

Pain education for physiotherapists: is it time for curriculum reform?

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Pain is the most common reason that people seek physiotherapy care. Despite major advances in our understanding of pain in the past 40 years, the burden of pain worldwide remains enormous, whether gauged in humanitarian, health care, or financial terms (National Pain Strategy 2010). Physiotherapists have an ethical imperative as health professionals to have an accurate understanding of the human pain experience so as to best help those seeking their care. This means physiotherapists need to be educated appropriately in modern pain neuroscience, so they can assess relevant factors that might modulate the pain experience and provide effective pain management.

For more than 10 years physiotherapy researchers such as David Butler, Louis Gifford, Lorimer Moseley, and Michael Thacker, perhaps influenced by the intellectual courage of pain neuroscientist Patrick Wall, have encouraged physiotherapists to adopt a new paradigm for understanding pain. The tissue-injury model becomes redundant when we consider situations where pain is experienced in the absence of tissue damage, or when an individual does not perceive pain despite frank tissue damage. A paradigm that emphasises neural structure and function is overwhelmingly supported by 21st century pain neuroscience and the myriad of clinical presentations of patients suffering pain. This model does not ignore tissue-based pathology but accepts that nociception associated with tissue damage is modifiable at the periphery, at the spinal cord and in the brain.

Major advances have been made in our understanding of pain in the past 40 years. The historic gate control theory was a key development in the understanding of pain as a multidimensional experience. It revealed that not only are afferent nerve impulses modulated in the spinal cord, but also that it is possible for regions of the brain that regulate attention, emotion, and memory to exert control over sensory input (Melzack and Wall 1965). Transcutaneous electrical nerve stimulation (TENS) has subsequently been used by physiotherapists to modify the pain experience. Physiotherapists may give a variety of responses if asked how TENS modifies the pain experience. A common response might be that by stimulating the large A-beta mechanosensory fibres, nociceptor transmission is inhibited at the dorsal horn of the spinal cord. A more thorough explanation might include that the prolonged stimulation by TENS causes the release of endorphins, resulting in a systemic analgesic effect (Watson 2008). An additional explanation is that if the person is given control of the TENS unit, this will increase their perceived control of their pain, reduce the threat value of pain, and modulate their pain experience. Indeed, from our current understanding of pain neuroscience, this may be the most important mechanism of pain modification that TENS offers. Although we hope all physiotherapists would respond with all this information, we recognise that this may not be the case.

Pain education in pre-registration courses

Research using the Pain Education Survey suggests that physiotherapy programs have a greater amount of pain education than other health professions. In the UK, the median amount of pain education for all health disciplines is 12 hours (range 2–158) but physiotherapists have 38 hours (range 5–158), three times that of medical students (Briggs et al 2011). Similarly, in Canada, physiotherapists receive an average of 41 hours (range 18–69) of pain education, compared with 16 hours (range 0–38) in medicine (Watt-Watson et al 2009). While this seems to be good news for physiotherapy, these data should be interpreted with caution. It can be difficult to attribute hours to categories of pain education accurately, such as when pain content is embedded within other subjects or if content is integrated across several subjects. Also, the variable length of undergraduate and graduate-entry physiotherapy programs impacts on interpretation of these data. Finally and perhaps most important, it is unknown whether greater quantity of education actually results in better understanding and skills. There is a need for further international research into physiotherapy pain education, including accurate estimates not only of quantity but also effectiveness of education.

Perhaps we can be guided by the bigger picture. In 2010, the International Pain Summit in Montreal and Australia's National Pain Summit were held to identify how to improve quality of life for people with pain. One of the central messages was that there are major deficits in the knowledge of all health care professionals regarding the mechanisms and management of pain. Consequently, one recommendation was that *Comprehensive education and training in pain management will give medical, nursing and allied health professionals in the public and private sectors the knowledge and resources to deliver best-practice evidence-based care* (National Pain Strategy 2010, p. 5).

Reforming pain education

Useful resources have been available to physiotherapy educators seeking to develop curricula for some time. The International Association for the Study of Pain (IASP) developed pain education curricula to support pre-registration training and professional development for health professionals. These are updated regularly and new on-line resources are currently in development. This would be a fundamental resource for physiotherapy educators when designing curricula to ensure core competencies for the assessment and management of pain. For example, the educators could map where elements of the curricula can be integrated with existing content (Jones 2009). Interestingly, of the nine physiotherapy programs investigated in the UK, the IASP pain curricula had been fully implemented in only one course (Briggs et al 2011).

Two examples of well described published pain curricula

may provide useful models. The first is a Canadian interfaculty pain curriculum that has shown good outcomes (Hunter et al 2008). The interdisciplinary program is mandatory and informed by the IASP core and discipline-specific curricula. It consists of a 20-hour package that includes epidemiology, discipline-specific topics, and case-based sessions on acute and persistent pain, interprofessional pain management planning, and a choice of electives in subjects such as lifespan issues, genetics, gender, and cancer pain. Importantly, this interprofessional learning reflects the real world where health professionals work together to manage patients suffering from chronic diseases, including persistent pain (Hunter et al 2008, Foster and Delitto 2011). However, implementation of such a curriculum requires co-operation from all disciplines to overcome practical barriers such as aligning timetables and other teaching resources.

The second example is a US medical program that addresses affective and cognitive dimensions of pain (Murinson et al 2011). This novel curriculum incorporates different learning and teaching strategies, including workshops and role-play activities, and aligns with assessment tasks including development of a portfolio. The portfolio is a unique approach, requiring students to document their affective and cognitive associations with, and responses to, pain and pain-related experiences. This includes students undertaking a cold pressor test, providing a personal narrative of pain experiences, and responding to representations of pain in literature and fine art. The reflective and experiential nature of these tasks provides a strong message to students about the importance of the personal and emotional context of pain.

A further consideration for curriculum review or design is appropriate emphasis on interpersonal communication, behaviour change, and problem-solving skills (Foster and Delitto 2011). These skills align with person-centred care and the guidelines for chronic disease management. The adoption of person-centred models of care is particularly helpful as it encourages the consideration of the person's individual life experiences and social context and how these can impact on neurophysiological function (Hunter and Simmonds 2010). Butler and Moseley's (2003) 'brain as an orchestra' metaphor provides an accessible introduction to this concept, as does work by Norman Doidge (2007). Another helpful recommendation is to integrate the contributors to the human pain experience into existing curriculum content on the International Classification of Functioning Disability and Health (WHO ICF) framework for the biopsychosocial approach to pain (Foster and Delitto 2011).

Physiotherapy education frequently promotes learning of concepts and principles, which in turn can be applied to new and unfamiliar situations. This would seem a particularly important consideration in pain education where some concepts, like pain is of the brain and not of the tissues, can prove troublesome. Once the concept that pain is of the brain is held, it is hard to return to the original thinking that pain is produced in the tissues. Such a concept could be considered a threshold concept (Cousin 2006). There are recommended processes for identifying threshold concepts in discipline areas (Cousin 2006) and undertaking such a

process for pain education may improve the effectiveness of understanding pain concepts.

An important issue to consider is that conflicting views about pain across the students' learning experience can impact adversely on effective pain education (Foster and Delitto 2011). For example, an influential clinical educator may have a view of pain that is quite different to that taught in the classroom (Jones 2009, Foster and Delitto 2011). This emphasises the point that the starting paradigm for students needs to be robust so that they can counteract challenges – no matter how persuasive the challenges and challengers are!

Finally, an increasing number of online resources can facilitate learning about pain. As part of Australia's National Pain Strategy, a multiprofessional group is currently involved in preparing a register of such resources, both for health professionals and consumers. These will be complemented by the new IASP pain curriculum resources.

Conclusion

Pain is a common human experience and one that frequently requires physiotherapy intervention. Therefore, physiotherapists need to develop a comprehensive understanding of the factors that influence pain and be able to apply or prescribe appropriate treatment. Ideally this includes adopting a person-centred approach to care, and recognising that pain is influenced by life experiences, is contextual and associated with threat to tissues and perceived vulnerability. The amount of time currently spent on pain education appears to differ widely from course to course but, on average, physiotherapy appears to provide more hours of pain education than other human health disciplines in Canada and the UK. Data from other countries are lacking. There is a need for comprehensive and up-to-date pain education in pre-registration physiotherapy programs. Physiotherapy curricula need to be designed to support students to develop clinical competencies based on current pain neuroscience.

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