

SPMN - Postural Management Sub Group Best Practice Group – 2007

Posture Management: Interventions at knee and ankle level.

Interventions may be required at the knee and ankle level to improve control and/or function. Five main intervention areas have been identified, all aimed at maintaining or improving range of movement, muscle power and function.

- **Supportive:** e.g. taping, orthotics, footwear, mobility aids.
- **Electrical:** e.g. TENS, Functional Electrical Stimulation.
- **Surgical:** e.g. arthrodesis, tendon transfer.
- **Pharmacological:** e.g. muscle relaxants, botulinum.
- **Therapeutic:** e.g. active exercise, passive exercise, feedback techniques.

While researching evidence for the above interventions, it became obvious that whilst there is some limited research into the first four categories, there is a poverty of evidence for therapeutic interventions (possibly due to the difficulty in defining the interventions and limitations of undertaking clinical research).

This list of interventions and the evidence table below are intended as a 'prompt list' rather than an exhaustive list of all known treatment modalities.

Search databases included:

Google
Google Scholar
Pub-med
RECAL
CSP

Evidence Table: Postural Management (PM) Interventions at Knee & Ankle

Author/s	Year	Title	Journal	Content	Topic/s	Comment	PM type
Churchill AJG Halligan PW Wade DT	2003	Relative contribution of footwear to the efficacy of ankle foot orthoses.	Clinical Rehabilitation	Efficacy of footwear and AFO's on hemiplegic gait.	AFO's	Study group of only 5.	Orthotic
Vinci P, Perelli SL	2001	Innovative modalities to replace AFO's in case of deficit of foot dorsiflexion.	SJDR	Alternative to AFO'S	Drop foot boots.	Study group of 54.	Footwear
Fujimoto M, Abe K, Nakajima H	1999	Usefulness of KAFO as training orthoses for severe flaccid stroke patients.	Archives of Physical Medicine & Rehabilitation	Use of KAFOs as rehab tool.	KAFOs	Study group of 50.	Orthotic
Mercer JA, Dufek JS, Kosta CS et al.	1997	Metabolic cost of walking with a rigid Rotational control AFO.	Physical Therapy	Effort involved in walking with and without an AFO.	AFO/ Metabolic effort.	Study group of 6.	Orthotic

Bill M, McIntosh R, Myers P	2001	Effect of a mid-foot control AFO in the prevention of unresolved pressure areas in children with CP .	Prosthetics & Orthotics International	Evaluation of AFO in relation to skin damage.	AFO/ Pressure Areas.	Case Studies.	Orthotic
Becher J, Harlaar J	1997	Measurement of the efficacy of a protocol for prescription of AFOs to improve gait in cerebral palsied children.	Gait Posture	Presentation of decision-making tree to influence choice of AFO.	Prescription of AFO.	Study group of 9.	Orthotic
Grissom SP, Blanton S	2001	Treatment of upper motor neuron plantar flexion contracture by using an adjustable AFO.	Archives Physical Medicine & Rehabilitation	Evaluation of effectiveness of adjustable AFO to treat plantarflexion contractures.	Adjustable AFO Contractures.	Study group of 6.	Orthotic
Perriman DM, Coutts F.	1997	Electro- goniometric measurement of ankle/foot movement in hemiplegic gait: the effect of the Air-Stirrup ankle brace and the Multifit AFO.	Physiotherapy	Measurement of the effectiveness of the Air Stirrup ankle brace and the Multifit AFO.	Electro-goniometry AFOs	Study group of 14.	Orthotic
Leung J, Moseley AM.	2003	Impact of AFOs on gait and leg muscle in hemiplegia.	Physiotherapy	Evaluation of AFOs on hemiplegic gait.	AFO Hemiplegic gait	Systematic Review.	Orthotic

Schuback B, Hooper J, Salisbury L.	2004	A comparison of a self-stretch incorporating proprioceptive neuromuscular facilitation components and a therapist applied PNF technique on hamstring flexibility.	Physiotherapy	Comparison of a self stretch technique versus a physiotherapist applied stretch on hamstring flexibility.	PNF Hamstring flexibility	Study group of 42	Stretch
Damiano DL, Abel MF.	1996	Prospective study of the effects of quadriceps strengthening on crouch gait.	vicons- standard .com	Study of effect of quadriceps strengthening on crouch gait.	Quadriceps Strengthening Crouch Gait	Study group of 14	Strengthening.
Taylor NF, Dodd KJ, Damiano DL.	2005	Progressive resistance exercise in physical therapy: A summary of systematic reviews	Physical Therapy	Review of studies on progressive resisted exercises.	PRE Physical Therapy	Systematic Review	Strengthening
Wilkerson GB.	2002	Biomechanical and neurological effects of ankle taping and bracing.	J. Athletic Training	Review of research into beneficial effects of ankle support systems.	Ankle Bracing Taping	Literature Review	Taping
Sonde L., Kalimino H., Viitanen M.	2002	Stimulation with High-Frequency TENS – Effects on lower limb Spasticity after stroke.	Advances in Physiotherapy - Taylor & Francis Ltd	Evaluation of TENS on spasticity in a paretic leg after stroke.	TENS Spasticity Stroke	Study group of 16.	Electrical
Moon SK, Whang YK, Park SU, Ko CN, Kim YS, Bae HS, Cho KH.	2003	Antispastic effect of Electroacupuncture and Moxibustion in stroke.	American J Chinese Medicine .	Evaluation of Electro-acupuncture v moxibustion treatment.	Electro-acupuncture Moxibustion	Study group of 35	Electrical

Dent THS.	2001	Functional Electrical Stimulation for limb dysfunction following stroke.	Wessex Inst. for Health Research and Development.	Study of effects of Functional Electrical Stimulation(FES) v no active treatment on limb and overall function after stroke	FES Stroke	Systematic Review	Electrical
Richardson D, Thompson AJ.	1999	Botulinum Toxin: its use in the treatment of acquired spasticity in adults.	Physiotherapy Journal	Review of the issues relating to the use of botulinum in the treatment of spasticity.	Botulinum Spasticity	Literature Summary	Botulinum
Carr LJ, Cosgrove AP, Gringras P, Neville BGR.	1995	Position Paper on the use of botulinum toxin in cerebral palsy.	UK Botulinum Toxin and Cerebral Palsy Working Party.	Summary of evidence regarding indications, efficacy and known side effects.	Botulinum	Position Paper	Botulinum
Ade-Hall, Moore AP	2004	Botulinum toxin (BtA)in the treatment of lower limb spasticity in cerebral palsy	Cochrane Library	To determine whether BtA is an effective and safe treatment for lower limb spasticity in children with cerebral palsy.	Botulinum Spasticity	Systematic Review	Botulinum
Barclay-Goddard R, Stevenson T, Poluha W, Moffat MEK.	2004	Force platform feedback for standing balance training after Stroke.	Cochrane Library	To determine if visual or auditory force platform feedback improves the clinical and force platform standing balance outcomes in clients with stroke.	Force platform Feedback Balance Stroke	Systematic Review	Balance Re-education
Farmer SE, Jones M	2001	Contractures in orthopaedic and neurological conditions – a review of causes and treatment.	Disability & Rehabilitation	Examination of techniques used for treatment of contractures.	Contractures	Data Synthesis	Contracture Treatment

Ma FYP, Selber P., Nattrass GR, Harvey AR, Graham HK.	2006	Lengthening and transfer of hamstrings for a flexion deformity of the knee in children with bilateral cerebral palsy.	J of Bone and Joint Surgery	Documentation of surgery and corresponding pre and post op assessments.	Hamstring transfer Knee Deformity	Study group of 19	Surgery
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