Reflections on the growth of musculoskeletal physiotherapy in New Zealand over the last 100 years and the contribution of New Zealand Physiotherapists on the world stage

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ABSTRACT

In April 2013, the physiotherapy profession will celebrate 100 years of education in New Zealand. The New Zealand Physiotherapy Journal has long been an established medium for publishing clinical information and research to inform the profession. Early publications were often dominated by medical professionals providing guidance to commonly encountered clinical conditions. In the 1938 edition of the journal Mr Morris published an article titled "Manipulation in the treatment of injuries". This covered a range of injures from low back pain to tennis elbow. Musculoskeletal physiotherapy has always been a strong part of physiotherapy practice in this country. This paper aims firstly, to provide a brief history of the development of the musculoskeletal physiotherapy special interest group in New Zealand and the influence the founding members have had on the development of physiotherapy locally and internationally. Secondly, the paper provides some reflections on the management of the musculoskeletal conditions mentioned in the Morris paper and discusses how current research by New Zealand and other international musculoskeletal physiotherapists has altered the management of these conditions over the last 75 years.

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INTRODUCTION

New Zealand physiotherapists have been leaders in the world with respect to the teaching and delivery of musculoskeletal physiotherapy. The article published by Mr Morris (Orthopaedic surgeon) in the New Zealand Journal of Physiotherapy (NZJP) in 1938 (Morris 1938) was strongly supportive, even at that time, of both manipulation and physiotherapy. Although 75 years have passed since this article was published, there are some interesting themes and developments worthy of mention in the field of musculoskeletal physiotherapy. The purpose of this paper is firstly to provide a brief historical overview of the development of musculoskeletal physiotherapy in New Zealand and secondly, to reflect on some of the types of disorders discussed by Morris (1938) and demonstrate how New Zealand and other international physiotherapists have advanced the knowledge of the management of these conditions

HISTORICAL DEVELOPMENT OF MUSCULOSKELETAL PHYSIOTHERAPY IN NEW ZEALAND

On November 2 1968, the New Zealand Manipulative Therapists Association (NZMTA) (now called NZ Manipulative Physiotherapists Association (NZMPA)), was formed at a meeting in Taupo. There were 22 original members led by prominent pioneers such as Robin McKenzie, Brian Mulligan, Ian Searle and Craig Cameron. The organisation has grown since that time and it now has over 238 graduate members and 181 associate members and is the one of largest special interest groups of Physiotherapy New Zealand (PNZ).

The early years of the NZMTA were driven by the need to establish a formal qualification in manipulation. Under the guidance of Brian Mulligan, a two year manipulative therapy course was developed. The first graduates of this course (Margaret Almao, Jean Buswell, Joan Clague, Ace Neame, Peter Drury, Ann Gilberd, Malcolm Hood, Beryl Ingram, Robin McKenzie, Brian Mulligan, Ian Searle and Ian Sim) all completed in 1973. This qualification was the first post graduate course of study in manipulative therapy in NZ, and became known as the Diploma of Manipulative Therapy (Dip MT). Many of the first graduates became key teachers on the course, particularly Brian Mulligan, Robin McKenzie, Ian Searle and Ace Neame. At the request of these initial pioneers, other world leaders in manipulative therapy such as Freddy Kaltenborn and James Cyriax visited NZ to promote the teaching of these concepts. In 1980, NZMTA hosted the International Federation of Orthopaedic Manipulative Therapists (IFOMT) conference, led by a committee made of up Don McKenzie, Mark Laslett, Ace Neame, Michael Lamont and Pam Legge. The president of IFOMT at that time was New Zealand trained physiotherapist, Dr Stanley Paris. Keynote speakers at this conference were Alan Stoddard, Geoffrey Maitland, Robin McKenzie, Professor Vladimir Janda and Professor Smidt. This was a very successful conference, the profits of which seeded the NZMTA scholarship trust fund, now used to fund research into manual therapy in NZ. Over the subsequent years NZMTA has been successful at bringing many of the key researchers in manual and manipulative therapy from around the world to NZ, too numerous to name here.

Key members of this initial NZMTA founding group were also involved with the development of IFOMT, now called the International Federation of Orthopaedic Manipulative Physio (Physical) Therapists (IFOMPT). This group received official recognition from the World Confederation of Physical Therapists (WCPT) in 1974. IFOMPT has always had a strong

involvement from NZ, with NZ being one of the six founding member countries. Dr Stanley Paris was the founding chairman of the IFOMT and later served as its president and received the Founders Award in 1996. Stanley was made an honorary life member of IFOMPT in 2000 and awarded the Mildred Elson Award by the WCPT in 2011. Ian Searle was secretary treasurer for 22 years and Barbara Hetherington was on executive for four years and Vice President for four years. Duncan Reid is the current IFOMPT vice president and Vicki Reid has been Executive Officer for 12 years.

As the Dip MT became more popular, there was a move from the NZMTA executive to gain greater credibility for the teaching and delivery of manual and manipulative therapy by forming links with the University sector. The first of these moves was reflected in the development of the Advanced Diploma in Orthopaedic Manipulative at the Auckland Institute of Technology in the mid 1980's. Subsequently these programmes have developed into Post Graduate Diplomas, Masters Degrees and PhD's, qualifications now delivered at both NZ's Schools of Physiotherapy (AUT University and the University of Otago). Sadly, Mark Steptoe, a lecturer at the University of Otago and tutor on the NZMPA Dip MT programme, was on his way to the University of Otago's Vice Chancellor's office with the curriculum plans for the first Masters in Manipulative Physiotherapy in NZ when he was tragically killed in a motorcycle accident in 1991. Further development of these tertiary degrees continued, done in consultation with NZMPA, with the content taught by invited NZMPA tutors. As the university programmes grew NZMPA decided that the Dip MT was no longer a viable post graduate qualification as it was not recognised at a university level and it was discontinued in 2003. NZMPA is now providing Musculoskeletal Continuing Education (MCE) programmes to promote skills in this area of physiotherapy catering to those who have just completed their undergraduate training through to those who require retraining to return to the profession and for others as a bridge to the University programmes.

REFLECTION ON MR MORRIS' PAPER AND ADVANCEMENT OF KNOWLEDGE OF THE MANAGEMENT OF MUSCULOSKELETAL CONDITIONS

So what roles have NZ Manipulative Physiotherapists played in the evidence base and management of musculoskeletal injuries since the writing of Dr Morris's paper? One of the categories of injuries that Dr Morris discusses is lumbar strain, sub divided into acute, chronic and loss of lumbo-sacral intervertebral discs. Arguably, no other physiotherapist has progressed our knowledge of assessment and treatment of disc injuries more than Robin McKenzie. His original text written in 1981, *Mechanical Diagnosis of Low Back Pain* (McKenzie 1981), not only became the basis of teaching of the management of discal pain but has been the springboard of a significant body of research validating McKenzie's key clinical observations and management practices. The ability of McKenzie to define three broad classifications of spinal pain, namely posture, dysfunction and derangement was a major step forward from Dr Morris' classification (McKenzie 1981). Another key phenomenon that McKenzie observed and developed was the concept of peripheralisation and centralisation of pain in response to repeated movements to the affected spinal area. The ability to have the source of pain move more peripherally with a provoking movement and then use movement (often opposite to the provoking movement), to encourage the pain to centralise back to the source, (in the case of low back pain, most often the disc), is now well established and predictive of a good response to treatment (Aina et al 2004, Donelson et al 1997, Laslett et al 2005). The McKenzie concept of management of Low Back Pain (LBP) has been extensively researched and compared to a range of other therapeutic approaches and found to be highly effective (Cherkin et al 1998, Clare et al 2004, Gillian et al 1998, Kellman and Oberg 2002; Petersen et al 2002; Schenk et al 2003; Stankovic and Johnell 1990). The McKenzie approach has continued to be taught around the world to all professions interested in the management of LBP.

Another influence from NZ in the management of spinal disorders was Stanley Paris. Dr Paris gained his Diploma of Physiotherapy in NZ in 1958, and soon thereafter undertook post graduate studies in England, France, Norway, Canada and the United States before earning his doctorate in the United States. He was one of the first New Zealand physiotherapists to gain a PhD, something that could not be gained in the NZ training system in those days. Dr Paris's contribution to musculoskeletal physiotherapy was to advance the skills in the area of joint manipulation in particular. His original text, the Spinal Lesion (Paris 1965) became the basis of much of the modern teaching of manipulative techniques to the spine. Since then he has continued to publish in the areas of assessment and treatment of musculoskeletal conditions affecting the spine (Gonnella et al 1982, Olson et al 1998, Paris 1983, Viti and Paris 2000). He has also contributed significantly to the on-going education of physiotherapists and developed his own school of Physical Therapy at the University of St Augustine, Florida.

The role of teaching spinal manipulation in New Zealand and other parts of the world has been led by Michael Monaghan. Michael completed his physiotherapy training in New Zealand and then trained as an Osteopath in London. He returned to NZ and then shared his new found skills with the NZ physiotherapy profession. Michael has been a teacher on the NZMPA programme for over 30 years. His approach to spinal manipulative therapy has been published in relevant peer review journals (Hing et al 2003) and in his own books *Spinal Manipulation: a Manual for Physiotherapists* (Monaghan 2001).

The Mulligan Concept, is another innovative manual therapy approach instigated by Brian Mulligan. The concept is now world recognised with the Mobilisation with Movement (MWM) approach becoming common place in teaching and clinical practice (Mulligan 1999). MWM's have been used to treat a range of injuries such as ankle sprain, (Hetherington 1996, O'Brien and Vincenzino 1998), hip pain (Mulligan 1996) and neck pain (Reid et al 2008) to name just a few. The effectiveness of the Mulligan concept has been demonstrated in another of the condition mentioned in Dr Morris' article, Tennis Elbow. Dr Morris's approach was to manipulate the elbow into extension and then apply heat and exercise. A recent randomised controlled trial by Bissett et al (2006) using the MWM concept has demonstrated that this approach is more effective in the short term than a cortisone injection or "wait and see". Also those who received the physiotherapy intervention as well had

less recurrence of the lateral elbow pain compared to the other groups.

Another area that Dr Morris comments on is the sacroiliac strain. In his opinion, this was the commonest forms of Low Back Pain. This observation has now been contested (Laslett et al 2005) but still remains a contentious area with some practitioners still seeing this as a major source of LBP (DonTigny 1990, Timm 1999). The understanding of Sacroiliac Joint (SIJ) injury and dysfunction has been advanced by the work of Van Wingerdan et al (2004), Hungerford et al (2004) and Pool-Goudzwaard et al (2003). These authors have demonstrated that movement within the SIJ is small and that stability of the joint is achieved with a combination of anatomical joint locking (so called form closure) and activation of the muscles that cross the area along with the supportive thoracolumbar fascia (force closure). These key researchers have all visited and lectured in NZ.

The actual diagnosis of SIJ pain has been significantly advanced by the work of New Zealander, Dr Mark Laslett. Laslett first published work on the inter-tester reliability of SIJ tests in 1994 (Laslett and Wiilliams 1994) and then went on to complete a series of studies within his PhD investigating the ability of practitioners to diagnose SIJ pain from lumbar disc pathology and facet joint pain (Laslett et al 2006, Laslett et al 2005, Laslett et al 2005). This work led to the development of a diagnostic algorithm that has now been used in teaching and clinical practice (Laslett et al 2005).

The area of diagnostics has also been extended by Laslett and recent work from his team has extended the knowledge of diagnostic tests in the shoulder region. Shoulder pathology is also commented on in the Morris article. Cadogan et al (2011) have recently completed a study investigating the inter-rater reliability of a range of common tests used by physiotherapists and doctors to diagnose common soft tissue injuries in the shoulder. The results of this study indicate that only a small number of commonly used orthopaedic tests have the required levels of diagnostic accuracy to be clinically useful.

Lumbar back strain is another of Dr Morris categories. In this group he mentions a 'sudden act of lifting stooping, pulling or twisting'. He attributed a strain of the erector spinae muscles as the cause of this pain. However this may now be more clearly recognised as a lumbar derangement particularly is associated with a lumbar shift (McKenzie 1981) The management of this condition was significantly advanced by McKenzie and written about in his book (McKenzie 1981) and in the *NZ Medical Journal* (McKenzie 1979). If this type of presentation becomes persistent and recurrent then it may fall into area of lumbar segmental instability (O'Sullivan 2000). Another New Zealand physiotherapist who has been well recognised in this area is Peter O'Sullivan. O'Sullivan completed his PhD investigating the effects of specific trunk muscles exercise to stabilise the lumbar spine in those with radiographically recognised lumbar instability (spondylolisthesis) (O'Sullivan et al 1997). The outcomes of this study demonstrated that those who undertook the specific exercise regime to stabilise the muscles of the spine reduced their pain and improved their function when compared to those who continued with the usual care from their general practitioner. These participants in the intervention group were also able to manage the condition more effectively in the long term. O'Sullivan has extended this work on lumbar instability into other populations such as children (Astfalck et al 2012) and rowers (Perich et al 2011).

CONCLUSION

Even though 100 years have passed since physiotherapy was first taught in New Zealand, manipulation and manual therapy remain key treatment and management strategies for a wide range of conditions mentioned in Dr Morris's 1938 article. Many New Zealand physiotherapists have played a key role in the development of local and international organisations that foster this approach. These physiotherapists have led the development of innovative treatment methods, which at the time challenged the standard management of musculoskeletal disorders, but are now considered main stream management and are validated by high quality research. Future New Zealand physiotherapists should aspire to keeping this momentum moving forward in progressing the knowledge and evidence base for physiotherapy for musculoskeletal disorders.

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Figure: Early members of NZMPA (1999) (Acknowledgments: NZMPA)

Figure: Michael Monaghan teaching (Acknowledgments: NZMPA)