

Appendix A

Table of References Found for Dynamic Lycra Orthoses Literature Review In Hierarchy of Evidence (*Sign 50*)

DMO C42a (V1) June 2021

Orthosis Colour Key							
Suit	Socks	Gloves	Shoulder	Shorts		Leggings	
	Hierarchy of Evidence	Title	Area of Body	Study Type	N=	Notes	Year
Alegesan et al 2010 (1)	1+	Effect of modified suit therapy in Spastic Diplegic Cerebral Palsy- a single blinded randomized controlled trial	Body	RCT conventional therapy v Therasuit with therapy	30	Gross Motor Function Measure - 88	2010
Giray et al 2018 (2)	1+	Does stabilizing input pressure orthosis vest, Lycra- based compression orthosis, improve trunk posture and prevent hip lateralization in children with cerebral palsy	Trunk only and upper pelvis	Single blind RCT to measure effects of using a SPIO vest, intensive therapy and a 2 weeks or 6 weeks intervention phase post therapy	24	Sitting Assessment Score (SAS)/ Cobb Angle/ Kyphotic angle/ Hip Migration Index (HMI) Kyphotic angle reduced after treatment but little change on scoliosis or hip migration.	2018
Giray et al 2018 (3)	1+	The effects of vest type dynamic elastomeric fabric orthosis on sitting balance and gross manual dexterity in children with cerebral palsy: A single blinded randomised controlled study	Trunk only and upper pelvis	Single blinded RCT to measure effects of Vest on sitting and gross manual dexterity Parent non-standard Likert test questionnaire	36	Improvements in sitting balance and manual dexterity, posture and balance whilst sitting. Parents reported child's confidence had improved	2018

Maguire et al 2009 (4)	1+	Hip abductor control in walking following stroke- the immediate effect of canes, taping and TheraTogs on gait	TheraTogs Suit	Randomised Control trial in within- participant experimental study using peak EMG to measure gluteus medius and tensor fascia lata muscles	13	Cane reduced EMG activity in gluteus medius from baseline measure by 21.8%, whilst TheraTogs increased by 16.5%	2009
Martins et al 2015 (5)	1+	Efficacy of suit therapy on functioning in children and adolescents with cerebral palsy: a systematic review and meta-analysis	Suit therapy	4 papers reviewed	N/A	Limited effects on gross motor functions Limitation of evidence on suit therapy	2015
Miller et al 2015 (6)	1+	Sensory dynamic orthosis in mild to moderate upper limb tremor in multiple sclerosis: a feasibility study	Arm sleeves with de-rotation panel	Mixed feasibility study Mixed methods, double blind randomised controlled pilot study	21	Semi-structured interviews FAHN tremor rating Action research arm test Psychological Impact of Assistive Technology (PIAT) and 9 hole peg test Issues reported in obtaining good orthosis fit Placebo more effective than orthosis	2015
Morris et al 2019 (7)	1+	Dynamic Lycra® orthoses as an adjunct to arm rehabilitation after stroke: a single-blind, two-arm parallel group, randomised controlled feasibility trial	Upper Limb Gauntlet	A single-blind, two-arm parallel group, feasibility RCT	43	Action research arm test Motor activity log 9-hole peg test Motricity Index Modified Tardieu Scale& structured interviews Recruitment and retention was poor Adverse reactions were problematic No indications of definitive conclusions	2019#
Ooi et al 2020 (8)	1+	Effects of pressure garment on spasticity and function of the	Short Arm Glove	Randomised Controlled trial Modified Ashworth Test Disabilities of arm, shoulder and hand	21	Wearing compression garments on the arm for 6 hours daily had	2020

		arm in the early stages after stroke: a randomised controlled trail	Basic burns type glove used no reinforcement	outcome measures, Jebsen Taylor hand function test, Measured pre- intervention and post after 6 weeks		no effect in controlling or improving arm function	
Otten et al 2019 (9)	1+	The effects of compression shorts on pain and performance in male football players with groin pain – A double blinded randomized controlled trial	Zoned high compression shorts	Double blinded randomised control trail using non zoned and zoned reinforced shorts. Numeric Pain Rating Scale (NPRS), Copenhagen 5-s squeeze test, Illinois Agility test and maximum shooting	34	Wearing zoned compression shorts significantly caused reduction in pain symptoms	2019
Sawle et al 2019 (10)	1+	A Pilot RCT Investigating the Effects of Targeted Compression on Athletes with Pelvic/ Groin Pain	Pelvis	Randomised Controlled trial with control group	24	Moderate to large effect size on active straight leg raise and squeeze test measures in REPS shorts.	2019#
Snowdon 2019 (11)	1+	Acceptability and feasibility of fabric orthoses for movement control in multiple sclerosis	Shorts	Embargoed			2019#
Stone,K 2014 (12)	1+	Dynamic Elastomeric fabric orthoses (DEFO) and physiotherapy after botulinum Toxin (BT) in adults with focal spasticity: a feasibility study using mixed methods	Glove linked to Botulinum toxin injections.	Feasibility study Mixed methods embedded design single blinded RCT DEFO intervention group Goal Attainment score arm impact score ,VAS	25 (22 completed)	Potential added health benefits. Feasibility, acceptability and clinical application of DEFOs were established with implications for future spasticity management with patient benefit for passive and active function.	2014#
Stone K 2015 (13)	1+	A feasibility study using mixed methods: dynamic splinting and physiotherapy after botulinum toxin (BT) in adults with focal spasticity	Glove with Botulinum Toxin injections.	As above	As above	Presented to results of PhD to WCPT conference in Singapore	2015#

Abdelaty & Abd Ekafy 2010 (14)	1-	Impact of Spandex Dynamic Splint on hand function in Spastic Hemiplegic Children	Upper limb	TheraTogs® RCT physiotherapy (control) / physiotherapy and Glove Peabody Developmental Motor Scale	30	Significant improvements in hand function, particularly in grasp and visual motor interaction plus the fine motor quotient.	2010
Almeida et al 2017 (15)	1-	Effects of interventions with therapeutic suits (clothing) on impairments and functional limitations of children with cerebral palsy: a systematic review	Thoracic/ lumbar/Sacral	Systematic review of therapeutic suits	13	A systematic review of 13 different dynamic movement orthoses used in postural and active training in children with CP	2017
Bailes et al 2011 (16)	2-	The Effect of Suit Wear During an Intensive Therapy Program in Children With Cerebral Palsy	Suit Therapy	RCT with 2 age categorised groups Pediatric Evaluation of Disability Inventory (PEDI) Gross Motor Function Measure -66 Parent satisfaction questionnaire	20	No increased function seen between intervention or control groups. Significant within group changes in experimental group	2011
Elliott et al 2010 (17)	1-	Lycra arm splints improve movement fluency in children with cerebral palsy	Upper limb	RCT Parallel groups with waiting list control	16	3D upper limb kinematics S	2010
Elliot et al 2011 (18)	1-	Lycra arm splints in conjunction with goal-directed training can improve movement in children with cerebral palsy	Upper Limb	RCT Three month continual wear of glove combined with goal directed	16	Significantly improved movement substructures and motor performance. Dystonic children showed greatest improvement in primary movement and jerk reduction.	2011
Karadag-Saygi,& Giray,E 2019 (19)	1-	The clinical aspects and effectiveness of suit therapies for cerebral palsy: A systematic review	DMO Body suit and leggings, Adeli suit, UP suit, Therasuit second skin suit, SPIO Pediasuit	Systematic review	29 studies	Although reviewing all modalities there is no mention of the differences of construct and therefore the outcome of each variant cannot be compared	2019

Giray, et al 2019 (20)	1-	Effects on dynamic Lycra orthosis as an adjunct to rehabilitation after botulinum toxin-A injection on the upper-limb in adults following stroke: A single-blinded randomised controlled pilot study	Simple Arm sleeve	RCT	10	No differences between the control group and intervention.	2019
Martins et al 2015 (21)	1-	Efficacy of suit therapy on functioning in children and adolescents with cerebral palsy: a systematic review and meta- analysis	Body	Systematic review	4	Review of suits / combined suits	2015
Miller et al 2015 (6)	1-	Sensory dynamic orthosis mild to moderate upper limb tremor in multiple sclerosis	Upper limb	Mixed feasibility study Mixed methods Double blind randomized placebo-controlled pilot study	21	Semi – structured interviews FAHN Tremor rating Action research arm test, COPM Psychological Impact of Assistive technology and 9 peg hole test Issues in obtaining a good orthosis fit Placebo more effective than orthosis	2015
Morris et al 2019 (7)	1-	Dynamic Lycra orthoses as an adjunct to arm rehabilitation after stroke: a single – blinded, two- arm parallel group, randomised controlled feasibility trial	Upper limb gauntlet	Single – blind, two arm parallel group feasibility RCT	43	Action research arm test, Motor activity log 9- hole peg test, motricity Index, Modified Tardieu Scale & structured interviews Recruitment and retention low, adverse reactions were problematic No indications of definitive conclusions	2019

Wells et al 2018		Garment Therapy does not Improve Function in Children with Cerebral Palsy: A systematic Review	Suit, training suits, leggings and gloves	Systematic review of function	14 papers	Garment therapy did have a significant effect on kinematic of the hip and shoulder. The authors review was very general of very different papers. No breakdown of the types of intervention.	2017
Blair et al 1995 (22)	2++	A study of a dynamic proximal stability splint in the management of children with cerebral palsy	Suit	Descriptive study, Cross over trial and recipient trial	24	8 matched pairs criticism for? impartiality due to video scoring with / without the garments	1995
Cameron et al 2018 (23)	2++	Management of Antenatal Pelvic Girdle Pain Study (MAPS): A Double Blinded Randomised Trial Evaluating the Effectiveness of Two Pelvic Orthoses	Pelvic Girdle Pregnancy Shorts	Comparative Double Blinded Randomised Trial comparing NHS standard SEROLA belt with DEFO pregnancy shorts	72	Numerical Pain Rating Scale/ Pelvic Questionnaire/ EuroQol5 dimension secondary outcome measures and VAS/ Short Form 36 questionnaires- physical and mental health Custom DEFO shorts were more effective than stock belt at reducing day and night time pain in pregnant women with pelvic girdle pain	2018#
Cameron (2019) (24)	2++	Evaluation of an orthotic intervention for the management of pregnancy related pelvic girdle pain (PGP)	Pelvic girdle pain management Pregnancy shorts	PhD thesis Randomised controlled single case series comparing standard issue "SEROLA" belt compared to custom dynamic elastomeric fabric orthotic DMO pregnancy shorts	72	Orthotic intervention in antenatal pelvic girdle pain can provide improvements in symptoms such as pain and function. The results of the single case series provides the basis for a larger clinical trial	2019#

Edwards,K 2004 (25)	2++	Using Motion Analysis to Investigate whether Wearing Dynamic Lycra Garments Changes Posture and Movement in Children with Cerebral Palsy	Suits	Group study	5	Gait analysis Changes in posture and gait, improved proximal stability increase in cadence	2004#
Gracies, J 1997 (26)	2++	Lycra Garments Designed for Patients with Upper Limb Spasticity: mechanical effects in Normal Subjects	Glove	Double blind	10	Health subjects used to investigate the stretch to pronator muscles by garment. T-Test Donning technique important. Long lasting Angular displacement	1997
Gracies et al 2000 (27)	2++	Short – term Effects of Dynamic Lycra Splints on Upper Limb in Hemiplegic Patients	Gloves	Cross over design 18 – 85 years of age. Hemi, CVA. Sound inclusion / exclusion criteria	16	Questionnaire on comfort, circumference of arm, resting posture, spasticity at shoulder, ROM using goniometer, Elbow proprioception Good research section on CNS involvement	2000
Matthews et al 2009 (28)	2++	Effects of Dynamic Elastomeric Fabric Orthoses on Children with Cerebral Palsy	Leggings	Multiple Centre single case report methodology ABA design 3-13 years of age (Median age 5.5) 4 male/female	8	10 metre walking tests Physiological Cost Index (PCI) Visual analogue Scale (VAS) Patient specific functional scale (PSFS) Subject/Carer perceptions recorded via daily diaries	2009#
Michael et al 2014 (29)	2++	What is the effect of compression garments on a balance task in female athletes?	Lower limb and pelvis	Double blinded, RCT repeated measures study	12		2014

Morrin.J (30) *	2++	Control of hand oedema by use of Lycra pressure garments	glove	Retrospective report - review	95	Oedema control	1981
Sawle et al 2012 (31)	2++	Exploring the effect of pelvic belt configurations upon athletic lumbopelvic pain	Shorts	Randomised, repeated measures design	20	Resting pain, straight leg raise pain, 1 metre jump pain, resisted hip and adduction pain measurement	2012#
Snowdon et al 2018 (32)	2++	Compression garments and fabric orthoses for rehabilitation and function: a systematic mapping review	Compression garments All areas	Systematic mapping review	236 studies	Further studies should fully describe interventions by including measurements of pressure beneath orthoses and clear descriptions of actual anatomical coverage.	2018
Steultjens et al 2004 (33)	2++	Occupational therapy for children with cerebral palsy: a systematic review	Suits including 2 nd Skin and Camp	Systematic review of occupational therapy for children with CP.	17 papers identified only 3 papers included DEFO options	Review stated insufficient evidence for use, however papers only recently published on Lycra garments	2004 2 paper#
Szkwarda et al 2019 (34)	2++	Effectiveness, Feasibility, and Acceptability of Dynamic Elastomeric Fabric Orthoses (DEFO) for Managing Pain, Functional Capacity, and Quality of Life during Prenatal and Postnatal Care: A Systematic Review	Pregnancy DEFOs including stock and custom	Systematic Review	17 papers identified for meta-analysis	This review suggests that wearing DEFOs during pregnancy can have a desirable positive effect on managing pain and improving functional capacity	2019# (1 DM paper included Cameron et al 2018)
Bahramizadeh et al 2015 (35)	2+	Effects of dynamic elastomeric fabric orthoses in children with cerebral palsy	Leggings	Electro goniometry knee extension measurement	20	Quasi- experimental study using centre of foot pressure stability and knee extension angle	201

								measurement outcomes	
Brownlee et al 2002 (36)	2+	Edinburgh Dynamic Lycra splinting trial – assessment of hand function	10 suits 10 gloves	Pre-experimental design with an one / post-test. 8-week duration			20	Measured hand function – cognition restricted use? Dual qual/quant, questionnaires. Difficulties in identifying measurement tool	Oral presentation 2000 Published 2002
Castro et al 1997 (37)	2+	A low-cost instrumented glove for monitoring forces during object manipulation	Glove	Group experimental design			30	Carrier for force sensing resistors. Pressure measurement Of interest to glove research	1997
Degelaen et al 2016 (38)	2+	Effect of supporting 3D garment on gait postural stability in children with bilateral spastic cerebral palsy	Lymed 3D Suit sort legs and vest top	Lower limb Kinematic data analysis & trunk control			31	Improved temporal special parameters and improved balance	2016
Dupuy et al 2017 (39)	2+	Ehlers-Danlos Syndrome, Hypermobility Type: Impact of Somatosensory Orthoses on Postural Control (A pilot Study)	Vests/ pants	Mittens	Proprioceptive insoles	6 Patients with EDS/ 6 controls Motorised force platform, subjective vertical visual test and postural control assessment	12	Wearing compression somatosensory orthoses improved postural control impairment	2017
Finlayson et al 2018 (40)	2+	Lycra splinting garments for adults with intellectual disabilities who fall due to gait or balance issues: a feasibility study	Socks	Series of single case studies			9	3D Gait and balance assessment TUG	2018#
Flanagan et al 2009 (41)	2+	Evaluation of short – term intensive orthotic garment uses in children who have cerebral palsy	Truncal control using Thera Togs®	Single, pre-intervention baseline comparison design			5	Biomechanical Assessment Gait analysis Gross Motor assessment	2009

Gonzalez-Bernal et al 2017 (42)	2+	Efficacy of a dynamic orthosis on the upper limbs in the chronic phase of strokes: A longitudinal study	Gloves	Longitudinal study used gloves for 6 months with control	40	Dynamic Orthoses can further improve the strength of the affected upper limb	2017#
MacRae et al 2011 (43)	2+	Compression Garments ad Exercise Garment Considerations, Physiology and Performance	All areas compression garments used in sports.	Systematic review of pressure garments	17 papers reviewed.	Some evidence of augmented blood flow with compression and some indication of improved joint position linked to increased proprioception.	2011
Martins et al 2019 (44)	2+	The Immediate Effects of a Dynamic Orthosis on Gait Patterns in Children with Unilateral Cerebral Palsy: A Kinematic Analysis	Therasuit Therapy (with and without elastics)	Kinematic Gait Analysis	7	Positive kinematic changes on gait pattern in the affected limb	2019
Matthews, M (45)	2+	A pilot study of multiple single case reports to investigate the effects of dynamic Lycra Orthoses on gait in children with diplegic cerebral palsy	Full length Leggings	Group of replicated measures single case studies. M.Phil. Thesis	8	Exoskeleton to weakened muscles Reduced energy expenditure Positive gait changes	2007#
Nicholson et al 2001 (46)	2+	Assessment of Upper Limb function and movement in children with cerebral palsy wearing Lycra garments	Suit	Journal publication	12 (5)	Questionnaire, PEDI, Motion analysis Functional skills, No Botox, Wilcoxon test	2001#
Rennie et al 2000 (47)	2+	An evaluation of Lycra garments in the lower limb using 3-Dgait analysis and functional assessment (PEDI)	Whole body suits	Group study Gait lab	8	PEDI ? not appropriate tool Issues of toileting Gait analysis No reports of breathing difficulties Reduced carer assistance	2000#

Romeo et al 2018 (48)	2+	Effects of Lycra suits in children with cerebral palsy	Suit	Case Control Study	10 (5 control / 5 intervention)	Improved sitting ability Seated stabilometry exam & GMFCS)	2018#
Serrao et al 2017 (49)	2+	Use of dynamic movement orthoses to improve gait stability and trunk control in ataxic patients	Suit	Longitudinal uncontrolled study	11	Linear over ground optoelectronic gait analysis Time-distance parameters, lower limb joint kinematics body sway, trunk oscillations 7 gait variability Quest Significant decrease instance phase duration, double support phase, swing phase CV, pelvic ROM, body sway and trunk ROM. Significant increase in observed swing phase duration. And knee joint ROM	2017#
Sivaraman,K & Marsden,J 2014 (50)	2+	The management of spasticity in adults	Glove review	Clinical review	3 papers	? increase range of upper limb movement	2014
Szkwarda et al 2019 (51)	2+	Compression shorts reduce prenatal pelvic and low back pain: a prospective quasi-experimental controlled study	Compression shorts v SRC pregnancy shorts	Prospective quasi-experimental controlled study using parallel groups without random allocation.	55	Compression shorts are thermally safe and effective for prenatal management of pelvic and low back pain.	2019
Borchgrevink et al 2020 (52)	2-	Does the use of Lycra-Hip-Orthoses Stabilize Gait among Adults with Neurological Disabilities?	Lycra hip orthosis	Prospective, explorative cohort study 3D Gait lab recording booth kinematic and spatiotemporal data at baseline and 6 weeks later. Daily accelerometer, EQ-5D-5L health questionnaire, Oxford muscle strength measure were recorded one week prior to baseline and end point. User questionnaire on wearer wearing experience	10	Small change in kinematic pelvic orientation, minor change in kinematic pelvic stability and spatiotemporal data. No change in daily activity. Some improvement in Oxford muscle strength. However, 6	2020

						out of 10 chose to keep wearing the Lycra Hip orthoses due to perceived improvements in stability.	
Ghai et al 2018 (53)	2-	The influence of below-knee compression stockings on knee-joint proprioception	Sock	Counterbalanced, single blinded, cross over trial	44	Proprioception accuracy of the knee joint is significantly enhanced post application of compression sock	2018
Melo et al 2017 (54)	2-	Intensive neuromotor therapy with suit improves motor gross function in cerebral palsy: a Brazilian study	PediaSuit therapy used as “stability vest” with use of spider and monkey cages with bungee cords.	Clinical audit of participants (GMFCS 5) undertaking Intensive Neuromotor Therapy (INMT)	53	Children below the age of 7 years showed PediaSuit therapy provoked a learning effect in lying, rolling, and sitting posture	2017
R and.D (55) *	3	An instrumented glove for monitoring MCP joint motion	Glove	Experimental	4	Goniometric measurement Of interest to glove research	1993
Attard et al 2004 (56)	3	Review of the use of Lycra pressure orthoses for children with cerebral palsy – including examples of two case studies	Glove Suit	Single case study	2	Review of current literature 2003 Discussion of possible causes of effect	2004#
Barbarioli, M (57)	3	A Lycra glove working splint for rheumatoid arthritis: a case study	Glove	Case study	1	Descriptive study of rheumatoid function	2001
Braithwaite.F & Pitt,F (58)	3	The use of Lycra socks in peripheral sensory deficit – a case study	Sock	Case study	1	Proprioceptive feedback	2002#
Bridges,S (59)	3	An evaluation of the immediate effects of elasticated compression on joint proprioception	Socks	Repeated measure design Pilot study as part of MSc degree	6	GMFM, PCI & 10m walking test, socks improved function and gait performance	2004#

Brownlee.et al 2002 (60)	3	Edinburgh Dynamic Lycra Splinting Trial- assessment of hand function	Glove / suit	Pre-experimental design Questionnaire	20	Article of main 3work	2002
Cameron et al 2017 (61)	3	Management of chronic post- partum pelvic girdle pain: evaluating effectiveness of combined physiotherapy and a dynamic elastomeric fabric orthosis	Pregnancy shorts	AB multiple baseline design using questionnaires that included Numerical Pain Rating skills (NPRS),Pelvic Girdle questionnaire (PGQ), EuroQol 5 Dimension Questionnaire (EQ5D) and other numerical rating cores to measure pain and continence	8	Implications that chronic, post -partum pelvic girdle pain has long been overlooked. This study aimed to raise awareness of the current situation with some females experiencing painful symptoms and the use of unique designed orthotic shorts to manage pain and improve quality of life.	2017#
Corn et al 2003 (62)	3	Impact of Second Skin Lycra Splinting on the Quality of Upper Limb Movement in Children	Upper Limb	Group of Single Case Studies	4	PEDI, Comparison of two patient groups of long /short term users	2003
Edmondson et al 1999 (63)	3	How effective are Lycra suits in the management of children with CP	Total Body	Group of single case	15	Untried measurement score. Good references	1999#
Edwards, K & Cramp, M (25)	3	Using motion analysis to investigate whether wearing dynamic Lycra garments changes posture and movement in children with cerebral palsy- A pilot study	Total Body	Group of single cases	4	Gait lab with markers to measure trunk flexion , extension and gait.	2004#
Fisher et al 2010 (64)	3	Effects of a “Snug” Sensory Dynamic Orthosis on Gross Motor Function in Children with Cerebral Palsy	Trunk	Multi-centre Study 1-23 years of age (Median 7 years) 21 Males/10 females GMFCS GNFM88	31	Conference Abstract Statistically significant change in GMFM88	2010

Gibbs et al 2002 (65)	3	Dynamic Lycra Splinting in a child with Cerebral Palsy: an objective assessment of gait.	Suit	Single case presentation	1	Smoothing of pelvic movement, reduced adduction, significant increase in temporal distance parameters	2002#
De Glanville & Hamlin 2012 (66)	3	Positive Effect of Lower body Compression Garments on Subsequent 40km Cycling Trial Performance	Leggings	VO2 measurements/supine blood pressure/ blood lactate concentration/ heart rate Single-blind crossover experimental design	14	Substantial higher improvement in average power output in compression leggings compared to placebo	2012
Guinchat et al 2020 (67)	3	Compressive Garments in Individuals with Autism and Severe Proprioceptive Dysfunction: A Retrospective Exploratory Case Series	Suit	Retrospective Exploratory Case series Aberrant Behaviour Checklist (ABC), Sensory integration with Dunn questionnaire, and postural sway and motor performance using self-designed motricity path at baselin,2 and 6 weeks	14	Significant effect on most ABC ratings at 2 and 6 week tests. Improved posture in dorsal and profile positions. Motor control was significantly improved. Compression garments are a promising treatment for both behaviour and postural management for autism and severe proprioceptive dysfunction including Ehlers-Danlos Syndrome.	2020
Hui et al 2020 (68)	3	Study of Textile Fabric Materials used in Spinal Braces for Scoliosis	Suit	Single case computer modelling of scoliosis suit design in idiopathic onset scoliosis patient	1	Cobb angle changed by 14.4% (reduction) using FEM simulation. Good softness and air permeability	2020#
Hylton.N (69)	3	The use of compression stabilizing type bracing as an adjunct to therapy	Shorts	Single case	4	Discussion paper prior to full paper	1996

Hylton.N (70)	3	The development and use of SPIO Lycra compression bracing in children with neuro-motor deficits	Suit	Single case	1	Observational Discussion	1997
Kennedy et al 2000 (71)	3	The treatment of inter-phalangeal joint flexion contractures with reinforced Lycra finger sleeves	finger	Single case study	2	Cosmetic acceptability	2000
Knox.V (72)	3	The use of Lycra garments in children with cerebral palsy: a report of a descriptive clinical trial	Suit	Repeated measures Single case group	8	GMFM Quest Good literature review. Non biased report Discussion of Melbourne Test	2003#
Matthews,M & Crawford,R (73)	3	The Use of Dynamic Lycra Orthoses in the Treatment of Scoliosis	Suit	Single Case Study	1	X-ray evidence New treatment protocol	2006#
Matthews et al 2011 (74)	3	The use of a Dynamic Elastomeric Fabric Orthosis to Manage Painful Shoulder Subluxation: A Case Study	Shoulder Stability Orthosis	Single Case Study	1	X-ray Evidence	2011#
Matthews et al 2016 (75)	3	The use of dynamic elastomeric fabric orthoses suits as an orthotic intervention in the management of children with neuropathic onset scoliosis: A retrospective audit of routine clinical case notes	Suits with specific scoliosis treatment additions	Clinical Audit	180	Research matrix used to interrogate clinical notes.	2016#
Mokhatainia et al 2012 (76)	3	Effect of Neoprene Dynamic Orthosis on Gait Parameters in Child with Spastic Diplegia Cerebral Palsy: a case study	Neoprene Leggings	Single case Study	1	Decrease in of more than 5° in maximum and minimum knee flexion after 6 weeks of wear. With increase in cadence after removal of	2012

						leggings as the 6 weeks stage	
Oglieve,K (77)	3	An audit of satisfaction amongst people who are wearing dynamic Lycra Orthoses for the Management of Upper Limb Movement disorders caused by Neurological disorders.	Gloves	Questionnaires of users	15	Subjective improvement in posture, gait, arm awareness, confidence, arm use. Using VAS	2006#
Paleg.G (78)	3	Dynamic Trunk Splints and Hypotonia	Trunk	Single Case Benek Suit	1	GMFT/questionnaire Limited references/ No discussion	2001#
Prenton et al 2014 (79)	3	A sock for footdrop: a preliminary study on two chronic patients	Dorsiflex Sock	A-B single case experimental design	2	Positive user perceptions, however, the sock was not strong enough to lift the foot not surprisingly for patients who use FES	2014#
Rathinam et al 2013 (80)	3	Effects of lycra body suit Orthosis on a child with developmental coordination disorder: a case study	Shorts	Case study	1	Clinical changes in movement skill and motor performance	2013#
Sawle & Matthews 2010 (81)	3	Case Study: Developing a Dynamic Elastomeric Fabric Orthosis to Manage Pregnancy-Induced Pelvic Pain	Pregnancy Shorts	Case study Daily Pain diary VAS	1	Reduced Pelvic pain and improved quality of life	2010#
Sawle et al 2015 (82)	3	The Use of Dynamic Elastomeric Fabric Orthosis in Supporting the Management of Athletic Pelvic and Groin Injury	REPS® Shorts	Case series using AB design	8	Subjective and objective improvements in pain and function in athletes with long standing pelvic/groin pain	2015#
Shaari et al 2018 (83)	3	Interface Pressure of Lycra Orthosis at Different Postures in	Suit	Case Study to measure pressure (Tekscan) during static and dynamic postures	5	Improved Sit to stand and trunk control scores.	2018

		Children with Cerebral Palsy					
Shaari et al 2020 (84)	3	A case study on interface pressure pattern of two garment orthoses on a child with cerebral palsy	TheraTogs® compared with a Dynamic Lycra fabric orthosis (DLFO)	Sit to stand measures Measured interface pressure during sit and sit to stand test	1	TheraTogs® exerted the most pressure when sitting The DLFO exerted most pressure when sitting to stand movement	2020
Skublewska-Paszkowska et al 2018 (85)	3	Motion Capture Technology as a Tool for Quantitative Assessment of the Rehabilitation Progress of Gait by Using Soft Orthoses	Suit	Case study using passive optical motion capture technology to measure quality of gait and progression of rehabilitation.	1	Increase in walking speed	2018
Watson et al 2007 (86)	3	An evaluation of the effects of a dynamic Lycra orthosis on arm function in a late stage patient with acquired brain injury	Long armed glove	Case Study	1	Rehabilitation	2007#
Yasukawa et al 2005(87)	3	Shoulder Case Study for Children with Subluxation: A Case Study	Upper Limb Shoulder stability Orthosis	Case Study	1	Validated radiograph pre- and post-intervention Shoulder and elbow tracking movement system used to objectively quantify the outcome	2005#
Yasukawa et al 2011 (88)	3	Case Study: Use of the Dynamic Movement Orthosis to Provide Compressive Shoulder Support for Children with Brachial Plexus Palsy	Shoulder Stability Orthosis	Case Study	1	Wolf Motor Function Test Grip Strength using Dynamometer	2011#
Yasukawa & Uronis 2014 (89)	3	Effectiveness of the Dynamic Movement Orthosis Glove for a Child with Cerebral Palsy Hemiplegia and Obstetric Brachial	Upper Limb	Case series	2	Melbourne Assessment Score	2014#

		Plexus Palsy: A Case Series					
Angilley,H 2006 (90)	4	Lycra Garments – A single case study	Long armed vest top	Case study on 2 nd Skin suit	1	GMFCS before and during intervention/ Video/ Bruininks Oseretsky/ questionnaire/ diary	2006
Betts.L (91)	4	Dynamic Movement Lycra orthosis in multiple Sclerosis	General introduction of use Use of combination of FES and orthosis in one of the cases studies	Case studies	3	Descriptive observational presentation	2015#
Blandford et al 2014 (92)	4	Dynamic elastomeric fabric orthoses in neuropathic scoliosis management : an audit of frequency and characteristics of use	Spine / Scoliosis	Retrospective Audit	121/180	Conference Abstract Review of clinical practice in the UK using cross section of outcome measurements	2014#
Cheng C & Chan I 2003 (93)	4	Use of Lycra based garments in facilitating postural stability in children with cerebral palsy	Short arm/ short leg suit	Case Study	2	Athetoid movements reduced, better trunk and head control	2003
Coghill, J & Simkiss, D (94)	4	Question 1 Do Lycra garments improve function and movement in children with cerebral palsy	ALL AREAS	Literature review	8	Although 66 papers found only 8 relevant to research question	2010
Dahale (2015) (95)	4	Project report on Compression Garments	ALL AREA	Internship report	-	-	2015
Davies,P 2005 (96)	4	Use of a lycra compression suit to relieve painful hemiplegic shoulder three years post stroke	Shoulder	Single case report	1	Reported pain relieved (which was the aim), however outcome measures not really appropriate for condition	2005#
Drivsholm et al 2018 (97)	4	Evaluation of Dynamic Movement orthosis (DMO) as a	Shoulder	Group of single cases Brooke Upper limb score / manual muscle test/fatigue/ Disabilities of the arm, shoulder and hand (DASH)	8	Pain and Fatigue was not reduced	2018#

		means to relieve pain and fatigue in patients with facio-scapulo-humeral muscular dystrophy				Positive effects on upper limb activities Pain interfered with Activities of daily living less with orthosis on.	
Edwards et al 2016 (98)	4	Evaluation of the use of a dynamic elastomeric fabric orthosis (DEFO) to improve truncal stability in a young child with Osteogenesis Imperfecta	Trunk	Single case report	1	Improved hands free sitting play Activity and confidence increased whilst wearing the suit.	2016#
Edwards et al 2016 (99)	4	Is participation in children with type 1 OI influenced by wearing a DEFO?	Trunk	3 Singles case studies	3	Improved gross and or fine motor function. Improve posture in sitting and standing Improved pencil grip Reduced balance loss and more stable	2016#
Fisher et al 2010 (64, 100)	4	Effects of a “SNUG” Sensory Dynamic Orthosis on Gross Motor Function in Children with Cerebral Palsy	Trunk	Multi-centre Study 1-23 years of age (Median 7 years) 21 males/10 females GMFCS GMFM 88	31	Conference Abstract Statistically Significant change in GMFM 88	2010#
Grandi et al 2012(101)	4	Listening to the patient as a possible route to cost-effective rehabilitation: a case report	Upper Limb	Case report	1	Improved Melbourne Upper limb function test	2012
Hassan,A & Snowdon,N 2015 (102)	4	Clinicians’ perceptions and experiences of using dynamic elastomeric fabric orthoses with patients with neurological disorders	All variants	Qualitative Semi- structured interview	7	Interviews	2015
Hochadel, L 2012 (103)	4	Orion: choosing wisely	Trunk	Case report	1	O&P Edge Magazine	2012#

Hylton& Schoos (104)	4	Deep Pressure Sensory Input SPIO Flexible Compression Bracing	All Areas	Overview report	5	NDTA Network magazine article	2007
Lewis,J & Pin,T 2016 (105)	4	Dynamic elastomeric fabric orthosis in managing shoulder subluxation in children with severe cerebral palsy: a case series	Shoulder	Repeated measures design	3	Conference Abstract Shoulder relocation and decreased pain and discomfort reported at rest or on activity when worn noted	2016#
Little et al 2015	4	Impact of de-rotational Lycra® shorts on in-toeing gait profile: a single case study	Pelvis	Single case study Foot progression angle and plantar flexion angle	1	Conference Poster Presentation. 3D Gait analysis	2015#
Lui & Bolton-Maggs 2014 (106)	4	Use of Lycra Suits in the management of Cerebral Palsy and Multiple Sclerosis	Suit	Literature review in 2014 for CHAMPS public health collaborative service	-	Reported little published data on the use of Lycra suits in the management of Cerebral Palsy, lack of consistent outcome measures. More research required	2014
Kumar et al 2016 (107)	4	Investigating the effects of Lycra sleeves on shoulder girdle: A study to inform management of glenohumeral subluxation in post stroke hemiplegia.	Upper limb sleeve	Surface EMG, surface ultrasound with scapular position measured in realisation to the spine	30	Lycra sleeve alters scapular position, activated the muscles around the scapula and increases external rotation	2016
Macpherson 2005 (108)	4	Dynamic Lycra Splinting for children with cerebral palsy	General	2005 Review of evidence for use		Suitability needs to be decided on a case-by-case basis	2005
Matthews 2001 (109)	4	The use of Dynamic Lycra Gloves in the Treatment of the Neurologically Impaired Hand and Forearm	Glove	Hand, wrist and arm photographic programming to measure and report angular change pre and post, glove intervention	1	Measurement of photographs using angular change showed improvement in wrist and arm angles when wearing glove.	2001#

Matthews 2005 (110)	4	Discussion document for upper limb orthotic treatment within the field of neurology	Glove	Discussion Document in BAPOMag		1	Introducing upper limb DEFO which included wrist extension and supination panels	2005#
Matthews & Dickinson 2010 (111)	4	A pilot study of the effects of Dynamic Elastomeric Fabric Foot Orthoses on Gait in Subjects with Chronic Hemiplegia	Soc	FES	Single case report Video analysis	1	Conference Abstract 5 xComparison Video Analysis	2010#
Matthews et al 2010 (112)	4	Dynamic Lycra Orthoses for Shoulder Instability	Upper trunk and arm	Single case report X- ray pre- and post-intervention		1	Conference abstract Visual X- ray change	2010#
Matthews & Smith 2011 (113)	4	Is the Future of Spinal Bracing for the Child with Neurological Onset Scoliosis Rigid -A timeline of Development?	Spine	Single case discussion paper presenting pre- and post-intervention X-rays.		1	The DEFO scoliosis suit questions the use of rigid bracing for neurological onset scoliosis, and showed a 50% reduction in the Cobb Angle in 12 months	2011#
Matthews et al 2011 (114)	4	Spinal bracing for the child with neurological dysfunction: is the future rigid	Spine	Discussion paper presenting the new concept of using DEFO suits for scoliosis orthotic management		2	DEFO spinal bracing can offer a viable opportunity to manage mobile scoliosis	2011#
Matthews, M & Bridges, S (2016) (115)	4	Does the use of dynamic elastomeric fabric scoliosis suits provide an improved and more user-friendly option for early intervention in childhood	Spine	AB		1	X-ray observation	2011#
Matthews,M; et al 2015(116)	4	The novel use of combining a dynamic elastomeric fabric orthotic sock with an integrated membrane and functional electrical stimulation for an adolescent with hemiplegia	Lower Limb	Single case report		1	Conference Abstract 10 metre walking test and Physiological cost index	2015#

Matthews 2016 (117)	4	Pathological presentations of scoliosis and their management	Scoliosis Suit	Educational Discussion Document on scoliosis	N/A	Orthotic Options and need to get curves early on when mobile	2016#
McDermott et al 1998(118)	4	Lycra Suits	Suit	Parent review of using 2 nd Skin suit	3	Personal observations	1998
Mayston, M & Barron, L Discussion (119)	4	The Use of a Dynamic Elastomeric Fabric Orthosis to Optimise upper limb recovery following stroke	Upper Limb	RCT	23	NK dexterity Board 3-D Motion Analysis EMG	2011#
Morris 2011 (120)	4	What's the evidence? Lycra	General	Basic review		Cerebra Research Unit report	2011
Morris et al 2017 (121)	4	The effect of a Lycra compression garment on upper limb muscle activity during a functional task: a student project	Upper Limb	Same subject cross over design	19	Surface electromyography (EMG) applied to biceps, triceps and common wrist/finger extensors Lycra garment may improve proximal muscle activation and that static positional changes may not be maintained during task performance.	2017
Nair & Marsden 2014	4	The management of spasticity in adults	General	Clinical Review of spasticity including Lycra® based orthoses		Stretching and splinting	2014
National Horizon (122)	4	Lycra garments for cerebral palsy and movement disorders	Upper limb and Trunk	Review of known knowledge		Government Review	2002
Patrick et al 2001 (123)	4	Therapeutic choices in the locomotor management of the child with cerebral palsy – more luck than judgement	Suit	Current topic discussion paper looking at management of the child with CP. Makes reference to 2 nd Skin paper by Blair under orthotic management review		Clinical discussion paper on the current state of treatment options	2001
Preisler, B & Eve, K	4	The treatment of Young Children with Low Truncal Tone as a Result of a Result of Various Diagnoses,	Trunk	Review 18 months – 3 years of age	3	Conference Abstract Improved trunk stability Functional changes	2010#

		with Dynamic GPS Soft Orthoses- Case studies							
Rubio 2013 (124)	4	Use of dynamic orthoses in the treatment of upper limb pathologies that occur with tone impairment	Gloves and Upper limb including shoulder	Spanish Discussion document with local cases studies			10	Patient specific changes	2014#
Rubio & Sawle 2014 (125)	4	Dynamic orthotics and sport innovation in rehabilitation and injury prevention	REPS® Shoulder	Socks	REPS® Shorts	Discussion Document with single case discussions and data	8	Results based on Sawle's repeated measures single case study	2014#
Ryder 2005 (126)	4	A comparison of hinged ankle foot orthoses and Lycra socks in the treatment of Cerebral Palsy	Socks	University Dissertation			5	Improvements in stance phase balance Increased confidence in walking Good compliance and less discomfort when wearing sock in relation to HAFO. HAFO 10m walking was faster than sock but benefit was not apparent when walking without HAFO	2005#
Sawle,L2010 (127)	4	Developing a dynamic elastomeric fabric orthosis (DEFO) for aiding return to sport after lumbopelvic injury	Lumbopelvic	AB design			5	Pain (Numerical Rating Scale (NRS) Maximal resisted hip adduction/squeeze test Training diary	2010#
Sawle et al 2010 (128)3	4	Evaluation of a customised dynamic elastomeric fabric orthosis for aiding the return to sport after lumbopelvic /groin pain	REPS® Shorts	Single case AB design Self-reported pain Daily diaries 15 daily assessments Broad jump & straight leg raise			3	Daily diaries indicated enhanced sports participation.	2010#
Sawle et al 2013(129)	4	Managing the grumbling Groin: a Novel Approach	REPS® Shorts	Single case Discussion article			8	Significant improvement in pain and/ or function in all but one participant	2013#

						Questionnaires showed that all participants would use their shorts after the study finished until they were pain free	
Sawle et al 2013 (130)	4	The development and evaluation of a dynamic orthosis (shorts) to aid in the management of athletic pelvic /groin pain	Shorts	Single case Discussion Article	8	Pain scores VAS	2013#
Shaari et al 2015 (131)	4	The Immediate Effects of Lycra Fabric Soft Orthosis (LFSO) Garment on Trunk and Pelvis Kinematic during Sit to Stand (STS) on a Healthy Child	Suit	Single case using 3D Gait Analysis to measure Kinematic	1	Changes in STS movement pattern spine and pelvis in Range of movement.	2015
Takeuchi, C et al 2008 (132)	4	Effect of Dynamic Elastomeric Fabric Ankle Foot Orthoses for Paralytic Foot drop in Paediatric Siblings with Charcot-Marie-Tooth Disease	Foot	ABC design	2	Gait Analysis	2011#
Uhegwu, E & Bhugra, R (133)	4	Lycra Garments for Neurological and Musculoskeletal Conditions	Review	Basic review		Report	2019
Wynne et al 2010 (134)	4	Acceptance and Outcomes of the Dynamic Elastomeric Fabric Wrist Hand Orthosis in the Paediatric Population.	Upper Limb	Quality Audit and review of trends in wearer profile, treatment plan, follow up schedules and outcomes	Not stated	Conference Abstract General Review	2010#

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Type and quality of evidence

1++ High quality meta-analyses, systematic reviews of RCTs, or RCTs (including cluster RCTs) with a very low risk of bias

1+ Well conducted meta-analyses, systematic reviews of RCTs, or RCTs (including cluster RCTs) with a low risk of bias

1– Meta-analyses, systematic reviews of RCTs, or RCTs (including cluster RCTs) with a high risk of bias

2++ High quality systematic reviews of these types of studies, or individual, non-RCTs, case-control studies, cohort studies, CBA studies, ITS, and correlation studies with a very low risk of confounding, bias or chance and a high probability that the relationship is causal

2+ Well conducted non-RCTs, case-control studies, cohort studies, CBA studies, ITS and correlation studies with a low risk of confounding, bias or chance and a moderate probability that the relationship is causal

2– Non-RCTs, case-control studies, cohort studies, CBA studies, ITS and correlation studies with a high risk – or chance – of confounding bias, and a significant risk that the relationship is not causal

3 Non-analytic studies (for example, case reports, case series)

4 Expert opinion, formal consensus

NB: for policy interventions, then CBA can be awarded level 1 evidence.

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