The evidence base for *Explain Pain*

Butler, D. S., & Moseley, G.L. (2003). *Explain Pain*. Adelaide: Noigroup Publications, www.noigroup.com.

Introduction

There are a number of dimensions to evidence. Everyone, when injured or in pain wants to know what is wrong and how long the problem will last. It is self evident that patients who get answers will have increased satisfaction and better coping strategies including less anxiety.

The education models based on *Explain Pain* are novel in that they utilise neuroscience education about the whole body, including the nervous system. There is a particular focus on the brain and it therefore involves education about the role of thoughts, attitudes, perceptions and superstitions as well as tissue damage and healing. These education models are based firmly within the biopsychosocial approach (Waddell, 2004). Pain is seen as not necessarily a sign of damage but more an individual response to threat, real or perceived. Psychological factors are strong predictors of long term disability and chronic pain (Burton, Tillotson, Main, & Hollis, 1995; Fritz, George, & Delitto, 2001). *Explain Pain* education gives a biological base to the psychological factors.

Modern views of evidence based medicine pay attention to basic sciences and controlled trials (Sackett, Rosenberg, Muir, & al., 1996).

Basic sciences

New paradigms such as the neuromatrix (Melzack, 1999), in association with rapid developments in brain imaging techniques such as functional MRI (e.g. (Flor, 2000; Verne, Robinson, & Price, 2004) and an understanding of stress biology allow the predictions that altering the threat value of an injury, procedure or pain state will have a beneficial influence on biological coping and healing systems such as the immune, endocrine, sympathetic, motor, respiratory and pain systems (Butler, 2000; Butler & Moseley, 2003; Melzack, 1999).

Controlled trials

There are a number of studies on the effects of education on pain and disability. Most are biomechanically i.e. structure based education programmes with reported benefits ranging from excellent (Udermann et al., 2004) to very little (Gross, Aker, Goldsmith, & Peloso, 2000).

Therapeutic neurophysiology education often includes the structural issue, if relevant, but goes into depth on the neuroscience and in particular on the brain. The approach is summarized by Moseley (2003a) and in the patient directed book *Explain Pain* (Butler & Moseley, 2003)

A randomised controlled trial has shown that one to one education sessions about the neurophysiology of pain will result in significant changes in pain beliefs and attitudes (Moseley, 2002). Another RCT has demonstrated that pain neurophysiology education (and not structure specific education) will alter pain cognitions and physical performance (Moseley, Hodges, & Nicholas, 2004). In addition, changes in pain cognitions after a one to one pain physiology education programme are also associated with changes in physical performance. Pain thresholds can be increased during physical tasks (Moseley, 2004). Pain neurophysiology education will improve the outcome of other therapeutic approaches such as various exercise strategies (Moseley, 2003b).

Many therapists initially believe that patients are unable to take on information about pain neurophysiology. However, Moseley (2003) showed that patients and therapists can understand the neurophysiology of pain, but professionals usually underestimate the ability of patients to understand.

The greater use of imaging strategies is likely to produce more studies similar to a recent case study (Moseley, 2005) which demonstrated that pain physiology education markedly reduces widespread brain activity characteristic of a pain experience.

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