cortical reorganization and improves motor function in children with hemiplegic cerebral palsy. Individualized rehabilitation based on neurophysiological profiles may optimize outcomes.
PMID: 42015389

5.Aquatic Therapy for a 13-Year-Old With Severe Central Hypotonia and Motor Impairment Following Post-Transplant Encephalopathy: A Hypothesis-Generating Single-Case Study

Tamotsu Yabumoto, Yuumi Ajioka, Hirofumi Fujii

Physiother Res Int – 2026 Apr;31(2):e70221

Background: Children with severe motor impairments often face significant limitations in physical activity due to high response effort and impaired thermoregulation, leading to secondary physiological decline. Objective: This hypothesis-generating single-case study evaluated the metabolic and body composition trends associated with an environmental optimization model-utilizing buoyancy and thermoneutral water (36°C)-in a 13-year-old with a spastic-dyskinetic cerebral palsy phenotype secondary to post-transplant encephalopathy. Methods: An A-B-A' single-case design was employed. Phase A (baseline) consisted of standard land-based therapy, followed by Phase B (intervention), which included 40-min aquatic sessions twice monthly for 6 weeks. Phase A' (withdrawal) monitored the maintenance of any observed changes. Skeletal muscle mass (SMM) and basal metabolic rate (BMR) were measured bi-weekly using bioelectrical impedance analysis (BIA). Results: Visual analysis using the two-standard deviation (2SD) band method showed that during the intervention phase, SMM and BMR values exceeded the 2SD threshold. These positive shifts were maintained during the withdrawal phase. Segmental analysis indicated that SMM increases were localized to the trunk and lower limbs, rather than a generalized growth-related increase. Conclusion: Aquatic intervention was associated with positive trends in metabolic proxy indicators. These findings suggest that for medically complex children with limited physiological reserve, optimizing the therapeutic environment-by reducing response effort and ensuring thermoneutrality-may provide a critical window for enhancing motor engagement and metabolic health.
PMID: 41999345

6.Adverse neurological events following botulinum toxin type A: A case series of post-injection seizures and paralysis

Qiaozhen Li, Chunqiu Dai, Hongbin Wang, Feng Feng, Xiao Xi, Hong Wang, Hua Yuan, Xiaolong Sun

Case Reports Toxicon X – 2026 Apr 7;30:100255

Abstract
This case series describes neurological adverse events following botulinum toxin type A injection in three patients. Two patients with prior cerebrovascular disease developed seizures after injection in the presence of multiple seizure risk factors, without a definitive causal link established. A third patient, previously healthy, developed severe generalized muscular weakness following cosmetic botulinum toxin injection. Review of clinical manifestations, investigations, and rehabilitation courses highlights the importance of early recognition, accurate diagnosis, and timely intervention to optimize outcomes and prevent serious complications.
PMID: 42027624

7.Ketogenic diet modulates gut microbiota composition in an experimental model of cerebral palsy

Jakssuel Sebastion Dantas Alves, Nathalia Caroline De Oliveira Melo, Ana Elisa Toscano, Raul Manhães-De-Castro, Clevson Xavier Fraga Filho, José Patrocínio Ribeiro Cruz Neto, José Luiz De Brito Alves, Gisélia De Santana Muniz

Nutr Neurosci – 2026 Apr 24 (Online ahead of print)

Background: Cerebral palsy is frequently associated with gastrointestinal dysfunction and gut microbiota dysbiosis. Objective: To evaluate the impact of a ketogenic diet on gut microbiota composition in an experimental model of cerebral palsy.Methods: Male Wistar rats were assigned to healthy or cerebral palsy conditions, with or without ketogenic diet intervention. Cerebral palsy was induced by perinatal anoxia and sensorimotor restriction, followed by dietary intervention. Body weight, intake measures, and fecal microbiota composition were assessed using 16S rRNA sequencing. Results: Cerebral palsy was associated with reduced body weight and marked microbiota alterations, including increased inflammatory-associated taxa and reduced beneficial bacteria. Ketogenic diet intervention in cerebral palsy animals shifted microbiota composition toward increased short-chain fatty acid–producing bacteria and reduced inflammatory-associated taxa. Conclusion: Modulation of gut microbiota may contribute to the neuroprotective and anti-inflammatory effects of the ketogenic diet, supporting its potential role in managing cerebral palsy–associated comorbidities.
PMID: 42026999

8.Outcomes of children and young people with cerebral palsy receiving long-term respiratory support: A systematic review

Rajkumar Dhandayuthapani, Alasdair Campbell, Catherine M McDougall, Florian Gahleitner, Steve Cunningham, Don S Urquhart

Dev Med Child Neurol – 2026 Apr 23 (Online ahead of print)

Aim: To systematically review evidence regarding the impact of long-term respiratory support in children and young people with cerebral palsy. Method: Six databases and grey literature were searched up to January 30, 2025. Screening, data extraction, and quality assessment were conducted independently by reviewers using established bias and evidence-grading frameworks. Results: Four studies with moderate to severe risk of bias were included. Narrative synthesis suggested improvements in sleep study parameters for children receiving long-term respiratory support and improved quality of life for parents, although certainty of evidence was low. Interpretation: There is a significant evidence gap regarding outcomes of long-term respiratory support in children and young people with cerebral palsy, limiting counselling and service planning. Further high-quality research is needed.
PMID: 42026895

9.Evaluation of oral health conditions among children with special health care needs using clinical records

Anran Wang

Front Public Health – 2026 Apr 7;14:1738526

Background: Children with special health care needs experience a high burden of oral disease. Methods: A retrospective cross-sectional analysis of 500 children aged 2–17 years assessed dental caries, gingival health, plaque accumulation, malocclusion, and oral hygiene practices, with regression analyses used to identify associated risk factors. Results: High prevalence of dental caries, gingivitis, poor oral hygiene, and malocclusion was observed. Poor oral hygiene, high plaque index, gingivitis, infrequent brushing, non-use of fluoridated toothpaste, frequent sugar intake, and increasing age were significantly associated with caries risk. Conclusion: Children with special health care needs experience substantial oral health disparities, highlighting the need for targeted preventive strategies, caregiver education, and improved access to appropriate dental services.
PMID: 42022834

10.Vulnerability and Pediatric Pain

S van Rysewyk, D Harrison, A Harvey, E Ilhan

Paediatr Neonatal Pain – 2026 Apr 20;8(2):e70020

Abstract
Healthcare disparities amplify vulnerability to pain in infants and children whose pain is often under-recognized or undertreated. Vulnerability arises through interacting inherent, situational, and pathogenic factors, particularly affecting sick and preterm newborns and children with intellectual disabilities and complex communication needs, including those with cerebral palsy. This conceptual review outlines how these vulnerabilities limit access to adequate pain assessment and management and emphasizes ethical and clinical obligations to minimize harm and improve pain care in these populations.
PMID: 42017122

11.Evaluation of the quality, reliability, and readability of ChatGPT-4 responses related to the treatment and rehabilitation of children with cerebral palsy

Rabia Zorlular, Ali Zorlular

Eur J Pediatr – 2026 Apr 24;185(5)

Abstract
This study aims to evaluate the reliability, quality, and readability of ChatGPT-4's responses to questions about cerebral palsy (CP) and rehabilitation strategies. The 56 most frequently asked questions by families about CP, its treatment, and rehabilitation strategies were divided into five categories and asked in ChatGPT-4. The reliability, quality, and readability of the responses were assessed by two researchers using the modified DISCERN tool, the Global Quality Scale, and the Flesch Reading Ease Scale. Median values for modified DISCERN ranged from 3 to 4, while Global Quality Scale values ranged from 3 to 3.5. The mean readability values assessed with Flesch Reading Ease ranged from 31.47 to 44.84. No statistically significant differences were observed between categories, and interrater agreement was very good for both assessment scales. Conclusion: ChatGPT-4 provides moderate reliability and generally acceptable quality of responses regarding CP treatment and rehabilitation, though readability may be challenging for families. Outputs should be interpreted with caution, and professional supervision remains essential in clinical contexts. What's known: Children with cerebral palsy (CP) receive lifelong rehabilitation. Exercise plays a fundamental role in maintaining functional independence and quality of life, as well as physical development. The use of AI-based tools such as ChatGPT-4 for health information is increasingly widespread; however, uncertainties regarding the reliability, quality, and readability of these tools remain. What is new: Our study shows that ChatGPT-4"s responses to questions about treatment and rehabilitation strategies for children with CP have moderate to good reliability and quality, but low readability.
PMID: 42032341

12.Functional neuromuscular electrical stimulation while exergaming for toe-walking: a retrospective case report

Elise Baron, Nora Bachman

Physiother Theory Pract – 2026 Apr 24 (Online ahead of print)

Case description: An 8-year-old boy presenting with toe-walking and lower extremity muscle weakness underwent 10 physical therapy sessions using traditional techniques, neuromuscular electrical stimulation, and an immersive exergaming platform to address standing and gait function. Intervention: The intervention focused on strengthening the gastrocnemius muscles using task-specific neuromuscular electrical stimulation, with the goal of achieving flat-foot posture and functional movement. The exergaming platform provided interactive tasks to maintain motivation and reinforce full plantar contact and controlled movement, with all exergame participation completed concurrently with neuromuscular electrical stimulation. Outcomes: Improvements were observed in plantarflexion strength, gait function, and balance. Heel raises increased substantially bilaterally, and full plantar surface contact was achieved during standing activities. Conclusion: Combining exergaming with neuromuscular electrical stimulation may enhance engagement and tolerability of physical therapy and support functional outcomes such as reduced toe-walking.
PMID: 42028891

13.Validity of bioelectrical impedance analysis to estimate body composition in patients with severe motor and intellectual disabilities

Taiyu Kurima, Yukiyo Shimizu, Yasushi Hada, Tomohiro Nakayama

Brain Dev – 2026 Apr 21;48(3):104536

Abstract
This study evaluated the validity of bioelectrical impedance analysis compared with dual-energy X-ray absorptiometry in patients with severe motor and intellectual disabilities. Twelve patients underwent body composition assessment using both methods. Bioelectrical impedance analysis demonstrated excellent validity for fat-free mass and body fat mass, with minimal mean bias, but lower validity and substantial underestimation for percentage body fat. Wide limits of agreement and proportional bias were observed, particularly for increasing adiposity and limb measurements. Bioelectrical impedance analysis may be useful for group-level assessment, but caution is required when interpreting individual measurements, especially percentage body fat.
PMID: 42019160

14.Clinical Integration of a Goal-Specific Virtual-Reality Biofeedback Treadmill Training Program for Children with Cerebral Palsy

Gilad Sorek, Itai Schurr, Simon-Henri Schless

Phys Occup Ther Pediatr – 2026 Apr 22 (Online ahead of print)

Aims: To conduct a preliminary evaluation of the effectiveness of a clinical virtual-reality treadmill-based biofeedback intervention in children and adolescents with cerebral palsy. Methods: Retrospective data were analyzed from 17 children with cerebral palsy who completed a series of virtual-reality treadmill-based biofeedback training sessions. Spatiotemporal gait parameters, dimensionless walking speed, gait profile scores, gait variable scores, and kinematic waveforms were assessed. Results: Significant improvements were observed in dimensionless walking speed, step length of the more-involved leg, and reduced variance in most spatiotemporal parameters, with high adherence to the program. Conclusions: Reductions in spatiotemporal gait deviations were observed following virtual-reality treadmill-based biofeedback training, supporting its potential clinical utility for individuals with cerebral palsy despite no consistent improvement in knee extension angle.
PMID: 42017438

15.Genetic testing and genetic findings in Korean children with cerebral palsy

You Gyoung Yi, Jeong-Yi Kwon, Jayoung Choi, Dong-Wook Rha, Juntaek Hong, Yong Beom Shin, Shin-Seung Yang, Sangwon Hwang, Sunyoung Joo, Dae-Hyun Jang

Dev Med Child Neurol – 2026 Apr 25 (Online ahead of print)

Aim: To determine the testing rate and pathogenic or probably pathogenic positivity rate of genetic testing in children with cerebral palsy (CP) in Korea using data from a nationwide multicentre registry, and to identify clinical features associated with positive genetic findings. Method: Baseline data from 539 children enrolled in the Korean Cerebral Palsy Registry were analysed. Genetic testing modalities included chromosomal microarray, whole-exome sequencing, whole-genome sequencing, clinical exome sequencing, and karyotyping. Pathogenic and probably pathogenic variants were categorized into primary genetic contributors to CP, genetic motor disorders outside the CP construct, diagnostic interface cases between CP and other genetic motor disorders, and co-occurring genetic conditions. Results: Among 539 children (304 males), 92 (17.1%) underwent genetic testing, yielding a pathogenic or probably pathogenic positivity rate of 37.0%. Primary genetic contributors to CP accounted for 35.3% of positive results and genetic motor disorders outside the CP construct for 8.8%. Positive findings were more frequent in children born at 32 or more weeks without perinatal risk factors, or presenting dyskinetic features or atypical magnetic resonance imaging patterns. Clinicians most frequently requested testing because of absent perinatal risk factors or atypical magnetic resonance imaging findings. Interpretation: Genetically relevant variants were identified in over one-third of tested children, especially those with atypical phenotypes or absent perinatal risk factors. These findings support incorporating genomic testing into routine CP evaluation, particularly for cryptogenic or atypical presentations.
PMID: 42033120

16.Pregnancy outcomes among individuals with cerebral palsy: A population-based cohort study

Marina Vainder, Anne Berndl, Aditi Patrikar, Hilary K Brown

BJOG – 2026 Apr 22 (Online ahead of print)

Abstract
This population-based cohort study examined maternal, neonatal, and medical complications among individuals with cerebral palsy compared to those without cerebral palsy in Ontario, Canada. Females aged 13–54 years with a livebirth or stillbirth between 2004 and 2023 were included. After adjustment for socio-demographic factors, individuals with cerebral palsy had increased risks of severe maternal morbidity or mortality, caesarean section, hospital readmission, and non-obstetrical complications such as seizure disorders and urinary tract infections. Newborns of individuals with cerebral palsy were at higher risk of preterm birth, small for gestational age status, congenital anomalies, and severe neonatal morbidity or mortality. These findings indicate a need for enhanced preconception counselling, perinatal monitoring, and multidisciplinary care for individuals with cerebral palsy.
PMID: 42020348

17.“Between Strain and Perceptions,” The Voices of Family Caregivers Involved in the Care of Children with Cerebral Palsy: Evidence from a Ghanaian Low Socioeconomic Setting

Shafawu Adamu, Vivian Efua Senoo-Dogbey, Prosper Junior Anatsui, Monica Charlotte Akpagloh, Delali Adwoa Wuaku, Esther Anaba, Wilson Atara Asakia

Sage Open Pediatr – 2026 Apr 16;13:30502225261441988

Background: Families caring for children with cerebral palsy in rural Ghana face significant physical, emotional, and financial challenges. Methods: A qualitative descriptive exploratory study was conducted with 15 caregivers using interviews guided by the ABC-X model and analyzed through reflexive thematic analysis. Results: Two main themes emerged, encompassing caregiver perceptions and role-related challenges. Caregivers reported varying levels of understanding of cerebral palsy, substantial physical and financial burden, social strain, and the impact of stigma and cultural beliefs on care-seeking behaviors. Conclusion: Caregivers experience multidimensional burdens exacerbated by limited knowledge and societal stigma. Interventions targeting education, psychosocial support, stigma reduction, and strengthened community-based and biomedical services are needed to improve caregiver and child well-being.
PMID: 42011211

18.Cerebral palsy in Brazil: A landmark step toward population-based surveillance in Latin America

Eduardo Cuestas

Dev Med Child Neurol – 2026 Apr 20 (Online ahead of print)

Abstract
No abstract available.
PMID: 42008795

19.Ultrasound-derived diaphragmatic kinematic and morphometry parameters in children with cerebral palsy: a comparative cross-sectional study

Paulo A F Magalhães, Thálita R L Crispim, Fabianne M N A Dantas, Helga C Muniz, Bárbara Bernardo R S Figueiredo, Emanuelle F D Schmit, Cyda M A Reinaux

Eur J Pediatr – 2026 Apr 22;185(5):290

Abstract
This study evaluated diaphragmatic mechanics and morphometry in children with cerebral palsy compared with typically developing controls using ultrasound. One hundred and two participants were assessed for diaphragmatic excursion, thickness, and contraction and relaxation velocity. Unadjusted analyses demonstrated reduced expiratory excursion and shorter respiratory times in children with cerebral palsy, alongside increased inspiratory thickness and velocity. After adjusting for demographic, anthropometric, and clinical confounders, inspiratory differences were no longer significant, while reduced expiratory excursion and expiratory time remained independently associated with cerebral palsy, particularly in nonambulatory children. These findings identify expiratory dysfunction as a distinct marker of respiratory impairment in cerebral palsy and highlight the need for careful adjustment when interpreting diaphragmatic ultrasound findings.
PMID: 42020792

20.Trends in Reconstructive Hip Surgery for Cerebral Palsy in U.S. Community Hospitals Before and After Publication of National Hip Surveillance Guidelines

Shana Kong, Jingyanshan Li, Shannon Tse, Miriam A Nuño, Amanda T Whitaker

J Pediatr Soc North Am – 2026 Feb 18;15:100343

Background: Hip surveillance guidelines have been introduced by the Australian (AusACPDM, 2008) and American Academy for Cerebral Palsy and Developmental Medicine (AACPDM, 2016) to screen for hip displacement in children with cerebral palsy (CP). Whether these guidelines are associated with changes in surgical management remains unknown. This study compares trends in hip osteotomy rates among children with CP in the United States using a national database before and after the publication of national hip surveillance guidelines. Methods: International Classification of Diseases (ICD-9)-CM and ICD-10-CM codes were used to identify hospital admissions for hip osteotomies in children <20 years old with CP from the Healthcare Cost and Utilization Project (HCUP) Kids' Inpatient Database (KID) from 1997 to 2019. Cases without an admission month were excluded. National estimates of CP-related hospital cases, osteotomy (acetabular, proximal femoral) rates, and hip dislocations were calculated using weighted variables provided by HCUP. The average monthly osteotomy rates were compared using one-way analysis of variance (ANOVA) for the periods before and after guideline establishments. Baseline patient characteristics were also analyzed using either chi-squared tests or one-way ANOVA. Results: From 1997 to 2019, 318,367 weighted CP admissions were recorded, demonstrating a 44% increase in the annual incidence of CP hospitalizations. Baseline patient characteristics for the periods January 1997 to December 2006 (preAusACPDM), January 2009 to September 2016 (post-AusACPDM, pre-AACPDM), and October 2016 to December 2019 (post-AACPDM) indicates that mean age and length-of-stay (LOS) increased significantly in the post-AACPDM period relative to the two prior time periods ($P < 0.01$). The average monthly osteotomy rate was highest in the pre-AusACPDM period and decreased significantly beginning in the post-AusACPDM period, reaching its lowest level in the post-AACPDM period ($P < 0.01$).
Conclusions: Reconstructive hip surgery rates declined among children with CP treated in U.S. community hospitals represented in the KID database, temporally coinciding with publication of national hip surveillance guidelines. These findings demonstrate an association rather than a causal relationship and may reflect variation in guideline adoption, shifts in care to tertiary referral centers, or evolving surgical practices. Key concepts: (1)Hip surveillance guidelines are screening tools for children with cerebral palsy.(2)Early detection of hip subluxation is crucial for timely orthopaedic interventions.(3)Children with cerebral palsy are undergoing hip osteotomies at older ages with longer stays in recent years.(4)Barriers may exist that prevent adherence to hip surveillance guidelines.(5)Formal guideline implementation may be necessary to improve timely interventions and outcomes.
PMID: 42016017

21.Does Disability Bias Exist in Pediatric Orthopaedic Surgery?

Taylor M Adams, Maria F Canizares, Shanika D Silva, Benjamin J Shore

J Pediatr Soc North Am – 2026 Mar 6;15:100349

Background: Implicit bias among health care providers can influence clinical decision-making and patient outcomes. These unconscious attitudes may be subtly shaping health care interactions and priorities in orthopaedics for complex care delivery in neuromuscular patients. This study assessed implicit disability bias among pediatric orthopaedic providers and examined whether factors such as race, gender, education level, medical specialty, and prior experience working with individuals with disabilities influenced bias levels. Methods: Members of a national pediatric orthopaedic organization were invited via email to complete a Qualtrics survey assessing implicit bias in orthopaedics. Implicit association test (IAT) scores (D-scores) were calculated based on respondent speed and accuracy. Statistical analyses included Fisher's exact tests for categorical data and Wilcoxon rank sum or Kruskal-Wallis rank sum tests for continuous data. The Benjamini-Hochberg procedure adjusted *P* values to control for false discovery rates. Results: Of the 183 providers surveyed, 86 (47%) fully completed the IAT, while 97 (53%) partially completed it. Among full respondents, 71% were male and 29% female, with a mean age range of 35-52 years. IAT scores showed that 73% of providers had a strong preference for abled patients. No significant differences in levels of bias were found across' demographic, educational, and occupational characteristics ($P > .05$). Providers working primarily with complex care patients also showed a strong preference for the physically abled (n = 80, 93%). Conclusions: Pediatric orthopaedic providers exhibited a moderate-to-strong implicit preference for abled patients, regardless of background or experience. These biases persisted even among those frequently treating complex care patients, suggesting that exposure alone may not mitigate bias. Increased education and awareness are needed to address implicit attitudes and their potential impact on patient care. Further research is needed to understand its impact on the care delivered to complex care patients. Key concepts: (1)Disability bias refers to negative attitudes or beliefs about people with disabilities that operate either explicitly or implicitly.(2)Pediatric orthopaedic surgeons demonstrated a strong implicit preference for abled individuals, regardless of provider's background or experience.(3)Implicit bias can undermine communication, skew clinical judgment, and contribute to inequities in access and quality of care for patients with disabilities.(4)Mitigating disability bias requires coordinated strategies that combine individual awareness, disability-focused education, and system-level policies that prioritize accessibility and inclusion.
PMID: 42005369

Prevention and Cure

22.The role of early administration of erythropoiesis-stimulating agents in preterm neonatal neuroprotection: a systematic review and meta-analysis

Maria Argyropoulou, Eleftheria Fotopoulou, Dimitra Kousi, Tania Siahanidou

J Perinatol – 2026 Apr 24 (Online ahead of print)

Background: Prematurity remains a leading cause of neonatal mortality and morbidity, with neurodevelopmental disorders among its most significant complications. Erythropoiesis-stimulating agents have been explored for their neuroprotective potential. Objective: To evaluate whether early prophylactic administration of erythropoiesis-stimulating agents in preterm neonates improves neurodevelopmental outcomes up to 36 months of age. Study design: A systematic search identified 1142 studies, of which ten met inclusion criteria. The meta-analysis included randomized controlled trials reporting Bayley Scales of Infant Development scores or cerebral palsy diagnosis. Results: Across ten studies comprising 2861 preterm infants, narrative synthesis was inconclusive. Meta-analysis showed reduced odds of adverse cognitive outcomes and cerebral palsy in erythropoiesis-stimulating agent–treated groups, with no evidence of publication bias. Sensitivity analyses suggested potential fragility of pooled estimates. Conclusion: Early erythropoiesis-stimulating agent administration may provide cognitive benefits, though standardized methods and longer-term studies are needed to confirm clinical relevance.
PMID: 42032166

23.Cytomegalovirus in pregnancy: prevention, maternal screening, and the role of antivirals

Lisa Hui, Natasha E Holmes, Michelle L Giles, William Rawlinson

Aust Prescr – 2026 Apr;49(2):61–67

Abstract
Cytomegalovirus is the most common congenital infection in Australia and a leading cause of preventable childhood disability. Current Australian guidelines recommend targeted antenatal screening of women at higher risk for infection, with serology testing considered for those with symptoms suggestive of cytomegalovirus. Pregnant women with suspected infection should be promptly referred to maternal–fetal medicine or infectious diseases specialists. High-dose valaciclovir can reduce in utero transmission following first-trimester primary infection, although long-term safety data are limited. Valaciclovir should only be prescribed by clinicians with specific expertise. Universal hygiene counselling, targeted screening, appropriate timing of conception, and structured psychological support are essential components of care.
PMID: 42022261

24.Risk factors associated with neurodevelopmental outcomes at 2–3 years of corrected age in extremely preterm infants

Yu-Lan Yang, Xiao-Li Qu, Shi Zhang, Chun-Jin Peng, Na Luo, Hui Zeng, Zhen Wei

Zhongguo Dang Dai Er Ke Za Zhi – 2026 Apr 15;28(4):458–463

Objectives: To investigate neurodevelopmental outcomes and associated risk factors in extremely preterm infants at 2–3 years of corrected age. Methods: Neurodevelopmental outcomes were compared between extremely preterm infants and term controls, and risk factors for neurodevelopmental impairment were analyzed. Results: Extremely preterm infants demonstrated significantly lower general developmental quotients and higher rates of neurodevelopmental impairment, including cerebral palsy and global developmental delay. Periventricular leukomalacia was identified as a significant risk factor for moderate-to-severe neurodevelopmental impairment, while higher 1-minute Apgar scores were protective. Conclusions: Extremely preterm infants show substantial neurodevelopmental vulnerability at early childhood follow-up, with periventricular leukomalacia emerging as a key risk factor and higher early Apgar scores associated with better outcomes.
PMID: 42015701

25.Neurodevelopmental Disorders Following Fetal Reduction of Triplet Pregnancies: A Nationwide Cohort Study

Mads L Larsen, Steffen E Kristensen, Maria K Rasmussen, Christina E Hoei-Hansen, Olav B Petersen

Am J Obstet Gynecol – 2026 Apr 16 (Online ahead of print)

Background: Triplet pregnancies carry high risks of prematurity and subsequent neurodevelopmental disorders. Fetal reduction from triplets to twins improves short-term obstetric outcomes, but long-term neurodevelopmental outcomes among surviving children remain uncertain. Objectives: To compare the long-term risk of neurodevelopmental disorders among liveborn children from trichorionic triamniotic (TCTA) triplet pregnancies managed with fetal reduction from 3 to 2 fetuses vs no reduction. Study design: We conducted a nationwide, population-based cohort study using the Danish Fetal Medicine Database, linked to national health registries and local prenatal records. We included all TCTA triplet pregnancies diagnosed at the routine first-trimester scan (11-14 weeks' gestation) with estimated due dates from January 1, 2008, through December 31, 2018. Liveborn children were then followed from birth until an outcome of interest, death, emigration, or the end of the study period (December 31, 2022). The outcomes of interest were neurodevelopmental disorders, defined by diagnoses of epilepsy, cerebral palsy, or intellectual disability, combined into a primary composite outcome of any of these disorders. Cumulative incidence through age 15 years was estimated in each group, with death as a competing risk. Moreover, cause-specific hazard ratios (HR) were estimated using multivariable Cox regression with robust variance to account for clustering within pregnancies, adjusted for maternal age, educational level, and assisted reproduction. Results: Among 313 eligible TCTA pregnancies, 219 (70%) underwent 3-2 fetal reduction at a median gestational age of 11+6 weeks (IQR 11+5-12+1), and 87 (28%) did not. Overall, 625 liveborn children were included (399 (64%) from reduced pregnancies and 226 (36%) from nonreduced pregnancies). Over a median follow-up of 9.3 years (IQR 6.5-12.5), 34 children were diagnosed with at least one neurodevelopmental disorder (cumulative incidence at 15 years, 6.6% (95% CI 4.4-9.5%)). Neurodevelopmental disorders were diagnosed in 13 children after reduction and in 21 without. Thus, the cumulative incidence of neurodevelopmental disorders by age 15 was 4.2% (95% CI 2.1-7.5) after 3-2 fetal reduction and 10.7% (95% CI 6.5-16.2%) with no reduction (Gray test, P<0.001). Furthermore, fetal reduction was associated with a lower hazard of neurodevelopmental disorders (adjusted HR, 0.33 (95% CI 0.15-0.71)). For individual disorders, estimates were directionally similar but imprecise due to small numbers; for epilepsy, the adjusted HR was 0.37 (0.14-0.98) following fetal reduction. Among all pregnancies with at least one surviving child, the absolute risk of minimum one child being diagnosed with a neurodevelopmental disorder was 5.9% (12/202) following fetal reduction; however, 19,8% (17/86) without. Conclusion: Among liveborn children from TCTA triplet pregnancies, fetal reduction from 3 to 2 fetuses was associated with a substantially lower long-term risk of severe neurodevelopmental disorders compared with no reduction.
PMID: 42000097