

IMPACT OF A HIGH INTENSITY TRAINING PROGRAM ON CHANGES IN ACTIVITY LEVEL OF PERSONS WITH CHRONIC NONSPECIFIC LOW BACK PAIN: PRELIMINARY DATA OF A CLINICAL PILOT TRIAL

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Introduction

Exercise therapy is effective in the treatment of persons with chronic nonspecific low back pain (CNSLBP)¹. However, there is little consensus concerning the optimal training intensity that may lead to training effects. High intensity training (HIT) has shown promising effects in other populations. Improvements such as a reduction of pain or progression in functional ability may change the level of actual performance in CNSLBP. Because previous research has shown that persons with CNSLBP have difficulties with objectively reporting their amount of daily activity², and the use of one accelerometer for monitoring changes in activity level is questionable, a combination of accelerometers is used to provide objective assessment of activity level.

Purpose/Aim

The aim of this study is to assess to which extent a HIT program may improve the actual performance at the ICF activity level of persons with CNSLBP.

Materials and Methods

A clinical pilot study involving 20 persons with CNSLBP is being conducted. Participants follow a six week training program (2x/week, 2 hours) that consists of either a high intensity training program (strength and endurance), or a regular care program. The actual amount of arm-hand use (i.e. time and intensity) in combination with and without hip movement during daily activities is assessed at baseline and after six weeks of training. Assessment consists of the continuous recording of movement of both arms (left wrist, right wrist) and the torso (hip) over three consecutive days, using three accelerometers (Actigraph GT3X). A repeated measures design, involving pre- and post-intervention measurements is used.

Results

Currently, data are obtained from four persons in the regular care group (median age=49,5 years) and six persons in the HIT group (median age=43 years). Results show no significant changes within both groups (pre-post) or between the groups, neither in "time and intensity of arm-hand use while the hip is not moving", nor in "time and intensity of bilateral or unilateral arm movement with concurrent movement at the hip (i.e. gait, stairs, etc.)".

Discussion

Preliminary results of this study corroborate the findings of previous studies that no differences in activity levels are found after rehabilitation in low back pain patients. However, uncertainty remains whether this is due to a lack of sensitivity of the measurement or may be caused by actual characteristics of the disorder.

Conclusion(s)

Data from a combination of three accelerometers do not show changes in activity levels in persons with CNSLBP who follow a six week HIT program or regular care. However, more data are being gathered which may further elucidate any potential differences between HIT and conventional therapy approaches in CNSLBP patients.

Keywords

Low back pain, exercise therapy, high intensity training, activity level

Reference(s)

1. van Middelkoop M, Rubinstein SM, Kuijpers T, et al. A systematic review on the effectiveness of physical and rehabilitation interventions for chronic non-specific low back pain. *European Spine Journal* 2011;20:19-39.
2. Verbunt JA, Huijnen IP, Seelen HA. Assessment of physical activity by movement registration systems in chronic pain: Methodological considerations. *The Clinical journal of pain* 2012;28:496-504.