Heart rate response during and after exercise test in women with Fibromyalgia – a comparison to healthy women

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Take home message

For physiotherapeutic interventions it is of importance that women with Fibromyalgia seem to rate exertion very hard already on lower workload and heart rate than healthy women.

The methodology for measuring Heart rate variability with basic heart rate monitors should be improved before it can be recommended for research or for clinical use in women with Fibromyalgia.

Aim

To investigate the heart rate variability before and after an exercise test in women with Fibromyalgia compared to healthy female controls. Additionally to study and compare heart rate and rated perceived exertion during the exercise test.

Method

Twenty-four women with Fibromyalgia and 26 healthy female controls performed an incremental aerobic sub-maximal exercise test to a very hard perceived exertion level (Borg's RPE 17) on a bicycle ergometer. Heart rate variability was registered for 5 minutes at rest before and after the exercise test with a heart rate monitor (Polar RS 800CX). Heart rate was registered during the entire session.

Background

Fibromyalgia is a pain syndrome with a global prevalence of 2-3%. In persons with Fibromyalgia studies have shown changes in the autonomic nervous system and deviant heart rate variability has been found at rest. An increased prevalence of chronotropic incompetence in persons with Fibromyalgia has also been indicated in studies.

Conclusion

The heart rate variability in women with Fibromyalgia is not significantly affected by submaximal exercise to the same extent as the heart rate variability of healthy women. However, women with Fibromyalgia show a difference in achieved heart rate at the same rated perceived exertion level as healthy women.

Results

Heart rate variability did not significantly differ between the women with Fibromyalgia and the controls. The heart rate variability of the controls was statistically different (p<0.017) after the test compared to baseline but the women with Fibromyalgia showed no such change.

Heart rate was significantly higher among the women with Fibromyalgia compared to the controls at baseline (7 bpm higher, p=0.018) and up to 75 W (≤8 bpm, p≤0.005) and they also rated a higher perceived exertion on those levels. However the women with Fibromyalgia rated exertion very hard at a lower heart rate (138bpm /152 bpm, p=0.008) and a lower workload (82.5 W /122.5 W) than the controls.