REFERENCES

1. American Heart Association. Heart and stroke statistical update. In. Dallas,Texas: American Heart Association; 2001.

2. Berner YN, Kimchi OL, Spokoiny V. The effect of electric stimulation treatment on the functional rehabilitation of acute geriatric patients with stroke-a preliminary study. Arch Gerontol Geriatr. 2004;39:125-32.

3. Taylor PN, Burridge JH, Dunkerley AL. Clinical use of the Odstock Dropped Foot Stimulator: Its effect on the speed and effort of walking. Arch Phys Med Rehabil. 1999;80:1577-80.

4. Isakov E, Bowker P. Influence of a single FES treatment on hemiparetic legs. Phys Ther. 2002;88:269-72.

5. Robbins SM, Houghton PE, Woodbury G. The therapeutic effect of functional and transcutaneous electric stimulation on improving gait speed in stroke patients: A meta-analysis. Arch Phys Med Rehabil. 2006;87:853-9.

6. Robert WT, Sanjit KB, Norine CF. Gait retraining post stroke, Topics in stroke rehabilitation. Summer. 2003;10:34-65.

7. Molson M. Hemiplegia/Hemiparesis. In: http://sprojects.mmi.mcgill.ac/gait/hemiplegic/intro.asp, Gait disorders; June 15 2007.

8. Chen YL, Chang WH, Chen SC. The development of a knee locker with closed-loop functional electrical stimulation (FES) for hemiplegia in gait training. Disabil Rehabil. 2003;25:916-21.

9. Chang SM, Rincon D. Biofeedback controlled ankle foot orthosis for stroke rehabilitation to improve gait symmetry. Florida Conference on Recent Advances in Robotics, FCRAR 2006; Miami,Florida; 2006.

10. Tong RK, Ng MF, Li LS. Effectiveness of gait training using an electromechanical gait trainer, with and without functional electric stimulation, in subacute stroke: A randomized controlled trial. Arch Phys Med Rehabil. 2006;87:1298-304.

11. Mauritz KH. Gait training in hemiplegia Eur J Neurol. 2002;9:23-9.

12. Jezernik S, Colombo G, Keller T. Robotic orthosis lokomat: A rehabilitation and research tool. Neuromodulation. 2003;6:108-15.

13. Hirokawa S. Energy expenditure and fatiguability in paraplegic ambulation using reciprocating gait orthosis and electric stimulation. Disabil Rehabil. 1996;18:115-22.

14. Marsolais EB, Kobetic R, Chizeck HJ. Orthoses and electrical stimulation for walking in complete paraplegia. J Neuro Rehab. 1991;5:13-22.

15. Kantor C, Andrews BJ, Marsolais EB. Report on a conference on motor prostheses for workplace mobility of paraplegic patients in North America. Paraplegia. 1993;31:439-56.

16. Kagaya H, Shimada Y, Sato K. An electrical knee lock system for functional electrical stimulation. Arch Phys Med Rehabil. 1996;77:870-3.

17. Goldfarb M, Korkowski K. Preliminary evaluation of a controlled-brake orthosis for FES-aided gait. IEEE Transactions on neural systems and rehabilitation engineering. USA; 2003.

18. Peethambaran A. The relationship between performance, satisfaction, and well being for patients using anterior and posterior design knee-ankle-foot-orthosis. J Prosthet Orthot. 2000;12:33-40.

19. Lehneis HR. Bioengineering research and development of LE orthotic devices, Final report. New York: NYU Medical Center; 1992.

20. Hirokawa S, Grimm M, Thanh LE. Energy consumption in paraplegia ambulation using the reciprocating gait orthosis and electrical stimulation of the thigh muscles. Arch Phys Med Rehabil. 1990;71:687-94.

21. Alexander MA. Lower limb orthotics. In: http://www.emedicine.com/pmr/topic172.htm, editor. Knee-ankle-foot orthotocs and knee orthotics; June 15 2007.

22. Harris GF, Wertsch JJ. Procedures for gait analysis. Arch Phys Med Rehabil. 1994;75:216-25.

23. Melson Medical. Normal gait. In: http://sprojects.mmi.mcgill.ac/gait/normal/intro.asp, editor. Gait disorders; June 15, 2007.

24. Perry J. Gait analysis, normal and pathological function. New York: Harry C. Benson; 1992.

25. Dollar AM, Herr H. Lower-extremity exoskeletons and active orthoses: challenges and state of the art. USA; 2007.

26. Rose J. Muscle activity during walking. In: Gamble JG, editor. Human Walking. 3 ed. Philadelphia: Lippincott Williams & Wilkins; 2006. p. 110-8.

27. De Quervain IA, Simon SR, Leurgans S. Gait pattern in the early recovery period after stroke. J Bone Joint Surg Am. 1996;78:1506-14.

28. Tyson SF. Trunk kinematics in hemiplegic gait and the effect of walking aids. Clin Rehabil. 1999;13:295-300.

29. Kottink AI, Oostendorp LJ, Buurke JH. The orthotic effect of functional electrical stimulation on the improvement of walking in stroke patients with a dropped foot: A systematic review. Artif Organs. 2004;28:577-86.

30. Yavuzer G, Geler-Kulcii D, Sonel-Tur B. Neuromuscular electric stimulation effect on lower-extremity motor recovery and gait kinematics of patients with stroke: A randomized controlled trial. Arch Phys Med Rehabil. 2006;87:536-40.

31. Stein RB, Momose K, Bobet J. Biomechanics of human quadriceps muscles during electrical stimulation. J Biomech. 1999;32:347-57.

32. Chen CL, Chen HC, Wong MK. Temporal stride and force analysis of cane-assisted gait in people with hemiplegic stroke. Arch Phys Med Rehabil. 2001;82:43-8.

33. Giuliani CA. Adult hemiplegic gait. In: Smidt GL, editor. Gait in rehabilitation. New York: Churchill Livingstone Inc.; 1990. p. 253-66.

34. Hurley EA. Use of KAFOs for patients with cerebral vascular accident, traumatic brain injury, and spinal cord injury. J Pros Ortho. 2006;18:199-201.

35. Davies PM. Right in the middle; Selective trunk activity in the treatment of adult hemiplegia. Berlin: Springer-Verlag; 1990.

36. Bobath B. Adult hemiplegia: Evaluation and treatment. 3 ed. Oxford: Heinemann Medical Books; 1990.

37. Mauritz KH. Gait training in hemiparetic stroke patients. Eura Medicophys. 2004;40:165-78.

38. Waagfjord J, Levangie PK. Effects of treadmill training on gait therapy in a hemiparetic patient. Phys Ther. 1990;70:549-60.

39. da Cunha-Filho TI, Lim PA, Qureshy H. Gait outcomes after acute stroke rehabilitation with supported treadmill ambulation training: a randomized controlled pilot study. Arch Phys Med Rehabil. 2002;83:1258-65.

40. Visintin M, Barbeau H. The effects of parallel bars, body weight support and speed on the modulation of the locomotor pattern of spastic paretic gait. A preliminary communication. Paraplegia. 1994;32:540-53.

41. Hesse S, Uhlenbrock D. A mechanized gait trainer for restoration of gait. J Rehabil Res Dev. 2000;37:701-8.

42. Peckham PH, Knutson JS. Functional electrical stimulation for neuromuscular applications. Annu Rev Biomed Eng. 2005;7:327-60.

43. Rushton DN. Functional electrical stimulation and rehabilitation-an hypothesis. Med Eng Phys. 2003;25:75-8.

44. Kralj A, Acimovic R, Stanic U. Enhancement of hemiplegic patient rehabilitation by means of functional electrical stimulation. Prosthet Orthot Int. 1993;17:107-14.

45. Chae J, Bethoux F, Bohinc T. Neuromuscular stimulation for upper extremity motor and functional recovery in acute hemiplegia. Stroke. 1998;29:975-9.

46. Glanz M, Klawansky S, Stason W. Functional electrostimulation in poststroke rehabilitation: A meta-analysis of the randomized controlled trials. Arch Phys Med Rehabil. 1996;77:549-53.

47. Price C, Pandyan AD. Electrical stimulation for prevention and treating post-stroke shoulder pain: A systematic cochrane review. Clin Rehabil. 2001;15:5-19.

48. Sullivan JE, Hedman LD. A home program of sensory and neuromuscular electrical stimulation with upper-limb task practice in a patient 5 years after a stroke. Phys Ther. 2004;84:1045-54.

49. Liepert J, Bauder H, Miltner W. Treatment induced cortical reorganisation after stroke in human Stroke. 2000;31:1210-6.

50. Chae J, Yu D. Neuromuscular stimulation for motor relearning in hemiplegia. Crit Revs in Rehab Med. 1999;11:279-97.

51. Fisekovic N, Popovic DB. New controller for functional electrical stimulation systems Medical Engineering & Physics. 2001;23:391-9.

52. van der Aa HE, Bultstra G, Verloop AJ. Application of a dual channel peroneal nerve stimulator in a patient with a “central” drop foot. Acta Neurochir Suppl. 2002;79:105-7.

53. Popovic MR, Keller T. Modular transcutaneous functional electrical stimulation system. Medical Engineering & Physics 2005;27:81-92.

54. Liberson WT, Holmquest HJ, Scott D. Functional electrotherapy, stimulation of the peroneal nerve synchronized with the swing phase of the gait of hemiplegic patients. Arch Phys Med Rehabil. 1961;42:101-5.

55. Mansfield A, Lyons GM. The use of accelerometry to detect heel contact events for use as a sensor in FES assisted walking. Med Eng Phys. 2003;25:879-85.

56. Wieler M, Stein RB, Ladouceur MW. Multicenter evaluation of electrical stimulation systems forwalking. Arch Phys Med Rehabil. 1999;80:495-500.

57. Stein RB, Belanger M, Wheeler G. Electrical systems for improving locomotion after incomplete spinal cord injury: an assessment. Arch Phys Med Rehabil. 1993;74:954-9.

58. Graupe D, Kohn KH. Functional neuromuscular stimulator for short distance ambulation by certain thoracic level spinal-cord-injured paraplegics. Surg Neurol. 1998;50:202-7.

59. Lagasse P, Roy P. Functional electrical stimulation and the reduction of co-contraction in spastic biceps brachii. Clin Rehabil. 1989;3:111-6.

60. Hayashi S, Shimura K, Kasai T. Rapid plastic changes of human primary motor cortex with repetitive motor practice and transcranial magnetic stimulation. Percept Motor Skills. 2005;101:575-86.

61. Gardner ER, Baker LL. Functional electrical stimulation of paralytic muscle. In: Currier DP, Nelson RM, editors. Dynamics of Human Biologic Tissues. Philadelphia: F.A. Davis Company; 1990. p. 182-204.

62. Bogataj U, Gros N. The rehabilitation of gait in patients with hemiplegia: A comparison between conventional therapy and multichannel functional electrical stimulation therapy. Phys Ther. 1995;75:490-502.

63. Alon G, Ring H. Gait and hand function enhancement following training with a multi-segment hybrid-orthosis stimulation system in stroke patients. J Stroke Cerebrovasc Dis. 2003;12:209-16.

64. Schmitt C, Metrailler P. A study of a knee extension controlled by a closed loop functional electrical stimulation. 9 th Annual Conference of the International FES Society; 2004; Bournemouth, UK.; 2004.

65. Swain I, Taylor P. Functional electrical stimulation. Salisbury,Wiltshire.; 1998. p. 1-3.

66. Ring H, Rosenthal N. Controlled study of neuroprosthetic functional electrical stimulation in sub-acute post-stroke rehabilitation. J Rehabil Med. 2005;37:32-6.

67. Sheffler LR, Hennessey MT. Improvement in functional ambulation as a therapeutic effect of peroneal nerve stimulation in hemiplegia: Two case reports. Neurorehabil Neural Repair. 2007.

68. Nielsen CC. Orthotics and prosthetics in rehabilitation: The multidisciplinary approach. In: Lusardi MM, Nielsen CC, editors. Orthotics and Prosthetics in Rehabilitation. Woburn: Butterworth-Heinemann; 2000. p. 3-10.

69. DiBello TV. Knee-ankle-foot orthoses. In: Lusardi MM, Nielsen CC, editors. Orthotics and Prosthetics in Rehabilitation. Woburn: Butterworth-Heinemann; 2000. p. 191-203.

70. Hebert JS. Ambulatory KAFOs: A physiatry perspective. J Prosthet Orthot. 2006;18:169-75.

71. Knecht JF. Knee orthoses. In: Lusardi MM, Nielsen CC, editors. Orthotics and Prosthetics in Rehabilitation. Woburn: Butterworth-Heinemann; 2000. p. 177-90.

72. Moreno JC, Brunetti FJ, Pons JL. An autonomous control and monitoring system for a lower limb orthosis: The gait project case. Spain; 2005.

73. Kim CM, Eng JJ, Whittaker MW. Effects of a simple functional electrical system and/or a hinged ankle-foot orthosis on walking in persons with incomplete spinal cord injury. Arch Phys Med Rehabil. 2004;85:1718-23.

74. Saito E, Suzuki T, Sonoda S. Hybrid assistive system using a new HKAFO and surface FES. FES Symp; 1995; Sendai; 1995. p. 25-6.

75. Sato M, Shimada Y, Sato K. Hybrid-FES with Walkabout in a completely paraplegic patient. Proc 5th JFESA Conf; 1996; Japan; 1996. p. 7.

76. Solomonow M, Aguilar E. Reciprocating gait orthosis powered with electrical muscle stimulation (RGO II). Part I: Performance evaluation of 70 paraplegia patients. Orthopedics. 1997;20:315-24.

77. To CS, Kirsch RF, Kobetic R. The feasibility of a functional neuromuscular stimulation powered mechanical gait orthosis with coordinate joint locking. Proceeding of the 26th annual international conference of the IEEE EMBS; 2004; San Francisco; 2004. p. 4041-4.

78. Goldfarb M, Durfee W. Design of a controlled-brake orthosis for FES-aided gait. IEEE Trans Rehab Eng. 1996;4:13-24.

79. Triolo RJ, Kobetic R. The next step: Restoring walking after paralysis. In: Rose J, Gamble JG, editors. Human walking. 3 ed. Philadelphia: Lippincott Williams & Wilkins; 2006. p. 209-22.

80. Graupe D, Kohn KH. Functional electrical stimulation for ambulation by paraplegics: Krieger Publishing Co; 1994.

81. Simcox SA, Middleton JW, Davis GM. Performance of a medial linkage orthosis with a fixed and free knee joints. Sydney: University of sydney, Australia; 2000.

82. Carroll B. Product peeks. Quest. 2007;14:59.

83. Graham B. NeuroMotion case study. Alberta: University of Calgary; 1997.

84. Children YaSDD. Price survey of assistive devices and supports for persons with disabilities. Quebec, Canada: Human Resources Development Canada Publications Centre; 2003.

85. Rowling M. CIR Systems Inc. The GAITRite Portable Walkway System. Havetown, www.gaitrite.com, June 15 2007.

86. Irby SE, Bernhardt KA, Kaufman KR. Clinical field trial of the dynamic knee brace system: A stance control orthosis. Gait & Posture. 2006:198-9.

87. Smidt GL. Prosthetic and orthotic gait. In: Smidt GL, editor. Gait in rehabilitation. New York: Churchill Livingstone Inc.; 1990. p. 293-9.

88. Shamay SM, Christina WY. Transcutaneous electrical nerve stimulation combined with task-related training improves lower limb functions in subjects with chronic stroke. Stroke. 2007;38:2953-9.

89. Peurala SH, Pitkanen K, Sivenius J. Cutaneous electrical stimulation may enhance sensorimotor recovery in chronic stroke. Clin Rehabil. 2002;16:709-16.

90. Petrofsky JS. Electrical stimulation: Neurophysiological basis and application Basic Appl Myol. 2004;14(4):205-13.

91. Shewokis PA, Pierce SR. The use of principles of motor learning in a fes gait training program for children with hemiplegic cerebral plasy: a pilot study. 9th annual conference of the international FES society; 2004; Bournemouth, UK; 2004.