

**SPMN - Postural Management Sub Group
Best Practice Group – 2006
Evidence Table for Seating and Postural Management**

Literature searches for 'Postural Management and Seating' found evidence falling into different categories:

Text books

Literature reviews / symposia reports

Articles - general, anatomical specific, condition specific and product specific.

The following tables provide examples in each category – these are not comprehensive lists but provide a baseline to support evidence-based practice.

Search words included: seating, posture, children, adults, postural management, wheelchairs, pelvis & hips, cerebral palsy, spinal cord injury, muscular dystrophy.

Search engines used: *Google Scholar, Med-line, Pub-med.*

Author/s	Year	Title	Publisher	Content	Topic/s	Rev by	Comment	PM type
Goodwill CJ in Goodwill CJ & Chamberlain MA.	1997	Rehabilitation of the Physically Disabled Adult. Chapter	Stanley Thornes	Expert opinion: position / comfort influences ability to control / self propel	Wheelchair provision & selection	RF	Expert opinion / account of current practice	ADL Mob
Zollars JA	1996	Special seating: an Illustrated Guide	Ottobock Orthopaedic Industry Inc. Minneapolis	Expert opinion: seating position, posture and comfort options discussed.	Seating selection.	LO	Expert opinion	Seating
Poutney TE, Mulcahy C, Clarke S, Green E	2000	The Chailey Approach to Postural Management	Active Design Ltd, Birmingham	Guide to postural management principles developed by Chailey Heritage.	Postural management: theories and options	LO	Expert opinion / account of current practice.	Postural management
Low J, Reed A	1996	Basic Biomechanics explained	Reed Educational	Guide to biomechanics	Theoretical approaches	LO	Textbook	Posture
Jay P in Goodwill CJ & Chamberlain MA	1997	Seating and support systems in Rehabilitation of the Physically Disabled Adult.	Stanley Thornes	Expert opinion: position / comfort influences ability to control / self propel	Wheelchair provision & selection		Expert opinion / account of current practice	ADL Mob
Engstrom B	1995	Ergonomics and wheelchairs : manual of principles	Posturalis Books, Stockholm	Discussion of principles of seating and ergonomics	Supportive seating and wheelchair selection	LO	Expert opinion and account of practice	Seating
Engstrom B	1993	Ergonomic seating- A true challenge	Posturalis Books, Stockholm	Seating and Mobility for the physically challenged, Risks and possibilities when using wheelchairs	Seating solutions and wheelchair adaptations	LO	Expert opinion	Seating

Novak I		Interactive CD-Rom e-learning Tool	Vancouver seating symposium					Seating
Literature Reviews/ Symposium reports								
Axelson PW, Chesney D A	1996	Clinical and Research methodologies for measuring functional changes in seating systems.	Proceedings of 12 th International Seating Symposium, Vancouver, BC p81 - 84		Discussion on research programme.	LO	Research report.	Seating
Zollars J A	1992	Seating and Moving through the decades: A literature review on seating and mobility.	Pax Press, Santa Cruz, CA		Literature review	LO	Source of references	Seating
Pope P. in Edwards S.	2002	Postural Management and special seating in Neurological Physiotherapy: A problem solving approach.		Successful outcome in terms of matching postural needs with lifestyle is dependent upon an in-depth understanding of problem development, comprehensive assessment, co-operative discussion and effort, judicious compromise and compliance with any recommendations.	Supportive seating	GE	Key background basis to special seating.	Physiology influenced by posture

ARTICLES ; anatomical / neurological	Year	Title	Journal, vol, page	Reported findings	Content	Level of evidence	Rev by	Comments	PM type
Green EM, Mulchay CM, Pountney TE	1995	An investigation into the development of early postural control	Developmental Medicine & Child Neurology 37(5) 437- 48	Relation between normal sitting & lying ability same for infants with CP	Cross-sectional, some retrospective elements. Observation of child development - no treatment	2-3	RF	18 normal infants- video & photo record in lying and sitting. 34 infants with CP – cross sectional study	CP & seating
Clarke AM, Redden JF	1992	Management of hip posture in cerebral palsy	Journal of the Royal Society of Medicine 1992; Vol. 85: 150-151	Hips kept in an abducted position improves femoral head location, minimises pain, and allows better interaction with surroundings	Supportive seating	5	ST	Description of Sandall Wood Wheelchair	CP & seating
Hobson DA, Tooms RE	1992	Seated Lumbar/pelvic alignment	Spine Mar;17(3);293-8	A comparison between spinal cord injured and non-injured.	Measurement of spine when seated	5	KM	N=22 (12 disabled, 10 able bodied) distinct differences	Posture management
Moes C C M.	1998	Measuring the tilt of the pelvis	Ergonomics. Vol. 41 (12; Dec) Pp.1821 –1831	Development of a device to measure the angle of the pelvis.	Use of a small rod / antenna attached to the skin of the scrum – this antenna follows the movements of the pelvis.	Scientific report	LO	Results showed pelvic rotation to be measurable within a 10 – 5 % inaccuracy level.	Seating / Pelvis
Goldsmith E, Golding RM, Garstang RA, Macrae AW	1992	A technique to measure windswept deformity, a technical evaluation.	Physiotherapy. Vol. 78, pp. 235 -242					Potential for objective measurement – some limitations	Posture management.

Shoham Y, Meyer S, Katz-Leurer M, Weiss P L	2004	The influence of seat adjustment and thoraco-lumbar- sacral orthosis on the distribution of body seat pressure in children with scoliosis and pelvic obliquity.	Disability and Rehabilitation, Vol. 26 (1/7),pp 21-26	To determine the effect of a thoraco-lumbar – sacral orthosis (TLSO) on the distribution of body seat pressure.	Seating alteration - two methods commonly used in seating – elevation of lower side of pelvis or wedge insertion beneath raised pelvis.	3	LO	15 subjects - underlying neuromuscular disorders. Seat pressure measured using QA pad. Use of TLSO significantly reduced spinal curvature and seat interface pressure.	Seating / Posture management.
Reid D, Rigby P, Ryan S	1999	Functional impact of a rigid pelvic stabiliser on children with cerebral palsy who use wheelchairs: users and caregivers' perceptions.	Pediatric Rehabilitation, Vol 3(3/1), Pp. 101-118	Study found the rigid device allowed significantly better occupational and satisfactoral performance than a standard lap belt.	Use of rigid pelvic stabiliser versus a traditional lap belt.	2	LO	6 children with CP. Each device used by each child for a 3 week period. COPM used to evaluate performance ability and user satisfaction.	Seating / pelvis
Fife SE, Roxborough LA, Armstrong RW, Harris SR, Gregson JL, Field D	1991	Development of a clinical measure of postural control for the assessment of adaptive seating in children with neuromotor disabilities	Physical Therapy, Dec:71(12), pp. 981-93	Literature review and description of the development of a clinical evaluation scale.	Children evaluated using Seated postural Control measure (SPCM) and Level of Sitting Scale (LSS)	4	LO	40 children evaluated with and without their seating systems. KAPPA values used to evaluate results. Abstract only	Seating / posture management

Pope PM, Bowes CE & Boothe E	1994	Postural control in sitting. The SAM system: Evaluation of use over three years.	Developmental Medicine & Child Neurology Vol. 36, pp.241-252	If postural impairment is unattended (i.e. inability to balance and stabilise the body relative to the supporting surface) . . . the inevitable outcome is contracture, deformity and pressure sores. The children who appeared to benefit the most were those who spent the most time in the SAM.	Supportive seating	4	ST	9 subjects. no statistical analysis of results. No controls Small sample Uncontrolled factors influencing outcome	CP and seating
Peters A, Hewitt L, Goldsmith J, Goldsmith S.		The Mansfield Project.	Available from Symmetrikit Engineering, Bromyard Road, Trading Estate, Ledbury, Herefordshire. HR8 1NS.	Report					
S Goldsmith	2000	The Mansfield Project.	Physiotherapy. Oct.Vol.86, (10) pp.8-534	Postural care at night within a community setting: A feedback study	Feedback from 31 families using therapeutic night-time positioning.	4	JM	One sleep system evaluated – 'Symmetri-sleep'	Lying posture support
Clarke AM, Redden JF	1992	Management of hip posture in cerebral palsy	Journal of the Royal Society of Medicine. Vol 85, pp.150-151	Hips kept in an abducted position improves femoral head location, minimises pain, and allows better interaction with surroundings.	Supportive seating	5	ST	Description of Sandall Wood wheelchair	CP and seating
Nelham RL, Mulcahy CM, Poutney TE, Green EM, Billington GD	1998	Clinical aspects of the Chailey Adaptaseat.	J Biomedicine Eng. Apr. Vol.10(2), pp.175-8	Evaluation of the effectiveness of the 'Chailey' seating system	Supportive seating	5		Description of Chailey / Caps II precursor	CP and seating

Trail IA, Galasco CS	1990	The Matrix seating system	J.Bone and Joint Surgery. Jul. Vol.72(4), pp. 666-9						
Parent F, Dansereau J, Lacoste M, Aissaoui R.	2000	Evaluation of the new flexible contour backrest for wheelchairs	J. Rehabilitation Research and Development May-Jun. Vol.37(3), pp.325-33	Study to compare flexible backrests in terms of pressure distribution, back profile accommodation and short term comfort.	Various types of backrest tried and compared.	3	LO	15 non - impaired subjects in static situations	Seating
Bolding EJK, Lankhorst GJ, & Bouter LM.	2001	Should luxation of the hip in cerebral palsy be prevented? Relationship between luxation of the hip and complaints in people with severe cerebral palsy.	EACD Abstracts 2001	Chair adaptations are required to prevent hip migration.	Supportive seating	4		30 adults Abstract only	Seating
Bolin I, Bodin P, Kreuter M.	2000	Sitting position-posture and performance in C5-C6 tetraplegia	Spinal Cord Vol.38(7) Pp 425-434	Balance transfers, wheelchair skills, physical strain during wheelchair propulsion, spasticity and respiration were affected by sitting position in an individual manner,	N=4 complete tetraplegic patients who were dissatisfied with posture and seating	5		Small case study Abstract only	Posture and Seating