



NDS NEURODYNAMIC SOLUTIONS

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Curriculum Vitae

Michael O. Shacklock

Date of Birth: 20/12/1959

Place of Birth: Dunedin, New Zealand

Qualifications

Awarded Fellow of the Australian College of Physiotherapist (original contribution by monograph), 2007

Master of Applied Science (Manipulative Physiotherapy) 1993, University of South Australia

Graduate Diploma in Advanced Manipulative Therapy, University of South Australia, 1989

Diploma in Physiotherapy 1980, Auckland School of Physiotherapy, Auckland, New Zealand

Positions Held

Staff Physiotherapist, Dunedin Public Hospital , New Zealand (January 1981- July 1982)

Private practitioner, Margaret Franklin and Associates, Remuera, Auckland, New Zealand (July 1982 - July 1984)

Private practitioner, Nelson Physical Medicine Centre (Mr Michael Monaghan) (July 1984- August 1985)

Part time Physiotherapist at Nelson Public Hospital, Nelson, New Zealand (November 1984-July 1985)

Staff Physiotherapist, Royal Adelaide Hospital, Adelaide, South Australia, Australia (October 1985 and March 1986)

Private practitioner, Roberts Physiotherapy and Manipulative Physiotherapy, Holden Hill, Adelaide, South Australia, Australia (March 1986 - November 1987)

Private practitioner Morphett Vale Physiotherapy Centre, South Australia, Australia
(February 1988 - December 1988)

Private practitioner Adelaide Physical Care Centre (Lowe, Smith, Williamson Pty Ltd),
Adelaide, South Australia, Australia (January 1990 - June 1991)

Clinical Tutor in Musculoskeletal Physiotherapy, University of South Australia (1991-
1992)

Physiotherapist for Australian National Soccer Team and Olympic Squad, Adelaide,
Australia, 1991

Private practitioner and principal, Slater, Butler & Shacklock Pty Ltd, Adelaide, South
Australia, Australia (June 1991 - Oct 1996)

Member of the Teaching Faculty of the Neuro Orthopedic Institute (USA) (1994- 1996)

Founding Director and Instructor, Neuro Orthopaedic Institute (Australasia) (March 1994
- June 1999)

Adjunct Lecturer, School of Physiotherapy, University of South Australia, 1994-1996

Current Positions

Principal and Director, NDS Neurodynamic Solutions, Adelaide, Australia

Consultant Musculoskeletal Physiotherapist at Flex Rehabilitation Clinic, Cumberland
Park, Adelaide, South Australia

PhD student, University of Eastern Finland, supervisor Olavi Airaksinen (MD, PhD)
Professor, Head of Department, Clinical Director, Department of Physical and
Rehabilitation Medicine, University of Eastern Finland, Finland.

Publications in Chronological Order

Master of Applied Science Thesis. The plantarflexion/inversion straight leg raise.
University of South Australia, Adelaide, Australia

Shacklock M 1991 The normal response to the plantarflexion/inversion straight leg raise
with cervical flexion in support of a neural cause of symptoms. In: Proceedings of the
Seventh Biennial Conference of the Manipulative Physiotherapists' Association of
Australia, Blue Mountains

Shacklock M, Butler D, Slater S 1994 The dynamic central nervous system: structure and clinical neurobiomechanics. In: Palastanga N, Boyling J (eds) Grieve's Modern Manual Therapy of the Vertebral Column (2nd edn), chapter 2, Churchill Livingstone, Edinburgh

Slater S, Butler D, Shacklock M 1994 The dynamic central nervous system: examination and assessment using tension tests. In: Palastanga N, Boyling J (eds) Grieve's Modern Manual Therapy of the Vertebral Column (2nd edn), chapter 44. Churchill Livingstone, Edinburgh

Butler D, Slater S, Shacklock 1994 Treatment of altered nervous system mechanics. In: Palastanga N, Boyling J (eds) Grieve's Modern Manual Therapy of the Vertebral Column (2nd edn), chapter 50. Churchill Livingstone, Edinburgh

Shacklock M 1995a Neurodynamics. Physiotherapy 81 (1): 9-16. Translated into German, Swiss Manual Therapy Group Journal 1996

Shacklock M 1995b Clinical application of neurodynamics. In: Shacklock M (ed) Moving in on Pain, Butterworth-Heinemann, Sydney: 123-131

Slater H, Shacklock M, Butler D 1995 Mobilisation of the Nervous System: pain sciences and clinical development (level II) course. Neuro Orthopaedic Institute, USA

Zorn P, Shacklock M, Trott P 1995 The effect of sequencing the movements of the upper limb tension test on the area of symptom production. In: Proceedings of the Ninth Biennial Conference of the Manipulative Physiotherapists' Association of Australia, Gold Coast: 166-167

Shacklock M 1996 Positive upper limb tension test in a case of surgically proven neuropathy: analysis and validity. Manual Therapy, 1: 154-161

Shacklock M 1997 Dorsal horn injury as a cause of pain in cervical trauma. In: Proceedings of the Tenth Biennial Conference of the Manipulative Physiotherapists' Association of Australia, Melbourne: 189-195.

Shacklock 1997 Central pain mechanisms: the new horizon in manual therapy. Manual Therapy and Special Interest Group Newsletter, October.

Coveney B, Trott P, Grimmer K, Bell A, Hall R, Shacklock M 1997 The response to the upper limb tension test in carpal tunnel sufferers. In: Proceedings of the Tenth Biennial Conference of the Manipulative Physiotherapists' Association of Australia, Melbourne: 31-33.

Shacklock M 1998 The endorphin response and its relation to the treatment of pain. In: Proceedings of the Australian Conference of Science and Medicine in Sport, Adelaide: 44.

Shacklock M 1999 The role of the nervous system in the treatment of musculoskeletal disorders. Journal of the Japanese Society of Judo Therapists. Translated into Japanese.

Shacklock M 1999a Leading article. Central pain mechanisms: a new horizon in manual therapy. Australian Journal of Physiotherapy 45 (2): 83-92.

Shacklock M 1999b The clinical application of central pain mechanisms in manual therapy. Australian Journal of Physiotherapy 45 (3): 215-221.

Shacklock M 2000 Invited Article, Balanced on a tightrope between low back pain and evidence based practice. New Zealand Journal of Physiotherapy 28 (3): 22-27.

Shacklock M, Wilkinson M 2001 Can nerves be moved specifically? In: Proceedings of the Biennial Conference of the Musculoskeletal Physiotherapists' Association of Australia, Adelaide, November 2001: 47.

Shacklock M 2005 Improving application of neurodynamic (neural tension) testing and treatments: a message to researchers and clinicians. Editorial, *Manual Therapy* 10: 175-179

Shacklock M 2006 From neural tension to neurodynamics. *Manuelle Therapie*, translated into German, in press

Rade M, Könönen M, Vanninen R, Marttila J, Shacklock M, Kankaanpää M, Airaksinen O 2014 In vivo MRI measurement of spinal cord displacement in the thoracolumbar region of asymptomatic subjects: Part 1 - straight leg raise test. *Spine* 39 (16): 1288-1293

Rade M, Könönen M, Vanninen R, Marttila J, Shacklock M, Kankaanpää M, Airaksinen O 2014 In Vivo MRI measurement of spinal cord displacement in the thoracolumbar region of asymptomatic subjects: Part 2 - comparison between unilateral and bilateral straight leg raise tests. *Spine* 39 (16): 1294-1300

Rade M, Shacklock M, Könönen M, Marttila J, Vanninen R, Kankaanpää M, Airaksinen O. 2015 Part 3: Developing Methods of In Vivo MRI Measurement of Spinal Cord Displacement in the Thoracolumbar Region of Asymptomatic Subjects With Unilateral and Bilateral Straight Leg Raise Tests. *Spine* 40(12):935-941

Rade M, Könönen M, Marttila J, Vanninen R, Shacklock M, Kankaanpää M, Airaksinen O. 2015 Correlation analysis of demographic and anthropometric factors, hip flexion angle and conus medullaris displacement with unilateral and bilateral straight leg raise. 2015 *European Spine Journal* (published ahead of print March 13).

Shacklock M, Yee B, Van Hoof T, Foley R, Keith Boddie, Erin Lacey, J Bryan Poley, Marinko Rade, Markku Kankaanpää, Heikki Kröger, Olavi Airaksinen 2015 Slump test: effect of contralateral knee extension on response sensations in asymptomatic subjects and cadaver study. *Spine*, under review.

Books Published

Shacklock M 2005 Clinical Neurodynamics: a new system of musculoskeletal treatment. Elsevier Health, Oxford (successful peer review by Australian College of Physiotherapists, Australian Physiotherapy Association 2007)

Shacklock M Editor 2007 Biomechanics of the Nervous System: Breig Revisited, NDS Neurodynamic Solutions Adelaide,

Shacklock M 1995 Editor, Moving in on Pain, Butterworth-Heinemann, Sydney

Awards

Best paper Manipulative Physiotherapists' Association Biennial conference, Melbourne, 1997. Coveney B, Trott P, Grimmer K, Bell A, Hall R, Shacklock M 1997 The response to the upper limb tension test in carpal tunnel sufferers. In: Proceedings of the Tenth Biennial Conference of the Manipulative Physiotherapists' Association of Australia, Melbourne: 31-33

Fellow of the Australian College of Physiotherapist (original contribution by monograph), 2007

Named Lectures

Gregory Grieve Memorial Lecture – Manipulation Association of Chartered Physiotherapists October 2006.

Alf Breig Memorial Lecture - Swedish Orthopaedic Manual Therapy Conference, Stockholm, September 2007. Evolution of neural tension.

Other Oral Presentations

Keynote Speaker - West Spinal Symposium, Warrnambool, Australia April 1997

1. Central pain mechanisms and their relation to manual therapy.
2. The sympathetic nervous system and pain, what do we know and how can we apply this clinically?

Keynote speaker - Pain and physical therapy: a new look and the pain experience and the way we practise. March 21st 1997. Chicago Institute of Neurosurgery and Neuroresearch, Chicago USA

Keynote Speaker - National Conference of the Australian Sports Medicine Federation, October 1998. The endorphin response and its relation to the treatment of pain.

Keynote speaker - The role of the nervous system in the treatment of musculoskeletal disorders. Annual conference of the Japanese Society of Judo Therapists. Shizuoka City, November 1998.

Keynote Speaker – Finnish National Orthopaedic Manual Therapy Conference 2001. Pain and the musculoskeletal system.

Keynote Speaker – Swedish National Orthopaedic Manual Therapy Conference 2001. The role of the nervous system musculoskeletal pain syndromes.

Keynote Speaker – Y2K – Pain in the neck whiplash symposium, Canadian Physiotherapists' Association, Edmonton Canada, April 2000

Keynote Speaker - Swedish Orthopaedic Manual Therapy Conference, February 2001
Pain and the nervous system. February 2001

Invited speaker - University of Melbourne - Future Directions in Manual Therapy Conference, 1992

Invited speaker - Neural Panel. Eighth Conference of the Manipulative Physiotherapists' Association of Australia, Perth, 1993

Invited speaker - Pain mechanisms in cervical trauma. Whiplash symposium convened by the Manipulative Physiotherapists' Association of Australia, September 1994

Invited speaker - Thoracic influences on neurodynamics. Conference of the Manipulative Physiotherapists' Association of Australia, Sydney, 1994

Invited speaker - Neural panel. Ninth Biennial Conference of the Manipulative Physiotherapists' Association of Australia, Gold Coast, Queensland, 1995

Invited speaker - "Mobilisation of the Nervous System: Central and Sympathetic Mechanisms". Southern Alberta Orthopaedic Unit and Calgary Hand Interest Group, Calgary, Canada 1997

Invited Speaker - Moving in on Pain: a new look and the pain experience and the way we practise. Bad Ragaz Manual Therapy School, Switzerland. November 8th, 1997

Guest Speaker - University of Odense, Odense, Denmark, Schools of Chiropractic and Physiotherapy. Manual therapy, pain and the nervous system, October 1997.

Invited Speaker - Conference of the International Federation of Societies for Hand Therapy, Vancouver, Canada, May 1998

Invited Speaker - North American McKenzie conference, New Orleans, 1998. Neurodynamics of low back pain. Neural aspects of the cervical spine and lumbar spine.

Invited Speaker - New Concepts in Whiplash Conference, Manipulative Physiotherapists' Association of Australia, Neural aspects of whiplash.

Invited Speaker – Evidence-based exercise in rehabilitation. Annual conference of the Australian Faculty of Occupational Medicine, Adelaide. May 1st, 2000

Invited Speaker Musculoskeletal Physiotherapy Australia – Shoulder Symposium 26-27 October, 2002. Thoracic outlet syndrome – diagnosis and treatment.

Invited speaker – Coventry University November 2004. The evidence base for clinical neurodynamics: fact or fiction?

Keynote speaker – World Congress on Manual Therapy, Rome, October 7-9 2004. Clinical Neurodynamics.

Keynote speaker – National Conference of the Physiotherapy Association of the United Arab Emirates – Clinical Neurodynamics. April 2008.

IFOMT – International Federation of Orthopaedic Manual Therapists. Invited presentation – Neurodynamics of the Thoracic Spine. June 2008.

Plenary paper – a new diagnostic algorithm for diagnosis with Neurodynamic tests.

Continues to give invited conference presentations.

Other Presentations

Shacklock M 1991 Clinical neurobiomechanics. Annual General Meeting of the Australian Physiotherapists' Association, South Australia Chapter, Adelaide, South Australia

Shacklock M 1991 The normal response when the SLR is added to plantarflexion/inversion and the effect of passive neck flexion as support of a neural cause of symptoms. In: Proceedings of the 7th Biennial Conference of the Manipulative Physiotherapists' Association of Australia, Blue Mountains: 258-262

Neurogenic inflammation: a new approach to neuro-orthopaedic disorders. National Congress of the Australian Physiotherapists's Association, Adelaide, 1992

Shacklock 1994 Pain mechanisms. In: Proceedings of the New Concepts in Whiplash Symposium, Manipulative Physiotherapists' Association of Australia, Adelaide: 77-88

Thoracic influences on neurodynamics. In: Proceedings of the Thoracic Spine Symposium, Manipulative Physiotherapists' Association of Australia, 1994

Peripheral neurogenic pain and its relation to musculoskeletal tissues. Australian Physiotherapists' Association, Orthopaedic Special Group, Adelaide, 1994

Diagnostic efficacy of the upper limb tension test. Conference of the International Federation of Societies for Hand Therapy, Vancouver, Canada, May 1998

Neural aspects of whiplash - New Concepts in Whiplash Conference, Manipulative Physiotherapists' Association of Australia, Neural aspects of whiplash, Melbourne 1998

Upper Quarter Clinical Neurodynamics workshop (2 days) – musculoskeletal Physiotherapy Australia conference – November 2003

Lower Quarter Clinical Neurodynamics workshop (2 days) – musculoskeletal Physiotherapy Australia conference – November 2003

Educational and Professional Activities

Scientific Convenor - Moving in on Pain International Conference, April 1995, Adelaide

Member of the Ad Hoc Committee for the Development of a Pain Education Curriculum for Physical Therapy and Occupational Therapy for the International Association for the Study of Pain 1996

Co-founder, Pain Journal and Research Group, University of South Australia

Examiner of research theses in neurodynamics, University of South Australia 1992 - current

Supervisor of Masters of Applied Science research into neurodynamics, University of South Australia - current

Video conference presenter to remote areas of Australia, September and October 1994, University of South Australia.

Investigation of the validity of real-time ultrasound imaging of nerve movement - a cadaver study (co-researchers - Dr Sheila Scutter, Ms Maureen Wilkinson, Professor Marcej Henneberg, University of South Australia School of Medical Radiation, University of Adelaide Department of Anatomy) 2001

Reviewer of research grant applications, Physiotherapy Research Foundation – 2003-current

Member of the International Advisory Board for *Manual Therapy* – 2004 - current

Reviewer of research submissions, *Manual Therapy* 1998-current

Reviewer of research submissions, *Pain* 2005-current

Reviewer of research submissions – World Congress for Physical Therapy 2005- current

Mobilisation of The Nervous System Courses Taught

Australia

Slater, Butler & Shacklock Pty Ltd - 1993 - 4 two-day courses

Orthopaedic Special Group, Australian Physiotherapy Association, Adelaide - 1994 two-day course

Melbourne Branch of the Australian Physiotherapy Association, Manual Therapy Special Group - 3 two-day courses, 1993-1994

Sydney Branch of the Australian Physiotherapy Association, Manual Therapy Special Group, two-day course, November 1994

Austria

Two day mobilisation of the nervous system course, Klagenfurt, June 1997, March 1998, 2000, 2001

Canada

Grey Bruce Regional Health Centre - two-day initial course

Edmonton - two-day Initial course (Stauffer Rehab Seminars)

Calgary - two-day Initial course (Stauffer Rehab Seminars)

Vancouver - two-day course, Neural mobilisation of the upper quarter

Netherlands

Amersfoort - two day level II courses (July 1996, November 1997)

New Zealand

1990

Auckland Branch of the New Zealand Society of Physiotherapists - 2 two-day courses

1991

Auckland Branch of the New Zealand Society of Physiotherapists, Auckland Public Hospital - two-day course

1992

Auckland Branch of the New Zealand Society of Physiotherapists, Auckland Public Hospital - two-day course

1993

Auckland Branch of the New Zealand Society of Physiotherapists - two-day course, Auckland Public Hospital

Waikato/Bay of Plenty Branch of the New Zealand Society of Physiotherapists - two-day course

Middle Districts Branch of the New Zealand Society of Physiotherapists, Palmerston North Hospital - two-day course

Otago Branch of the New Zealand Society of Physiotherapists, Dunedin - two-day course

Dunedin School of Physiotherapy, University of Otago - two-day course

Christchurch - 2 two-day courses

Waikato/Bay of Plenty Branch of the New Zealand Society of Physiotherapists - 2 two-day courses, Tauranga

1996

Auckland Branch of the New Zealand Society of Physiotherapists - 2 two-day initial courses, Auckland Public Hospital, August

Wellington Branch of the New Zealand Society of Physiotherapists - two-day initial course, Wellington Public Hospital, August

Nelson/Marlborough Branch of the New Zealand Society of Physiotherapists - two-day initial course, Nelson Public Hospital, August

Otago Branch of the New Zealand Society of Physiotherapists - two-day initial course,
Dunedin Public Hospital, August

1999

Otago Branch of the New Zealand Society of Physiotherapists, Dunedin Mobilisation of
the Nervous System, two-day level 2 course

2000

Nelson/Marlborough Branch of the New Zealand Society of Physiotherapists, Nelson,
two-day level 2 course

United Kingdom (for the Neuro Orthopaedic Institute, UK
Tooting Hospital, London - two-day course (October 1994)
Norwich Hospital - two-day course (October 1994)
Poole, Dorset- two day level II course (June 1996)
Tooting Hospital, London - two-day course (June 1996)

United States of America (for the Neuro Orthopedic Institute, USA)
Buffalo, NY - two-day Initial course (Oct 1994)
Worcester, Mass - two-day Initial course (Oct 1994)
Madison, WI - two-day Initial course (Nov 1994)
Philadelphia, PA - two-day Initial course (Nov 1994)
Portland, OR - two-day Initial course (Nov 1995)
Akron, OH - two-day Initial course (Nov 1995)
San Francisco - two-day Level II course (Nov 1995)
San Diego - two-day Level II course (Nov 1995)
Hawaii - - two-day Initial course (Feb 1996)
Salt Lake City - two-day Initial course (March 1996)
Los Angeles - -two-day Initial course (March 1996), two-day Level II course (May 1996)
Chicago two-day Initial course (March 1996)
Boston (Braintree) - two-day Initial course April (1996)
Milwaukee - two-day Initial course (May 1996)
Buffalo - two-day Initial course (June 1996)
Concord (New Hampshire) - two-day Initial course (APTA sponsored)
Seattle (WA) - two-day Initial course
Chicago Institute of Neurosurgery and Neuroresearch, One day seminar - Moving in on
Pain, a new look at the pain experience and the way we practise, August 1997

Switzerland

Zurzach (Zürich) - two day initial course November 1997, 1998, two day level II courses
- July 1996, October 1999, April 2000, Moving in on Pain: a new look at the pain
experience and the way we practise (one-day)
Bad Ragaz - one day- Moving in on Pain, a new look at the pain experience and the way
we practise

1999

Zurzach, Switzerland

Mobilisation of the nervous system: clinical application course. October

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Summary of Current Activities

Continues to teach neural mobilisation, pain and the nervous system and manual therapy internationally at numerous institutions, including Aspetar (Doha, Qatar),

Continues to teach Clinical Neurodynamics and Musculoskeletal Physiotherapy internationally - keynote, invited speaking, workshops, which has included institutions such as the Chicago Bulls basketball club, Manchester City Football Club, Liverpool Football Club, also including hospitals, universities and professional associations around the world.

Current research activities – in vivo measurement of spinal cord movement with Neurodynamic tests, ultrasound imaging of peripheral nerves.