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Pilates and Low Back Pain

- Reliability for Pilates as a treatment for low back pain is not established
- Which patient may respond to Pilates as a treatment is unknown
- Pilates may promote “core” activation in asymptomatic subjects
- Multiple systematic reviews produce conflicting results due to poor primary study quality
- Pilates has shown no harm, but no significant benefit as a treatment for LBP over other treatments or usual care
- Pilates may improve outcomes in patients within a patient subgroup that possess altered lumbopelvic motor control

Joseph Pilates initially introduced “Contrology” in the 1920’s as a conditioning program for dancers. In the last decade Pilates has become a popular form of exercise and a method used to treat low back pain (LBP) (Sorosky, Stilp & Akuthota 2008). A less demanding modified method of Pilates was developed for current rehabilitative purposes to improve neuromuscular control of the lumbopelvic stabilizing muscles. Theoretically, improved motor control of the active lumbar stabilizing system may decrease low back pain (Panjabi 1992). (Wells, Kolt & Bialocerkowski 2012) performed a systematic review with the objective of determining standard characteristics and definitions of Pilates. The “Modified Pilates” approach requires core stability, strength, and flexibility; and attention to muscle control, posture and breathing. Exercises are performed on mats as well as on special equipment. For the remainder of this narrative the term “Pilates” will refer to modified Pilates.

Accurate reproducibility of a test or treatment is the initial step to establishing clinical validity. No studies were found establishing the inter-rater reliability of the Pilates method or the Pilates certification program. Without documentation of reliability, heterogeneity of treatment is more probable and any comparable treatment effects are lost (Faraone 2008).

The objective of Pilates exercise, in part, is to improve spinal stability through “core” strengthening (Sorosky, Stilp & Akuthota 2008). The transversus abdominis (TrA) is a portion of the core muscles along with lumbar multifidus, diaphragm and pelvic floor muscles. Pilates

appears to promote activation of the TrA muscle in asymptomatic subjects (Critchley, Pierson & Battersby 2011), (Herrington & Davies 2005). However, this cannot be correlated to symptomatic subjects or to patients with low back pain. Patient selection for this treatment is not established. Randomized controlled trials of varying quality are available in which the objectives are to compare Pilates to minimal intervention, usual care, massage, and other types of exercise for pain outcome and disability outcome. Seven systematic reviews are available, four with meta-analysis, one with meta-regression (Aladro-Gonzalvo et al. 2013), (Lim et al. 2011), (Miyamoto, Costa & Cabral 2013), (Pereira et al. 2011), (Posadzki, Lizis & Hanger-Derengowska 2011), (Wells et al. 2013), (Wells et al. 2014). The results of these systematic reviews are conflicting. (Wells et al. 2014) concluded in a systematic review of systematic reviews, "There is inconclusive evidence that Pilates is effective in reducing pain and disability in people with chronic low back pain. This is due to the small number and poor methodological quality of primary studies." However, if Pilates is the only exercise method a patient with non-specific low back pain is interested in performing, the general effects of exercise may promote improvement in that patient's condition (Rydeard, Leger & Smith 2006).

No studies reported harm as a result of performing Pilates. However, the absence of harm does not imply efficacy for any patient. Selection of an exercise for a particular patient may best be performed through subgrouping classification methods based on characteristics of patient symptom response (Cook, Hegedus & Ramey 2005). (Rydeard, Leger & Smith 2006) suggest that Pilates may produce better outcomes in a subgroup of low back pain patients with altered motor control of the lumbopelvic muscles.

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