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## Interventions and Management

**1. Acta Paediatr. 2012 Sep 26. doi: 10.1111/apa.12038. [Epub ahead of print]**

**Academic Achievement after Extreme Prematurity: Optimizing Outcomes for Vulnerable Children in Times of Uncertainty.**

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Kennedy Research Center on Intellectual and Developmental Disabilities, University of Chicago Comer Children's Hospital, Section of Developmental and Behavioral Pediatrics, Chicago, IL, 60637, USA.

For the past two decades it has become increasingly recognized that children who survive very preterm birth (28-31 weeks of gestation) and extremely preterm birth (<28 weeks gestation) experience high rates of learning, academic achievement, coordination, and attentional challenges (1, 2). Though there have been declines in rates of cerebral palsy, blindness, and deafness in extremely low birth weight (ELBW:< 1000G) cohorts in the first two years of life, high rates of neuromotor, cognitive, learning and executive function challenges occur in the school years. (3-9) These disorders are manifested by struggles with handwriting and participation in sports, keeping up academically in reading, mathematics, and spelling, and being able to direct attention, focus, plan, organize and remember in the classroom. Recent regional information highlight that a large number of children require special education supports and educational accommodations. (9, 10) It is in this respect that the article by Litt and colleagues is important. (11)

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[PMID: 23009680](https://pubmed.ncbi.nlm.nih.gov/23009680/) [PubMed - as supplied by publisher]

**2. Gait Posture. 2012 Sep 25. pii: S0966-6362(12)00325-6. doi: 10.1016/j.gaitpost.2012.08.020. [Epub ahead of print]**

**Long-term effects after conversion of biarticular to monoarticular muscles compared with musculotendinous lengthening in children with spastic diplegia.**

Dreher T, Vegvári D, Wolf SL, Klotz M, Müller S, Metaxiotis D, Wenz W, Döderlein L, Braatz F.

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Adverse effects such as increased anterior pelvic tilt (APT) are reported after muscle-tendon lengthening (MTL) for the correction of flexed knee gait in cerebral palsy. The conversion of biarticular muscles (CBM) to monoarticular muscles represents an alternative treatment, but only few short-term results have been published, without comparison with MTL. The long-term outcome of 21 diplegic patients treated with CBM in a prospective study was compared with the results in MTL patients in a matched-pair analysis. Standardized clinical examination and three-dimensional gait analysis were done before surgery, 1 year thereafter, and at long-term follow-up a mean of 9.2 years postoperatively. Mean APT increased one year after surgery in both groups. This increase was higher in MTL patients and statistically significant only for this group. Knee flexion at initial contact and minimum knee flexion in stance were significantly decreased in both groups, while in swing the CBM group tended to show more of a decrease in knee flexion but at the cost of reduced peak flexion. Both groups showed deterioration of kinematic knee parameters through to long-term follow-up; the favourable effects of CBM disappeared, and the two groups displayed comparable average pelvic and knee kinematics. Considering individual patterns the prevalence of increased APT was lower in the CBM group 1 year after surgery, indicating that sparing the semitendinosus may have a positive effect on pelvic stability. However, after 9 years 30% of the patients in both groups showed increased APT indicative of persistent hamstring insufficiency. These results demonstrate that CBM, a significantly more extensive procedure, has no long-term advantage over MTL.

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### 3. *Phys Occup Ther Pediatr.* 2012 Sep 26. [Epub ahead of print]

#### **Changes in Muscle Activation Following Ankle Strength Training in Children with Spastic Cerebral Palsy: An Electromyography Feasibility Case Report.**

Olsen JE, Ross SA, Foreman MH, Engsberg JR.

Human Performance Laboratory, Washington University in St. Louis School of Medicine Program in Occupational Therapy, St. Louis, Missouri, United States.

Children with cerebral palsy (CP) are likely to experience decreased participation in activities and less competence in activities of daily living. Studies of children with spastic CP have shown that strengthening programs produce positive results in strength, gait, and functional outcomes (measured by the Gross Motor Function Measure). No investigations have analyzed electromyography (EMG) activity before and after strength training to determine whether any changes occur in the GMFM. This feasibility case report quantified dorsiflexor and plantarflexor muscle activation changes during performance of 3-5 selected GMFM items following a plantarflexor strength training in two children with cerebral palsy. Increased plantarflexor strength and increased ability to selectively activate muscles were found. Little carryover to performance on GMFM items was observed. It is feasible to use EMG during performance on selected GMFM items to evaluate motor control changes following strength training in children with CP.

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### 4. *Res Dev Disabil.* 2012 Sep 18;34(1):386-396. doi: 10.1016/j.ridd.2012.08.019. [Epub ahead of print]

#### **Comprehensive quantification of the spastic catch in children with cerebral palsy.**

Lynn BO, Erwin A, Guy M, Herman B, Davide M, Ellen J, Anne C, Kaat D.

University Hospital, Pellenberg, Clinical Motion Analysis Laboratory, Weligerveld 1, 3212 Pellenberg, Belgium; K.U. Leuven, Department of Rehabilitation Sciences, Tervuursevest 101, 3001 Heverlee, Belgium. Electronic address: lynn.1.bar-on@uzleuven.be.

In clinical settings, the spastic catch is judged subjectively. This study assessed the psychometric properties of objective parameters that define and quantify the severity of the spastic catch in children with cerebral palsy (CP). A convenience sample of children with spastic CP (N=46; age range: 4-16years) underwent objective spasticity

assessments. High velocity, passive stretches were applied to the gastrocnemius (GAS) and medial hamstrings (MEH). Muscle activity was measured with surface electromyography (sEMG), joint angle characteristics using inertial sensors and reactive torque using a force sensor. To test reliability, a group of 12 children were retested after an average of 13±9days. The angle of spastic catch (AOC) was estimated by three biomechanical definitions: joint angle at (1) maximum angular deceleration; (2) maximum change in torque; and (3) minimum power. Each definition was checked for reliability and validity. Construct and clinical validity were evaluated by correlating each AOC definition to the averaged root mean square envelope of EMG (RMS-EMG) and the Modified Tardieu Scale (MTS). Severity categories were created based on selected parameters to establish face validity. All definitions showed moderate to high reliability. Significant correlations were found between AOC3 and the MTS of both muscles and the RMS-EMG of the MEH, though coefficients were only weak. AOC3 further distinguished between mild, moderate and severe catches. Objective parameters can define and quantify the severity of the spastic catch in children with CP. However, a comprehensive understanding requires the integration of both biomechanical and RMS-EMG data.

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## 5. Neuropediatrics. 2012 Sep 25. [Epub ahead of print]

### Validity of Pediatric Balance Scales in Children with Spastic Cerebral Palsy.

Yi SH, Hwang JH, Kim SJ, Kwon JY.

Department of Physical and Rehabilitation Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Republic of Korea.

This study was performed to examine the convergent and discriminant validity of the Pediatric Balance Scale (PBS), a modified version of the Berg Balance Scale (BBS), in children with spastic cerebral palsy (CP). A total of 38 children (age, 4 to 10 years) with spastic CP who could ambulate participated in this study. PBS, equilibrium scores of Sensory Organization Test derived from computerized dynamic posturography, Gross Motor Function Measure (GMFM), and Pediatric Evaluation of Disability Inventory (PEDI) mobility skills were evaluated. With regard to convergent validity, PBS total score was moderately correlated with equilibrium score under the condition with eyes open, fixed foot support and condition with eyes closed, fixed foot support ( $r_s = 0.579$ , eye open;  $r_s = 0.448$ , eye closed;  $p < 0.05$ ). PBS total score was highly correlated with GMFM scores (dimensions D and E; total GMFM-88; and GMFM-66) and capability, of the PEDI mobility domain, and moderately correlated with performance of the PEDI mobility domain. Discriminant validity indicated that PBS total score can distinguish between different Gross Motor Function Classification Scale levels in children with CP. PBS can be considered a simple, valid scale for examining functional balance capacity in children with spastic CP. Furthermore, it can better predict motor capacity and capability than equilibrium score and motor performance.

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## 6. Res Dev Disabil. 2012 Sep 18;34(1):327-334. doi: 10.1016/j.ridd.2012.08.015. [Epub ahead of print]

### Clinical characteristics of impaired trunk control in children with spastic cerebral palsy.

Heyrman L, Desloovere K, Molenaers G, Verheyden G, Klingels K, Monbaliu E, Feys H.

Department of Rehabilitation Sciences, Faculty of Kinesiology and Rehabilitation Sciences, KU Leuven, Tervuursevest 101, 3001 Heverlee, Belgium. Electronic address: Lieve.Heyrman@faber.kuleuven.be.

This study aimed to identify clinical characteristics of impaired trunk control in hundred children with spastic CP (mean age 11.4±2.1 years, range 8-15 years). Assessment of trunk control was performed with the Trunk Control Measurement Scale (TCMS). Trunk control was clearly impaired, indicated by a median total TCMS score of 38.5 out of 58 (66%). Median subscale scores were 18 out of 20 (90%) for the subscale static sitting balance, 16 out of

28 (57%) for the subscale selective movement control and 6 out of 10 (60%) for the subscale dynamic reaching. Total TCMS and subscale scores differed significantly between topographies and severity of motor impairment according to the Gross Motor Function Classification System (GMFCS). Children with hemiplegia obtained the highest scores, followed by children with diplegia and children with quadriplegia obtained the lowest scores. TCMS scores significantly decreased with increasing GMFCS level. In conclusion, trunk control is impaired in children with CP to a various extent, depending on the topography and severity of the motor impairment. The findings of this study also provide specific clues for treatment interventions targeting trunk control to improve their functional abilities.

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## 7. IEEE Trans Neural Syst Rehabil Eng. 2012 May;20(3):361-70. Epub 2012 May 2.

### **Development of a Haptic Elbow Spasticity Simulator (HESS) for improving accuracy and reliability of clinical assessment of spasticity.**

Park HS, Kim J, Damiano DL.

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This paper presents the framework for developing a robotic system to improve accuracy and reliability of clinical assessment. Clinical assessment of spasticity tends to have poor reliability because of the nature of the in-person assessment. To improve accuracy and reliability of spasticity assessment, a haptic device, named the HESS (Haptic Elbow Spasticity Simulator) has been designed and constructed to recreate the clinical "feel" of elbow spasticity based on quantitative measurements. A mathematical model representing the spastic elbow joint was proposed based on clinical assessment using the Modified Ashworth Scale (MAS) and quantitative data (position, velocity, and torque) collected on subjects with elbow spasticity. Four haptic models (HMs) were created to represent the haptic feel of MAS 1, 1+, 2, and 3. The four HMs were assessed by experienced clinicians; three clinicians performed both in-person and haptic assessments, and had 100% agreement in MAS scores; and eight clinicians who were experienced with MAS assessed the four HMs without receiving any training prior to the test. Inter-rater reliability among the eight clinicians had substantial agreement ( $\kappa = 0.626$ ). The eight clinicians also rated the level of realism ( $7.63 \pm 0.92$  out of 10) as compared to their experience with real patients.

[PMID: 22562769](#) [PubMed - indexed for MEDLINE]

## 8. Zh Nevrol Psikhiatr Im S S Korsakova. 2012;112(7):9-13.

### **The problem of rehabilitation of children cerebral palsy [Article in Russian]**

Semenova KA.

Otdelenie vosstanovitel'nogo lecheniia detei s tserebral'nym paralichom Nauchnogo tsentra zdorov'ia detei NII pediatrii RAMN, Moskva.

The paper is devoted to the problem of early diagnosis and correction of development of children with perinatal lesion of the nervous system. Early rehabilitation treatment in children cerebral palsy (CCP) is necessary due to the plasticity of the child's brain and its universal ability to compensate for disturbed functions as well as due to the fact that the first two years of life are optimal for maturation of the speech functional system. Evidence for the differentiation of early, chronic and residual studies of CCP is presented. The authors emphasize the role of the pathology of the functional antigravitation system in the formation of motor-reflex disorders. Possibilities of pathogenetic treatment in each stage of disease are considered.

[PMID: 23011417](#) [PubMed - as supplied by publisher]

**9. Zh Nevrol Psikhiatr Im S S Korsakova. 2012;112(7):24-28.****Spasticity in children cerebral palsy: diagnosis and treatment strategies [Article in Russian]**

Kurenkov AL, Batysheva TT, Vinogradov AV, Ziuziaeva EK.

Nauchno-prakticheskiĭ tsentr detskoĭ psikhonevrologii Departamenta zdravookhraneniia Moskv.

Spasticity in children cerebral palsy has its own peculiarities due to the presence of pathological tonic reflexes, pathological sinkinetic activity during arbitrary movements, disturbance of coordinative interactions of muscle synergists and antagonists, increase of total reflex excitability. Physiotherapeutic methods, massage, therapeutic exercises, kinesitherapy, biological feedback training (BFT), methods of orthopedic correction, neurosurgery are widely used in the treatment of spasticity. The use of botulinum toxin type A is a new effective approach to the treatment of spasticity that improves motor functions and quality of life of children with children cerebral palsy. It is being used in the treatment of children and adolescence in a polyclinic unit of the Moscow psychoneurological hospital since 2001. The experience of treatment with botulinum and wide implementation of this method indicated that botulinum toxin injections in the complex treatment of spasticity allow to optimize approaches to treatment of children and adolescence with children cerebral palsy and to increase significantly the quality of medical-social rehabilitation of patients.

[PMID: 23011422](#) [PubMed - as supplied by publisher]

**10. Zh Nevrol Psikhiatr Im S S Korsakova. 2012;112(7):14-17.****Changes of motor function in patients with cerebral palsy during the treatment using the intensive neurophysiological rehabilitation system [Article in Russian]**

Koziavkin VI, Voloshin TB, Gordievich MS, Kachmar OA.

Mezhdunarodnaia klinika vosstanovitel'nogo lecheniia, Truskavets, Ukraina.

Changes in gross motor function during the intensive neurophysiological rehabilitation were studied in 61 patients, aged from 2 to 15 years, with spastic forms of cerebral palsy. All patients were examined before and at the end of a two-week course of treatment using the Gross Motor Function Measurement GMFM-66 Item Sets test to calculate motor development scores. Statistical analysis indicates a significant increase in the level of motor development of children after treatment from 45.1 to 47.6 ( $p > 0.01$ ). The most significant progress was noted in patients at level II of Gross Motor Function Classification System. The score of motor development has increased from 66.2 to 69.6 ( $p < 0.01$ ). The results suggest the effectiveness of the Intensive Neurophysiological Rehabilitation System for the improvement of gross motor functions in patients with cerebral palsy. It is necessary to continue this study according to the requirements of evidence-based medicine.

[PMID: 23011419](#) [PubMed - as supplied by publisher]

**11. Zh Nevrol Psikhiatr Im S S Korsakova. 2012;112(7):18-23.****The effect of the reflex-load device Gravistat/Graviton on walk stereotype in patients with spastic diplegia [Article in Russian]**

Titarenko NI, Voronov AV.

Nauchnyĭ tsentr zdorov'ia deteĭ RAMN.

We examined 6 children with spastic diplegia who were able to walk independently. We studied effects of different ways of the adjustment of the reflex-load device (RLL) Gravistat/Graviton according to spatial-temporal characteristics of lower extremity muscle work during walking (innervation stereotype) in children with cerebral palsy in the form of spastic diplegia. The positive effect of axial load of RLL on the innervation type of walking was demonstrated. The choice of a specific way of RLL adjustment should be based, in some cases, on the analysis of EMG dynamics.

[PMID: 23011420](#) [PubMed - as supplied by publisher]

**12. Zh Nevrol Psikhiatr Im S S Korsakova. 2012;112(7):34-40.**

**Neurosurgery of the spasticity syndrome in children cerebral palsy [Article in Russian]**

Dekopov AV, Bril' AG, Vinogradov AV, Kurenkov AL.

NII neirokhirurgii im. akad. N.N. Burdenko RAMN.

The review is devoted to main neurosurgical approaches to the treatment of the spasticity syndrome in children cerebral palsy. Neurosurgical procedures are divided into destructive and neuromodulating. The former included posterior selective rhizotomy, selective neurotomy and destructive operations on subcortical brain structures. The latter group included electrostimulation of brain and spinal cord structures and implantation of pumps for the chronic intrathecal baclofen (lioresal) infusion. Each method is considered in a historical aspect. Details of clinical application, positive and negative sides of the methods are described.

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**13. Zh Nevrol Psikhiatr Im S S Korsakova. 2012;112(7):29-33.**

**Efficacy of botulinum toxin in the treatment of dynamic equinus and equinovarus foot deformities in children with hemiplegic cerebral palsy [Article in Russian]**

Kenis VM.

Nauchno-issledovatel'skiĭ detskiĭ ortopedicheskiĭ institut imeni G.I. Turnera, Sankt-Peterburg.

The objective of the study was to assess factors modulating the efficacy of botulinum toxin injections in the correction of dynamic equinus and equinovarus foot deformities in children with hemiplegic cerebral palsy. The efficacy of treatment was evaluated in 40 children. Clinical data including spasticity assessment by the original Ashworth scale, postural and gate changes were collected. Spasticity grade 4-5 by the Ashworth scale and retraction 90-120° reduce the likelihood of successful correction of equinus contracture. Botulinum injections can be used as basic therapy. In cases of transient contracture more than 120°, combined methods of treatment are recommended. The hindfoot varus less 30°, which can be passively corrected before treatment and in the presence of the positive Coleman block test, more likely needs injection in triceps muscle for correction. If the hindfoot varus is more than 30° and the Coleman block test is negative, the combined treatment is necessary.

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**14. Zh Nevrol Psikhiatr Im S S Korsakova. 2012;112(7):41-46.**

**Anesthesia in surgical treatment of patients with cerebral palsy (a review) [Article in Russian]**

Diordiev AV, Aĭzenberg VL, Vinogradov AV, Vaĭnshteĭn DP, Shagurin RV.

Nauchno-prakticheskiĭ tsentr detskoĭ psikhonevrologii.

Anesthesia in surgical treatment and anesthetization in post operative period in patients with children cerebral palsy (CCP) is considered as an actual problem due to some specific features. The authors review the current state of the problem in aspects of efficacy and setting priorities in the development of methods of anesthesia in patients with CCP. Some methods of anesthesia, positive and negative sides of their application in CCP are characterized.

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**15. Zh Nevrol Psikhiatr Im S S Korsakova. 2012;112(7):64-70.****Children cerebral palsy and epilepsy: approaches to treatment and rehabilitation [Article in Russian]**

Bykova OV, Platonova AN, Balkanskaia SV, Batysheva TT.

Nauchno-prakticheskiĭ tsentr detskoĭ psikhonevrologii, Moskva.

Epilepsy is one of the most frequent and difficult for treatment co-morbid disease of cerebral palsy. In therapeutic aspect, the difficulty of the problem is defined by the necessity to combine the active restoration of motor disorders with a regime of antiepileptic treatment. It leads frequently to stopping the restoration process and aggravation of patient's motor disability. The diagnosis of epilepsy in the child with cerebral palsy should in no way discontinue the rehabilitation measures, albeit in case of the concomitant pathology a plan of rehabilitation scheme should be adjusted. The pharmacological control of epileptic seizures should be the first step of the new rehabilitation scheme. Epileptologists usually conduct the selection of multi-component antiepileptic treatment in patients with drug resistant epilepsy, however a neurologist of an outpatient clinics who follows up the patient in different stages of development and rehabilitation should play a key role. The authors suggest the general treatment tactics for children with cerebral palsy and epilepsy by the neurologist of the polyclinics.

[PMID: 23011436](#) [PubMed - as supplied by publisher]

**16. Zh Nevrol Psikhiatr Im S S Korsakova. 2012;112(7):28-31.****Efficacy of reflexology in the combination with neuroprotective treatment in hemiparetic form of children cerebral palsy [Article in Russian]**

Ukhanova TA, Gorbunov FE.

ZAO "Samarskiĭ terapevticheskiĭ kompleks "Reatsentr"

Sixty patients with the diagnosis of cerebral palsy with hemiparesis at the age from 2 to 7 years were treated. All 60 patients had conventional treatment including massage and exercise therapy. Patients were divided into 2 randomized groups. The patients of the first group were given 3 sets of microcurrent reflexology sessions and 2 courses of treatment with cortexin. Patients of the second group were given reflexology treatments only. The microcurrent reflexology treatment included 15 sessions using the apparatus MAKS. Cortexin was introduced intramuscularly in dosage 10 mg. The bottle content was diluted in 2 ml of 0.5% novocaine. The treatment included 10 injections. This treatment showed the beneficial effects: 29 patients of the first group (97%) and 27 patients of the second group (90%) developed some ambulation skills. The progress in complicated manipulative activity of paralyzed upper extremities under microcurrent reflexology with cortexin was 2.2 times more visible in patients of the first group compared to the second one (11 patients (37%) versus 5 patients (17%), respectively). Positive changes in the encephalon functional status according to electroencephalography results were found in 21 patients (71%) of the first group and in 16 patients (53%) of the second group.

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**17. Zh Nevrol Psikhiatr Im S S Korsakova. 2012;112(7):56-63.****Family's adherence to treatment of the child with a neurological pathology [Article in Russian]**

Batysheva TT, Bykova OV, Vinogradov AV.

Nauchno-prakticheskiĭ tsentr detskoĭ psikhonevrologii, Moskva.

Neurological diseases, mental disorders and inherited developmental abnormalities held a prominent place in the structure of primary children disability. Children cerebral palsy is the main cause of children disability, its prevalence reaching 2-3.5 cases per 1000 children. This disease has the noticeable negative consequences (both clinical and economic). Adherence to treatment means patient's compliance with doctor's orders including taking medicines as prescribed, sticking to diet and changing life style habits. While the adult patient plays an active role in doctor-

patient alliance, the child patient interacts with the doctor together with his/her family. The authors consider the effect of different factors on the adherence basing on the analysis of 270 questionnaires completed by persons involved in the treatment of minor patients.

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**18. Zh Nevrol Psikhiatr Im S S Korsakova. 2012;112(7):52-55.**

**Logopedic and psychological-pedagogic maintenance of infants with cerebral palsy [Article in Russian]**

Arkhipova EF.

Moskovskii gosudarstvennyiĭ gumanitarnyiĭ universitet im. M.A. Sholokhova, Moskva.

The problem of perinatal pathology of the nervous system in infants is getting more and more urgent due to the progressive growth of the frequency of cerebral disorders in newborns. This pathology leads to the development of severe motor and speech disorders which inhibit the development of communication skills and social adaptation of children in future. Perinatal factors cause not only neurologic and mental disorders but impede and distort the formation of pre-speech functions, basic for speech development, in infants thus worsening their disability. Patients with cerebral palsy make up 57% of children acknowledged as disabled. Therefore, logopedic diagnostic methods are needed to allow identification of the structure of pre-speech defects in infant period of life, prediction of the level of nervous-mental development, planning and realization of a correction-educational route from the first months of life.

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**19. Zh Nevrol Psikhiatr Im S S Korsakova. 2012;112(7):47-51.**

**One of the approaches to psychological-pedagogical help to children with severe movement disorders [Article in Russian]**

Levchenko II, Simonova TN.

Moskovskii gosudarstvennyiĭ gumanitarnyiĭ universitet im. M.A. Sholokhova.

The objective of the study was to work out an effective model of complex help to children with severe movement disorders. We examined 440 preschoolers with children cerebral palsy with severe movement disorders and 70 children with mild movement disorders. Functions of motor, emotional-personal and cognitive spheres and independence status with determination of 5 levels were studied in 47 patients. Three groups (from the group without concomitant (sensor, intellectual etc) disorders to the group with most severe disorders) were singled out. The authors characterize the model as an open integral system of methods, tools and ways providing the adaptation of children in response to external circumstances and changes in the state of patients. The creation of a correction-developing environment, consisting of 3 components: spatial-objective, technological (methodological) and social, is discussed. We present results of the development of children, evaluated by the following indices: general technique, sensory perceptive development, social adaptation, anxiety, cognitive activity, from 1997 to 2008. The 15 year follow-up demonstrated the stability of achieved positive results.

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## Prevention and Cure

**20. Acta Obstet Gynecol Scand. 2012 Sep 27. doi: 10.1111/aogs.12018. [Epub ahead of print]**

**Does antenatal magnesium sulphate prevent cerebral palsy in preterm infants? The final trial?**

Huusom LD, Brok J, Hegaard HK, Pryds O, Secher NJ.

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Department of Pediatrics, Rigshospitalet, Copenhagen University Hospitals, Copenhagen The Copenhagen Trial Unit, Centre for Clinical Intervention Research, Rigshospitalet, Copenhagen University Hospitals, Copenhagen Clinic of Obstetrics, Rigshospitalet, Copenhagen University Hospitals, Copenhagen Department of Pediatrics, Hvidovre Hospital, Copenhagen University Hospitals, Hvidovre University of Copenhagen, Copenhagen, Denmark.

Cerebral palsy consists of chronic and non-progressive clinical syndromes that are characterized by motor and postural dysfunction. In affected infants, voluntary movements become difficult and limited, and although clinical expression may change with time, this disability is accompanied with major personal and socioeconomic burdens. Preterm infants have an increased risk of cerebral palsy, which is inversely correlated with gestational age at birth (1).

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**21. Acta Obstet Gynecol Scand. 2012 Sep 24. doi: 10.1111/aogs.12014. [Epub ahead of print]**

**Health consequences of prophylactic exposure to antenatal corticosteroids among children born late preterm or term.**

Eriksson L, Haglund B, Ewald U, Odland V, Kieler H.

Centre for Pharmacoepidemiology, Karolinska Institutet, Stockholm Medical Products Agency, Uppsala Department of Women's and Children's Health, Uppsala University, Uppsala, Sweden.

Objective: To investigate effect duration and health consequences of earlier antenatal corticosteroid exposure in infants born late preterm or term. Design: Observational cohort study. Setting: Children born after gestational week 34 in Sweden 1976-1997, whose mothers were hospitalized for imminent preterm delivery. The children were followed to their 11th birthday. Sample: The cohort consisted of 11 873 infants of whom 8 620 were exposed. Methods: Exposure was estimated at hospital level. Infants born at a hospital practicing antenatal corticosteroid administration were classified as exposed. Estimation of hospital routines was based on questionnaire data, telephone interviews with physicians and pharmacy sales, validated in a random sample of medical records. Logistic regression was used to assess associations with adjustments for pregnancy length, birth year and hospital level. Main outcome measures: Rates and odds ratios of mortality, respiratory distress syndrome, bronchopulmonary dysplasia, epilepsy, cerebral palsy, childhood diabetes, birthweight, length and head circumference for all infants, and for preterm and term infants, respectively. Results: Exposed infants had reduced risks of respiratory distress syndrome (odds ratio 0.54, 95% confidence interval 0.35-0.83) and small head circumference (odds ratio 0.47, 95% confidence interval 0.36-0.61), and an increased risk of low Apgar scores (odds ratio 1.40, 95% confidence interval 1.01-1.94), most pronounced in infants born after gestational week 37. Conclusion: Infants born after gestational week 34 seem to benefit from earlier antenatal corticosteroid administration, with reduced risks of respiratory distress syndrome. However, the treatment was less beneficial for term infants as they also had increased risks of low Apgar scores.

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**22. Zh Nevrol Psikhiatr Im S S Korsakova. 2012;112(7):71-76.**

**Features of epileptiform activity on EEG in children with periventricular leukomalacia and cerebral palsy without epilepsy [Article in Russian]**

Mukhin KI, Kuz'mich GV, Balkanskaia SV, Batysheva TT, Kurenkov AL, Gorina TP.

Rossiiskii Natsional'nyi issledovatel'skii meditsinskiĭ universitet im. N.I. Pirogova.

We have analyzed morphologic and chronologic characteristics of epileptiform activity, with account for repeated EEG-study during the follow-up, in patients with periventricular leukomalacia and children cerebral palsy without epilepsy. The high frequency of "benign epileptiform patterns of childhood" (BEPC) was noted. The epileptiform activity recorded by chronologic criteria corresponded to BEPC in 67% of children. The high probability of epileptiform activity of symptomatic character was identified in 33% of children. The results obtained in this study of the parameters of epileptiform activity could be of great importance for predicting the risk for the development of epilepsy and tactics of rehabilitation of motor disorders.

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**23. Zh Nevrol Psikhiatr Im S S Korsakova. 2012;112(7):4-8.**

**Contemporary views of the morphological basis of infant cerebral palsy [Article in Russian]**

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The stages of development of infant cerebral palsy (ICP) in 300 patients during the childhood period, beginning from the neonate period, are presented in this article. Clinico-morphological analysis has been realized in 35 cases with the mortal outcome. It has been established, that combination of the following signs is the morphological basis of ICP: dysontogenetic development of the separate structures of the brain, cerebrovascular disturbances, dystrophic changes of the structural elements of the brain and in number of cases - of the focal inflammation of the brain matter, predominantly in the region of walls of the lateral ventricle of the brain. In parallel with the destructive changes in the brain the compensatory restorative processes have been also observed.

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