International Journal of Physical Medicine & Rehabilitation

Afzal et al., Int J Phys Med Rehabil 2017, 5:4
DOI: 10.4172/2329-9096.1000420

Opinion Article Open Access

Role of Spider Cage in Motor Control in Cerebral Palsy

Farjad Afzal[1*], Gulraiz[2], Qurratulain[2] and Sidra Manzoor[3]

[1]*Faculty of Medical and Health Sciences, University of Sargodha, Pakistan*

[2]*Sargodha Campus, University of Lahore, Pakistan*

[3]*Lyallpur campus, University of Sargodha, Pakistan*

[*]**Corresponding author:** Farjad Afzal, Specialist Physiotherapist, Sargodha Medical College, Faculty of Medical and Health Sciences, University of Sargodha, Pakistan, Tel: +923144419963; Fax: +923144419963; E-mail: afzalfarjad@gmail.com

Received date: June 27, 2017; **Accepted date:** August 01, 2017; **Published date:** August 08, 2017

Abstract

Cerebral palsy can be defined as disorder of movement and posture caused by lesion in immature brain. Brain lesion leads to abnormal sensory motor development along with visual, cognitive and hearing impairments. Motor control in normal individual is developed as body come under the influence of higher centers. Universal exercise unit, spider web, therasuit, functional training and repetitions of body transitions are used in these protocols. Therapy sessions are extended from three to four hours. It can be used with children and adults with different neurological conditions like stroke, cerebral palsy, spinal cord injury and spina bifida. Spider cage is made of metal with equal length, width and height, size of cage can be different depending upon type of population pediatric or adults. Cage consists of elastic cords and belts, which are used to support the patients in the cage. Different activities of functional training can be practice in this cage easily. Elastic resistance of cords can be used to strengthen the weak muscles. Initiation of a particular posture can be easily trained in this cage. Therapies and techniques are discovered over the time to treat patients with cerebral palsy. Although use of universal exercise unit in rehabilitation is not new, however in cerebral palsy it can be used with new concept. Scientific research literature is limited on its effectiveness.

Keywords: Cerebral palsy; Motor control; Universal exercise unit

Introduction

Cerebral palsy can be defined as disorder of movement and posture caused by lesion in immature brain [1]. Brain injury can occur in fetal life or during the first year of life by hypoxia, asphyxia, neonatal jaundice, traumatic brain infections and prematurity [2]. Brain lesion leads to abnormal sensory motor development along with visual, cognitive and hearing impairments [3]. Exact cause of cerebral palsy is still unknown; however brain damage can occur before birth, during the birth and after the birth. Pregnancy disorders are considered leading cause before birth [4]. Birth asphyxia, prematurity, neonatal infections and traumatic brain injury are some important causes in cerebral palsy [5]. Cerebral palsy has different types like spastic, athetoid, ataxic, hypotonic and some tome mixed type [6]. Cerebral palsy can be divided depending upon parts of body involve like monoplegia, diplegia, hemiplegia and quadriplegia, this is called topographical classification of cerebral palsy [7]. Gross motor functional classification categorized the children into level I (least disability) to level V (severe disability) depending upon the abilities and disabilities of child [8].

Universal Exercise Unit

Intensive protocols in pediatric physical therapy are getting popularity in cerebral palsy centers [9-15]. Universal exercise unit, spider web, therasuit, functional training and repetitions of body transitions are used in these protocols. Therapy sessions are extended from three to four hours. It can be used with children and adults with different neurological conditions like stroke, cerebral palsy, spinal cord injury and spina bifida. Spider cage is made of metal with equal length, width and height, size of cage can be different depending upon type of population pediatric or adults. Cage consists of elastic cords and belts, which are used to support the patients in the cage. Different activities of functional training can be practice in this cage easily. Elastic resistance of cords can be used to strengthen the weak muscles. Initiation of a particular posture can be easily trained in this cage.

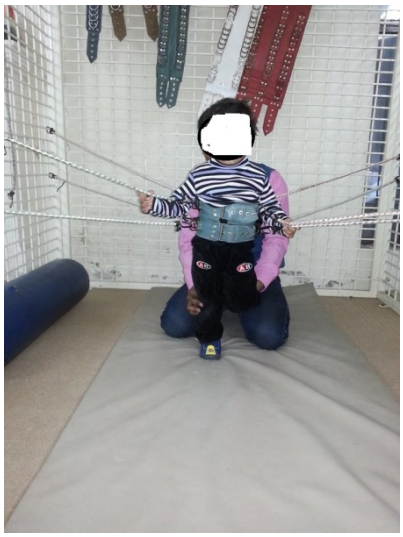

Figure 1: One leg control.

Universal exercise unit can be used in different therapeutic posture (Figures 1-4). Continuous training of a specific posture in universal exercise unit enables the child to adopt that posture in participation.

Universal exercise unit can be used in adjunct to various different traditional physical therapy treatments like strength training, stretching, functional training and weight bearing on joints [16-18]. In intensive therapy session universal exercise unit is frequent part of treatment. Therapist has batter control of body and easy to induce the posture in this unit.

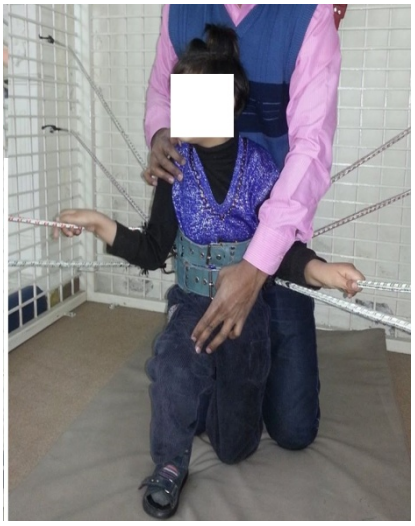

Figure 2: Half kneeling.

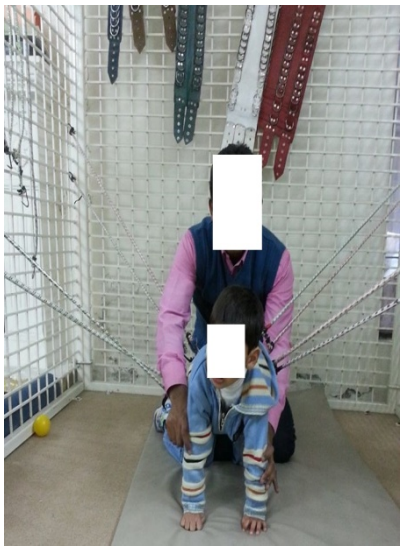

Figure 3: Quadruped training.

Figure 4: Standing with activity.

Conclusion

Therapies and techniques are discovered over the time to treat patients with cerebral palsy. Although use of universal exercise unit in rehabilitation is not new, however in cerebral palsy it can be used with new concept. Scientific reach literature is limited on its effectiveness.

References

1. Sindhurakar A, Carmel JB (2017) Neonatal Brain Injury, in Common Neurosurgical Conditions in the Pediatric Practice. Springer 47-59.
2. Meyers RC, Bachrach SJ, Stallings VA (2017) Pediatric and Adult Nutrition in Chronic Diseases, Developmental Disabilities, and Hereditary Metabolic Disorders: Prevention, Assessment and Treatment. p: 85.
3. Ismail FY, Fatemi A, Johnston MV (2017) Cerebral plasticity: windows of opportunity in the developing brain. Eur J Paediatr Neurol 21: 23-48.
4. Wu CW, Huang SW, Lin JW, Liou TH, Chou LC, et al. (2016) Risk of stroke among patients with cerebral palsy: a population-based cohort study. Dev Med Child Neurol 59: 52-56.
5. Marisa JP, Douglas-Escobar M, Zheng T, Weiss MD (2017) Stem Cell Therapy for Brain Injury in Neonates. Frontiers in Stem Cell and Regenerative Med Res 3: 68.
6. Miller F, Bachrach SJ (2017) Cerebral palsy: A complete guide for caregiving. JHU Press.
7. Porretta DL (2016) Cerebral palsy, traumatic brain injury, and stroke. Adapted Physical Education and Sport, 6E, p: 271.
8. Palisano R, Rosenbaum P, Walter S, Russell D, Wood E, et al. (1997) Development and reliability of a system to classify gross motor function in children with cerebral palsy. Dev Med Child Neurol 39: 214-223.
9. Shumway-Cook A, Woollacott MH (2007) Motor control: translating research into clinical practice: Lippincott Williams & Wilkins.
10. Van der Meer A, Van der Weel F, Lee DN (1995) The functional significance of arm movements in neonates. Sci 267: 693.
11. Afzal F (2016) Role of neonatal reflexes in development of tone, posture, skills and integration of reflexes in cerebral palsy. Int J Med Appl Health 4.
12. Afza F, Manzoor S, Afzal A (2017) How the Development of Tone and Posture Occured in New Borns. JNBS 4: 19-21.

13. Thorn J (2017) Development, Behavior, and Mental Health. The Harriet Lane Handbook E-Book.
14. Avrsekar P (2010) To Assess The Effectiveness Of Hand Arm Bimanual Intensive Therapy (Habit) In Improving The Fine Motor Function In Spastic Cerebral Palsy Children.
15. Bailes AF, Greve K, Schmitt LC (2010) Changes in two children with cerebral palsy after intensive suit therapy: a case report. Pediatr Phys Ther 22: 76-85.
16. Afzal F, Ahmed HI, Asim HM, Islam A (2015) Effects Of Universal Exercise Unit Combined With Conventional Combination Therapy On Gross Motor And Functional Skills In Spastic And Athetoid Cerebral Palsy Children. Int J Med Appl Health 3: 28-34.
17. Khalid M, Afzal F, Asim HM (2016) Outcomes Of Universal Exercise Unit (Ueu) In Combination With Conventional Physical Therapy On Trunk Control Improvement In Spastic and Athetoid Type Cerebral Palsy Children. J UMDC 7: 30-35.
18. Liaqat S, Butt MS, Javaid HMW (2017) Effects of Universal Exercise Unit Therapy on Sitting Balance in Children with Spastic and Athetoid Cerebral Palsy: A Quasi-Experimental Study. KMU J 8: 177.