

Fibromyalgia and chronic widespread pain

Dimensions of fatigue and effects of physiotherapy

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The thesis is based on the following papers:

- I. Ericsson, A. Mannerkorpi, K.
Assessment of fatigue in patients with fibromyalgia and chronic widespread pain. Reliability and validity of the Swedish version of the MFI-20.
Disability and Rehabilitation 2007; 29(22): 1665 – 1670.
- II. Ericsson, A. Bremell, T. Mannerkorpi, K.
Usefulness of multiple dimensions of fatigue in fibromyalgia.
Submitted for publication.
- III. Mannerkorpi, K. Nordeman, L. Ericsson, A. Arndorw, M and the GAU study group. **Pool exercise for patients with fibromyalgia or chronic widespread pain: a randomized controlled trial and subgroup analyses.**
Journal of Rehabilitation Medicine 2009; 41: 751–760.
- IV. Ericsson, A. Cider, Å. Bremell, T. Mannerkorpi, K.
Pool exercise and resistance training in men with chronic widespread pain. A pilot study.
Manuscript.



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Abstract

Aims. Fatigue is a severe problem for patients with fibromyalgia (FM) and chronic widespread pain (CWP). The general aims of the thesis were to describe the fatigue experienced by patients with FM and CWP, explore the usefulness of the Multidimensional Fatigue Inventory (MFI-20) in women with FM and investigate the effects of different types of physiotherapy on fatigue and other health related aspects in patients with FM and CWP.

Methods. The patients in the thesis were mainly recruited from primary health care. Two methodological studies were performed to investigate psychometric properties and usefulness of the Multidimensional fatigue inventory (MFI-20). Ratings of fatigue were also compared between different populations. Two randomized-controlled studies were conducted to evaluate effects of physiotherapy in patients with FM and CWP.

Results. I. The study included 166 women and 44 men with FM and CWP (the analyses in men were additional in the thesis). All five subscales of the MFI-20 showed fair to moderate (women) and moderate to good (men) associations with the one-dimensional subscale of fatigue included in the Fibromyalgia Impact Questionnaire (FIQ), indicating sufficient convergent validity. In analyses of 36 women and 26 men with FM and CWP, the MFI-20 was found to possess acceptable test-retest reliability and internal consistency.

II. The study included 133 women with FM. The subscales of the MFI-20 were found to be associated with employment, physical activity and the 6-minute walk test (6MWT) ($p < 0.01$), while the FIQ fatigue was not. The MFI-20 and the FIQ fatigue were equally associated with pain, sleep and distress (r $p < 0.01$). Women with FM ($n=133$) rated their fatigue higher ($p < 0.001$) than the healthy women ($n=158$) in all fatigue dimensions.

III. The randomized controlled trial included 166 women with FM or CWP. The FIQ total ($p=0.040$) and the FIQ pain ($p=0.018$) improved in the exercise-education group as compared to the control group which only received education. Patients with at least 60% attendance in exercise sessions improved in the FIQ total, the 6MWT and the FIQ pain compared with controls ($p < 0.05$). Analyses within subgroups showed that patients with milder stress, pain or distress improved most by exercise on the FIQ total ($p < 0.05$) compared with controls. Patients with more severe symptoms appeared to improve equally regardless of the type of intervention.

IV. The pilot study comprised 44 men with FM and CWP and 28 men with CWP were included in the main analyses of the randomized controlled trial. Resistance training improved isometric force in right arm shoulder abduction ($p=0.010$) and knee flexion (right: $p=0.005$, left: $p=0.002$) as compared to pool exercise. Within-group analyses showed that the resistance training group also improved in general fatigue ($p=0.035$) and right hand grip force ($p=0.009$) and the pool exercise group improved in MFI-20 reduced motivation ($p=0.008$) and symptoms of anxiety ($p=0.032$).

Conclusions. The MFI-20 was found to possess sufficient test-retest reliability, convergent validity and internal consistency in patients with FM and CWP. Assessment of multiple fatigue dimensions appears to be most useful in relation to aspects of employment and physical function in female patients with FM. Physiotherapy including exercise and education appears to improve health, including some dimensions of fatigue, in patients with FM and CWP.

Keywords: fatigue, fibromyalgia, chronic pain, widespread pain, assessment, physiotherapy, exercise, education