

Adding Spinal Thrust Manipulation to Entry-Level Canadian Physical Therapy Curricula: Why and How?

Few would argue that manual therapy has been used by physical therapists (PTs) since the beginning of the profession. Traditionally, manual therapy training for PTs has begun in entry-level professional programs with courses specifically directed at manual therapy and related foundational courses. Therapists with an interest in manual therapy can then choose to pursue post-professional educational opportunities in the form of continuing education seminars, clinical residency and fellowship training, postgraduate academic and diploma programs, clinical mentorship and manual therapy certification programs.^{1,2} Both at national and international levels, documents have been developed to standardize entry-level and post-professional manual therapy curricular content.³⁻⁵ Arguments to include manual therapy interventions within the PT scope of practice are based on the profession's educational preparation, history, contributions to technique and concept development, development of clinical practice guidelines, research, and a superior safety record in the clinical application of manual therapy interventions.¹

Until recently, manual therapy education in the United States was similar to that described above. Research has shown increasing emphasis on incorporating manual therapy into U.S. entry-level curricula, including both thrust and non-thrust techniques. With the publication of its manipulation education manual,⁶ the American Physical Therapy Association (APTA) has shown its commitment and intent to standardize manual therapy entry-level curricular content and include thrust and non-thrust techniques for spinal and extremity joints. In contrast, the Canadian Physiotherapy Association's entry-level manual therapy curriculum guidelines state that the introduction of spinal and peripheral manipulation techniques should be at the discretion of individual physical therapy educational programs.³ We contacted all English-speaking physical therapy schools in Canada by e-mail and followed up with schools that did not respond with two reminder telephone calls. Ten of the 11 physical therapy schools responded, and of these, three stated that they included spinal thrust manipulation in their curriculum. These survey results may explain the low use rates for thrust manipulation in the management of patients

with low back pain (LBP) among Ontario PTs, as reported by Li and Bombardier.⁷

Undoubtedly, political motives have influenced the APTA decision to emphasize thrust technique instruction in its accredited entry-level programs: For years, our U.S. colleagues have been involved in an ongoing struggle to defend the inclusion of manual therapy and, more specifically, thrust techniques in the PT's scope of practice against a nationwide initiative by the chiropractic profession.⁸ Of course, Canadian PTs have faced similar legal challenges to their scope of practice in the past.⁹ In our opinion, there are valid reasons to include spinal thrust manipulation in Canadian entry-level curricula.

ARGUMENTS IN FAVOR OF INCLUDING SPINAL THRUST MANIPULATION IN ENTRY-LEVEL CURRICULA

Our main argument revolves around securing optimal outcomes for patients. Although a 2003 meta-analysis concluded that there was no evidence that spinal manipulation provided superior outcomes when compared with other interventions in patients with LBP,¹⁰ many valid arguments can be made to dispute those findings. For example, Childs and Flynn raised an important point about the studies included in the meta-analysis: absence of patient classification other than the broad category of non-specific LBP resulted in heterogeneous study samples that precluded finding real effects of any specific intervention.¹¹

Flynn and colleagues established a clinical prediction rule (CPR) to identify a subgroup of patients with non-specific LBP who were likely to benefit from thrust manipulation.¹² Subsequently, Childs and colleagues validated this CPR and showed a more than 60-fold greater chance for a positive functional outcome for patients who were positive on the rule and received manipulation versus those patients who were positive on the rule but were not manipulated.¹³ Fritz and colleagues derived a two-factor rule from this CPR and reported a clinically relevant diagnostic accuracy for predicting a positive result with manipulation for this abbreviated rule as well.¹⁴ A similar CPR was recently developed to predict immediate positive response to cervical manipulative treatment in patients with neck pain and

headache.¹⁵ Of course, cervical thrust techniques have been associated with serious adverse events, most notably cervical artery dissection.¹⁶ For this reason, clinicians and patients often elect not to use cervical thrust manipulation, but, again, there is good evidence that patients with mechanical or whiplash-associated neck pain will benefit from thoracic thrust techniques,^{17,18} interventions that have not been associated with serious post-treatment adverse effects.

Some researchers have also performed economic analyses to compare manipulation with other interventions. Childs and colleagues reported that, at the 6-month followup, patients who had received manipulation had significantly less health care use, medication use and time off work owing to LBP than those receiving exercise only.¹³ Economic analysis of the UK Back Pain, Exercise and Manipulation (BEAM) trial found that, depending on the money the third-party payer was willing to pay, either manipulation or manipulation combined with exercise was the most cost-effective approach in managing patients with LBP.¹⁹ In patients with occupational LBP who fit the two-factor CPR, Fritz and colleagues reported that both thrust and non-thrust techniques resulted in greater reductions in disability and pain than not receiving manual therapy interventions.²⁰ However, PT treatment cost, the number of therapy sessions and the duration of stay in therapy were significantly lower in the thrust versus the non-thrust group.

In our opinion, superior outcomes with regard to patient-reported pain and disability and superior cost-benefit ratio of thrust manipulation versus other physical therapy interventions are sufficient reasons to include these techniques in Canadian entry-level physical therapy curricula. However, this would require that we abandon the status quo, wherein thrust manipulation is considered a postgraduate skill to be developed through extensive postgraduate education, clinical experience, and mentorship. We acknowledge that there are a number of potential counter-arguments to support this view.

ARGUMENTS AGAINST INCLUDING SPINAL THRUST MANIPULATION IN ENTRY-LEVEL CURRICULA

One counter-argument is that manual therapy examination, diagnosis and intervention are beyond the capabilities of the student or novice therapist. Yet several studies have shown higher interrater reliability for manual therapy examination and diagnosis for students and novices than for experienced clinicians and no differences between novice and experienced clinicians with regard to biomechanical parameters of a thoracic thrust technique.²¹⁻²⁴ In a secondary analysis of

data from the CPR validation study discussed above,¹³ Whithman and colleagues reported that therapist experience with manual therapy did not affect patient outcome with manipulation.²⁵ In fact, they noted a trend for greater functional improvement in patients manipulated by therapists with less experience and a significantly greater improvement for patients treated by therapists without postgraduate certification.

Another counter-argument is that student and novice therapists are unable to accomplish the level of segmental and directional specificity required for a successful thrust intervention. However, recent research has challenged our ability to achieve segmental specificity with the frequently used manual therapy intervention of spinal posteroanterior pressures.^{26,27} Our ability to actually produce cavitation in a targeted joint with non-Maitland techniques has also failed scientific validation.²⁸ The need for directional specificity with manual therapy interventions has also not been supported by research.²⁹ All CPR studies for patients with LBP discussed above used a thrust technique purported to manipulate the sacroiliac joint,¹²⁻¹⁴ yet the prediction rule includes no segmental tests for this joint. A recent case series further questioned the need for segmental specificity for patients who fit this CPR but who were treated with a lumbar thrust technique that also resulted in favorable outcomes.³⁰ Finally, we should question the very existence of a joint-specific, mono-segmental lesion used to guide the application of specific thrust interventions if we are still unable to reliably determine its presence and characteristics.^{31,32}

A final argument that might be used to defend thrust techniques as a postgraduate skill is the question of patient safety. We are unaware, however, of any research that has reported increased risk of harm for patients manipulated by a novice compared with an experienced PT. PT students and practitioners are exposed to varied patient populations during internships and work in private practice, hospital, extended care and rehabilitation settings. In our opinion, this varied exposure in combination with the educational preparation described above would make any PT—novice or experienced—uniquely qualified to recognize indications and contraindications to manipulation and safely provide this intervention.

HOW TO INCLUDE SPINAL THRUST MANIPULATION IN ENTRY-LEVEL CURRICULA

Entry-level physical therapy curricula should, in our opinion, be based on the best available research evidence. Current best evidence indicates that four spinal thrust techniques—one aimed at the sacroiliac joint and one each

for the lumbar, thoracic and cervical regions—can be used to secure optimal outcomes in selected patient populations. The time needed to learn these techniques is minimal. In fact, the superior effects achieved by the less experienced therapists in the Whitman and colleagues' study resulted from only 15 minutes of instruction and practice in the thrust technique used.²⁵

In summary, recent studies have shown that thrust manipulation in subgroups of patients with LBP provides superior outcomes in pain and function, as well as reduced health care costs. Other studies have shown the immediate effects of cervical and thoracic thrust manipulations in selected patients with mechanical and whiplash-induced neck pain and headache. Arguments that thrust techniques are not entry-level skills are not supported and are, in fact, contradicted by research. Inclusion of thrust techniques supported by current best evidence into existing curricula will likely take limited time. As a profession, we have an obligation to patients and to society to provide the most efficacious and cost-effective outcomes. Therefore, we call upon entry-level physical therapy programs in Canada to increase curricular content with regard to instruction in spinal thrust manipulation and thereby allow new graduates to provide best practice for patients with spinal impairments.

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