

EVIDENCE REGARDING THERAPEUTIC EXERCISE IN PHYSIOTHERAPY

Knowledge of exercise regimes and dosages, and expertise in movement disorders and clinical reasoning skills enable physiotherapists to develop, implement, monitor and modify therapeutic exercise programs. A systematic review on therapeutic exercise, *Evidence-based clinical statement: A summary of systematic reviews on therapeutic exercise in physiotherapy*,¹ showed that exercise is a beneficial intervention for clients and patients across many different areas of physiotherapy. Exercise programs are more likely to be effective when intensive, individually designed, and linked with regular physiotherapist supervision and follow up.

Physiotherapists commonly teach exercises as part of treatment to help their patients and clients move and function better. Physiotherapist use evidence to update their practice and systematic reviews of the research literature provide the best form of evidence about the efficacy of therapeutic exercise. A systematic review was undertaken to investigate whether there is evidence that doing exercises could help improve the functioning of people who see a physiotherapist for treatment. The literature was searched for the most up to date evidence from systematic reviews of exercises used in therapy, expanding and updating another recent review (Smidt et al 2005). Forty-nine systematic reviews on therapeutic exercise were found. These reviews showed that therapeutic exercise is beneficial for clients and patients across many areas of physiotherapy practice. Specifically there was strong evidence that therapeutic exercise can:

- improve the muscle performance and mobility of people with **multiple sclerosis** (Rietberg et al 2004)
- reduce pain and improve activity levels in people with **osteoarthritis of the knee** (Pelland et al 2004, Brosseau et al 2004)
- reduce pain and improve activity levels in people with **chronic low back pain** (Hayden et al 2005)

¹ Commissioned by the Australian Physiotherapy Association and conducted by Taylor N, Dodd K, Shields N and Bruder A: 2006. Available on the members section of the APA website.

- reduce sick leave in people with **sub-acute and chronic low back pain** (Hayden et al 2005, Kool et al 2006)
- improve activity levels and lead to a faster return to work after **lumbar disc surgery** (Ostelo et al 2002)
- reduce pain, and improve range of motion and activity in people with **shoulder pain** (Green et al 2003)
- reduce cardiac deaths for people with **coronary heart disease** (Taylor et al 2004, Jolliffe et al 2001)
- reduce deaths and improve exercise capacity in males with stable **chronic heart failure** (Rees et al 2004)
- improve exercise capacity and reduce shortness of breath in people with **chronic obstructive pulmonary disease** (Salman et al 2003)
- slow **bone density loss in the spine** of women after the age of menopause (Bonaiuti et al 2002, Kelley 1998)

There was also evidence from the systematic review that exercise might have positive benefits in the following areas of practice: stroke; peripheral neuropathy; cerebral palsy; headache in people with chronic neck disorders; whiplash associated disorders; hip fracture; fracture of the proximal humerus; patello-femoral pain syndrome; ankle sprain; cystic fibrosis; Type 2 diabetes; Down syndrome; HIV infection; women with incontinence; and older people. Further research with high-quality randomised controlled trials is needed to confirm the positive indications for exercise in these patient groups.

The review demonstrated that therapeutic exercise was more likely to be effective when it was relatively intensive and there were indications that more targeted and individualised exercise programs were more beneficial than standardised programs.

There were relatively few and minor adverse responses to exercise revealed in the review. The available evidence suggests that exercise does not increase spasticity in people with neurological disorders; does not increase symptoms in people with mild to moderate multiple sclerosis; does not cause problems with disc healing if started 4 to 6 weeks after lumbar disc surgery; and does not cause any problems in bony healing after fracture. There is strong evidence that mortality is reduced when people with coronary heart disease or stable heart failure undertake exercise.

The types of exercise identified through the review that led to positive benefits included aerobic exercises, strengthening exercises, range of motion exercises, and exercises that practised specific skills such as balance training or the ability to maintain a contraction of certain muscles. In many areas of practice, although people did better with exercise there was no evidence that one type of exercise was more beneficial than another type of exercise.

Although therapeutic exercise may be effective, there is currently insufficient evidence to support the effectiveness of therapeutic exercise in the following areas of practice: Parkinson's disease; acute low back pain; mechanical neck disorders; wrist fracture; anterior cruciate ligament injury; anterior instability of the shoulder; asthma; and for inspiratory muscle retraining programs in patients with cervical spinal cord injury. High quality research, with trials where patients are randomly allocated to either an exercise or a control group, is required to determine the effectiveness of therapeutic exercise in these and other areas of practice.

Prescription of exercise is an important and core skill of physiotherapists that unifies three of the major dimensions of physiotherapy practice: management of disorders of movement, knowledge of exercise regimes and dosages, and clinical reasoning skills to ensure that exercises are optimal for the individual. This summary of the best evidence available from research finds that prescription of exercise is a useful treatment option that can help the lives of many of the people who are treated by physiotherapists.

References

- Bonaiuti D, Shea B, Lovine R, Negrini S, Robinson V, Kemper HC, et al (2002): Exercise for preventing and treating osteoporosis in postmenopausal women. *The Cochrane Database of Systematic Reviews* 3: CD000333.
- Brosseau L, Pelland L, Wells G, Macleay L, Lamothe C, Michaud G, et al (2004): Efficacy of aerobic exercises for osteoarthritis (part II): a meta-analysis. *Physical Therapy Reviews* 9: 125-1454.
- Green S, Buchbinder R and Hetrick S (2003): Physiotherapy interventions for shoulder pain. *The Cochrane Database of Systematic Reviews* 2: CD004258.
- Hayden JA, Van Tulder MW, Malmivaara AV and Koes BW (2005): Exercise therapy for treatment of non-specific low back pain. *The Cochrane Database of Systematic Reviews* 3: CD000335.
- Jolliffe JA, Rees K, Taylor RS, Thompson D, Oldridge N and Ebrahim S (2001): Exercise-based rehabilitation for coronary heart disease. *The Cochrane Database of Systematic Reviews* 1: CD001800.
- Kelley G (1998): Aerobic exercise and lumbar spine bone mineral density in postmenopausal women: A meta-analysis. *Journal of the American Geriatrics Society*, 46: 143-152.
- Kool J, de Bie R, Oesch P, Knusel O, van den Brandt P and Bachmann S (2004): Exercise reduces sick leave in patients with non-acute non-specific low back pain: A meta-analysis. *Journal of Rehabilitation Medicine* 36: 49-62.
- Ostelo RW, de Vet HC, Waddell G, Kerckhoffs MR, Leffers P, van Tulder MW (2002): Rehabilitation after lumbar disc surgery. *The Cochrane Database of Systematic Reviews* 2: CD003007.
- Rees K, Taylor RS, Singh S, Coats AJS and Ebrahim S (2004): Exercise based rehabilitation for heart failure. *The Cochrane Database of Systematic Reviews* 3: CD003331.
- Rietberg MB, Brooks D, Uitdehaag BM and Kwakkel G (2004): Exercise therapy for multiple sclerosis. *The Cochrane Database of Systematic Reviews* 1: CD003980.
- Pelland L, Brosseau L, Wells G, MacLeay L, Lambert J, Lamothe C et al (2004): Efficacy of strengthening exercises for osteoarthritis (part 1): A meta-analysis. *Physical Therapy Reviews* 9: 77-108.
- Salman GF, Mosier MC, Beasley BW and Calkins DR (2003): Rehabilitation for patients with chronic obstructive pulmonary disease. *Journal of General Internal Medicine* 18: 213-221.

Smidt N, deVet HCW, Bouter LM, Dekker J (2005): Effectiveness of exercise therapy: A best-evidence summary of systematic reviews. *Australian Journal of Physiotherapy* 51: 71-85.

Taylor RS, Brown A, Ebrahim S, Jolliffe J, Noorani H, Rees K et al (2004): Exercise-based rehabilitation for patients with coronary heart disease: Systematic review and meta-analysis of randomized controlled trials. *The American Journal of Medicine* 116: 682-692.

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