

# SEREBRAL PALSIDENDE FİZYOTERAPİ VE REHABİLTASYON

## 8. BÖLÜM

*Arzu ERDEN<sup>1</sup>*

### GİRİŞ

Serebral palsi (SP) doğum öncesi ya da doğumdan sonraki süreçte beyinde meydana gelen ilerleyici rahatsızlıklarla beraberinde getiren, aktivite sınırlamasına neden olan hareket ve postür gelişimindeki kalıcı bir grup bozukluktur (1). SP'ye sıklıkla motor bozukluklar, duyu, propriosepsiyon, bilişsel, iletişimsel ve davranışsal bozukluklar, epilepsi ve sekonder kas-iskelet sistemi sorunları eşlik etmektedir (2). Amerika Birleşik Devletleri'nde yapılan yaygınlık tahminleri son 20 yıldaki 18 yaşın altındaki her 1000 çocuğun yaklaşık yüzde 90'ının yetişkinliğe gecebildiği yönündedir (3-10). ABD'de SP ile yaşayan yetişkin sayısı tahmini 400.000'dir (11-16). SP'li çocukların ve yetişkinler spastisite, beslenme sorunları, zihinsel engellilik ve nöbetler gibi çeşitli durumlardan muzdariptirler. Spastisite, SP'li çocukların ve yetişkinlerin yaklaşık yüzde 70 ila 90'ını etkilemektedir. Yürüyüş, kaba/ince hareketler ve kalça işlev bozukluğu gibi problemler fonksiyonel yetि yitimine yol açabilmektedir (11,17-21). Gastroözofageal reflü ve yutma güçlüğü de beslenme yetersizliklerine neden olabilen diğer durumlardır (22-24). Öğrenme güçlüğü ve davranış problemleri de eşlik edebilmektedir. Zihinsel yetersizlik, SP tipine ve bozukluk düzeyine göre değişebilir. SP'li bireyi ve bakım verenlerin, erken dönemde ve yetişkinlikte tüm bu yapı ve fonksiyon kısıtlılıklarıyla baş edebilmelerinde fizyoterapi ve rehabilitasyon uygulamaları, medikal ve cerrahi uygulamaların yanında oldukça önemlidir.

<sup>1</sup> Doç. Dr. Arzu ERDEN, Karadeniz Teknik Üniversitesi Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, arzu\_erdem@hotmail.com



Şekil 19

**Pozisyonlama:** Düzgün oturma pozisyonunu sağlamak ve farklı vücut kısimlarını pozisyonlamak amacıyla farklı materyallerden üretilmiş destekler önerilmektedir. Amaca uygun olarak belirlenmelidir. Yastıklar, minder, kama, destekleyici kemeler ve bantlar da SP'de sık kullanılan malzemelerdir (26).

**Teşekkür:** Şekil 3, Şekil 4, Şekil 10, Şekil 11, Şekil 15 ve Şekil 19 Deniz Ortopedi/Medikal ürün katoloğundan alınmıştır. İlgili şekillerin teminini hususundaki katkılarından dolayı Ortez Protez Uzmanı İlhami Kılıç'a teşekkürlerimi sunarım.

## KAYNAKLAR

1. Dove D, Reimschisel T, McPheeters M, Jackson K, Glasser A, Curtis P, Gordon C, Stearns S, Mattson K, Church B. Developmental Disabilities Issues Exploration Forum: Cerebral Palsy. AHRQ Publication No. 11(12)-EHC078EF. Rockville, MD: Agency for Healthcare Research and Quality, October 2011.
2. Boop FA, Woo R and Maria BL. Consensus statement on the surgical management of spasticity related to cerebral palsy. J Child Neurol. 2001 Jan;16(1):68-9.
3. Tilton AH, Maria BL. Consensus statement on pharmacotherapy for spasticity. J Child Neurol. 2001 Jan;16(1):66-7.

4. Graveline C, Helsel P, McGee J, et al. Consensus statement on the physical management of spasticity. *J Child Neurol.* 2001 Jan;16(1):64-5.
5. Gericke T. Postural management for children with cerebral palsy: consensus statement. *Dev Med Child Neurol.* 2006 Apr;48(4):244.
6. Ferrari A, Cioni G. Guidelines for rehabilitation of children with cerebral palsy. *Eura Medicophys.* 2005 Sep;41(3):243-60.
7. Cooley WC. Providing a primary care medical home for children and youth with cerebral palsy. *Pediatrics.* 2004 Oct;114(4):1106-13.
8. Delgado MR, Hirtz D, Aisen M, et al. Practice parameter: pharmacologic treatment of spasticity in children and adolescents with cerebral palsy (an evidence-based review): report of the Quality Standards Subcommittee of the American Academy of Neurology and the Practice Committee of the Child Neurology Society. *Neurology.* 2010 Jan 26;74(4):336-43.
9. Brunstrom JE. Clinical considerations in cerebral palsy and spasticity. *J Child Neurol.* 2001 Jan;16(1):10-5.
10. Boop FA. Evolution of the neurosurgical management of spasticity. *J Child Neurol.* 2001 Jan;16(1):54-7.
11. Woo R. Spasticity: orthopedic perspective. *J Child Neurol.* 2001 Jan;16(1):47-53.
12. Edgar TS. Clinical utility of botulinum toxin in the treatment of cerebral palsy: comprehensive review. *J Child Neurol.* 2001 Jan;16(1):37-46.
13. Krach LE. Pharmacotherapy of spasticity: oral medications and intrathecal baclofen. *J Child Neurol.* 2001 Jan;16(1):31-6.
14. Helsel P, McGee J, Graveline C. Physical management of spasticity. *J Child Neurol.* 2001 Jan;16(1):24-30.
15. Goldstein EM. Spasticity management: an overview. *J Child Neurol.* 2001 Jan;16(1):16-23.
16. Hoare BJ, Wallen MA, Imms C, et al. Botulinum toxin A as an adjunct to treatment in the management of the upper limb in children with spastic cerebral palsy (UPDATE). *Cochrane Database Syst Rev.* 2010(1):CD003469.
17. Scianni A, Butler JM, Ada L, et al. Muscle strengthening is not effective in children and adolescents with cerebral palsy: a systematic review. *Aust J Physiother.* 2009;55(2):81-7.
18. Sakzewski L, Ziviani J, Boyd R. Systematic review and meta-analysis of therapeutic management of upper-limb dysfunction in children with congenital hemiplegia. *Pediatrics.* 2009 Jun;123(6):e1111-22.
19. Albavera-Hernandez C, Rodriguez JM, Idrovo AJ. Safety of botulinum toxin type A among children with spasticity secondary to cerebral palsy: a systematic review of randomized clinical trials. *Clin Rehabil.* 2009 May;23(5):394-407.
20. Simpson DM, Gracies JM, Graham HK, et al. Assessment: Botulinum neurotoxin for the treatment of spasticity (an evidencebased review): report of the Therapeutics and Technology Assessment Subcommittee of the American Academy of Neurology. *Neurology.* 2008 May 6;70(19):1691-8.
21. Lannin N, Scheinberg A, Clark K. AACPDM systematic review of the effectiveness of therapy for children with cerebral palsy after botulinum toxin A injections. *Dev*
22. Cardoso ES, Rodrigues BM, Barroso M, et al. Botulinum toxin type A for the

- treatment of the spastic equinus foot in cerebral palsy. *Pediatr Neurol.* 2006 Feb;34(2):106-9.
- 23. Harris SR, Roxborough L. Efficacy and effectiveness of physical therapy in enhancing postural control in children with cerebral palsy. *Neural Plast.* 2005;12(23):229-43; discussion 263-72.
  - 24. Siebes RC, Wijnroks L, Vermeer A. Qualitative analysis of therapeutic motor intervention programmes for children with cerebral palsy: an update. *Dev Med Child Neurol.* 2002 Sep;44(9):593-603.
  - 25. *Pediatrik Fizyoterapi Rehabilitasyon.* 2. Baskı. Elbasan B. İstanbul Tip Kitabevleri, Ankara, 2018
  - 26. *Serebral Palside Fizyoterapi.* Livanelioğlu, A., Kerem Günel M., Hipoktar Kitabevi, 2016.
  - 27. Martin L, Baker R, Harvey A. 2010. A systematic review of common physiotherapy interventions in school-aged children with cerebral palsy. *Physical & Occupational Therapy in Pediatrics,* 30(4) 294312. <http://dx.doi.org/10.3109/01942638.2010.500581>
  - 28. Damiano DL. 2009. Rehabilitative therapies in cerebral palsy: the good, the not as good, and the possible. *Journal of Child Neurology,* 24(9) 1200-04.
  - 29. Anttila H, Autti-Ramo I, Suoranta J, et al. 2008. Effectiveness of physical therapy interventions for children with cerebral palsy: a systematic review. *BMC Pediatrics,* 8(14)
  - 30. Dewar R, Love S, Johnston LM. 2015. Exercise interventions improve postural control in children with cerebral palsy: a systematic review. *Developmental Medicine & Child Neurology,* 57(6) 504-20.
  - 31. Stewart K, Wallen M. There is little evidence on the effect of upper limb strengthening in children with cerebral palsy. A Critically Appraised Topic. 2009.
  - 32. Faigenbaum AD, Kraemer WJ, Blimkie CJ, Jeffreys I, Micheli LJ, Nitka M, et al. Youth resistance training: updated position statement paper from the national strength and conditioning association. *J Strength Cond Res.* 2009;23 (5 Suppl 1):S60-79
  - 33. Management Of Cerebral Palsy In Children: A Guide For Allied Health Professionals, 14 March 2018, Affiliated Health Organisations, Board Governed Statutory Health Corporations, Community Health Centres, Local Health Districts, Private Hospitals and day Procedure Centres, Public Hospitals, Specialty Network Governed Statutory Health Corporations.
  - 34. Cauraugh JH, Naik SK, Hsu WH, Coombes SA, Holt KG. Children with cerebral palsy: a systematic review and meta-analysis on gait and electrical stimulation. *Clinical Rehabilitation.* 2010;24(11):963-78.
  - 35. Cleary E, Waite A, Asher K. There is low level evidence to support the use of functional electrical stimulation to enhance function in the upper limb of children with neurological conditions. A Critically Appraised Topic. 2011
  - 36. Blair SN, Kampert JB, Kohl HW, Barlow CE, Macera CA, Paffenbarger RS, et al. Influences of cardiorespiratory fitness and other precursors on cardiovascular disease and all-cause mortality in men and women. *JAMA.* 1996;276(3):205-10
  - 37. Bloom R, Przekop A, Sanger TD. Prolonged electromyogram biofeedback improves upper extremity function in children with cerebral palsy. *J Child Neurol.*

- 2010;25(12):1480-4.
38. Queensland Facilitated Communication Training Incorporated. Qld Facilitated Communication Training Inc
  39. Novak I, McIntyre S, Morgan C, Campbell L, Dark L, Morton N, et al. A systematic review of interventions for children with cerebral palsy: state of the evidence. *Dev Med Child Neurol.* 2013;55(10):885-910.
  40. Patel DR. Therapeutic interventions in cerebral palsy. *Indian Journal of Pediatrics.* 2005;72(11):979-83.
  41. Ruck J, Chabot G, Rauch F. Vibration treatment in cerebral palsy: A randomized controlled pilot study. *J Musculoskelet Neuronal Interact.* 2010;10(1):77-83.
  42. American Veterinary Medical Association. Animal-Assisted Interventions: Definitions 2016
  43. Pennington L, Goldbart J, Marshall J. Interaction training for conversational partners of children with cerebral palsy: a systematic review. *Int J Lang Commun Disord.* 2004;39(2):151-70.
  44. Novak I, Cusick A, Lannin N. Occupational therapy home programs for cerebral palsy: double-blind, randomized, controlled trial. *Pediatrics.* 2009;124(4):e606-14.
  45. International Aquatic Therapy Faculty. Water Specific Therapy Network
  46. Bennett C, Underdown A, Barlow J. Massage for promoting mental and physical health in typically developing infants under the age of six months. *Cochrane Database Syst Rev.* 2013(4):CD005038.
  47. Bailes AF, Greve K, Burch CK, Reder R, Lin L, Huth MM. The effect of suit wear during an intensive therapy program in children with cerebral palsy. *Pediatr Phys Ther.* 2011;23(2):136-42.
  48. Dursun E, Dursun N, Alican D. Effects of biofeedback treatment on gait in children with cerebral palsy. *Disabil Rehabil.* 2004;26(2):116-20.
  49. Caspersen CJ, Powell KE, Christenson GM. Physical activity, exercise, and physical fitness: definitions and distinctions for health-related research. *Public Health Rep.* 1985;100(2):126-31.
  50. Novak I. Parent experience of implementing effective home programs. *Phys Occup Ther Pediatr.* 2011;31(2):198-213.
  51. Verschuren O, Darrah J, Novak I, Ketelaar M, Wiart L. Health-enhancing physical activity in children with cerebral palsy: more of the same is not enough. *Phys Ther.* 2014;94(2):297-305.
  52. Law MC, Darrah J, Pollock N, Wilson B, Russell DJ, Walter SD, et al. Focus on function: a cluster, randomized controlled trial comparing child- versus context-focused intervention for young children with cerebral palsy. *Dev Med Child Neurol.* 2011;53(7):621-9.
  53. Independent Living Centres Australia. Independent Living Centres Australia 2011
  54. Peto Association. The Principle and Aim of Conductive Education 2012
  55. Stagnitti K, Unsworth C. The Importance of Pretend Play in Child Development: An Occupational Therapy Perspective. *The British Journal of Occupational Therapy.* 2000;63(3):121-7.
  56. Stewart KS. Information processing strategy application: A longitudinal study of typically developing preschool and school aged children. Sydney: University of

- Sydney; 2010.
- 57. My Child at Cerebralpalsy.org. Play Therapy 2016
  - 58. Cochran N, Nordling W, Cochran J. Child Centred Play Therapy: A practical guide to developing therapeutic relationships with children. New Jersey: John Wiley and Son; 2010.
  - 59. Narman S, Postoperatif CP Rehabilitasyonu ,V. Cerebral Palsy Symposium , 10-11 Ekim, 2003, Kongre Kitabı, Sosyal Hizmetler ve Çocuk Esirgeme Kurumu, Türkiye Spastik Çocuklar Vakfı p 60-64.
  - 60. Çiçek A, Cerrahi sonrası Rehabilitasyon ,V. Cerebral Palsy Symposium , 10-11 Ekim, 2003, Kongre Kitabı, Sosyal Hizmetler ve Çocuk Esirgeme Kurumu, Türkiye Spastik Çocuklar Vakfı p 68
  - 61. Koca, K., Yıldız, C., Yurttaş, Y., Balaban, B., Hazneci, B., Bilgiç, S., & Başbozkurt, M. (2011). Serebral palsili çocukların çok seviyeli ortopedik cerrahi tedavinin sonuçları. *Joint Diseases and Related Surgery*, 22(2), 069-074.)
  - 62. Evidence-Based Clinical Care Guideline for Physical Therapy Management of Single Event Multi-Level Surgeries for Children, Adolescents, and Young Adults with Cerebral Palsy or Other Similar Neuromotor Conditions Guideline, Cincinnati Children's Hospital Medical Center, 2019. p 7
  - 63. Royal College of Physicians, British Society of Rehabilitation Medicine, Chartered Society of Physiotherapy Association of Chartered Physiotherapists Interested in Neurology, Spasticity in adults: management using botulinum toxin . National guidelines. London: RCP, 2009
  - 64. CHAN MNN. Physiotherapy in spasticity management for children with cerebral palsy. *Medical Bulletin*, 2011:16(7).
  - 65. Chan NC, Chan SH, Kwong K L, Chak WK. A Seven Years Review on the Effect of Botulinum toxin A injection for children with Cerebral Palsy. Hong Kong Hospital Authority Convention 2007. (Poster Presentation)
  - 66. Doğan H., Yılmaz Ö. Serebral Palsili Engellilerde Yardımcı Cihaz Kullanımının Değerlendirilmesi, Yüksek Lisans Tezi, Haliç Üniversitesi, 2014.