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Does outpatient physical therapy with the aim of improving health-related physical fitness influence the level of physical activity in patients with long-term musculoskeletal conditions?

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Abstract

Objective To evaluate any change in self-reported level of physical activity in patients receiving a general physical exercise programme in addition to disease-specific physiotherapy treatment.

Design Pre–post-intervention study.

Setting Outpatient physiotherapy clinics.

Participants One hundred and ninety patients with long-term musculoskeletal conditions attending outpatient physiotherapy were recruited from seven physiotherapy clinics.

Interventions Physiotherapy including disease-specific modalities and a general individually tailored exercise programme. Patients were evaluated at baseline and at the end of the programme.

Main outcome measures International Physical Activity Questionnaire short form (IPAQ-sf) and COOP WONCA functional assessment charts.

Results Forty-two patients were excluded from the analysis because they did not complete the IPAQ-sf correctly or dropped out during the treatment period. There was a significant increase in the number of metabolic equivalent task (MET)-min/week for vigorous and moderate-intensity activities, walking and total physical activity. The number of exercise sessions per week increased from 1.8 [standard deviation (SD) 0.9] to 2.2 (SD 1.2) ($P = 0.001$). The proportion of patients with a low level of physical activity decreased by 12%, and the proportion of the participants who did not/could not exercise decreased from 26% to 8%. The COOP WONCA charts showed significant improvements in the physical fitness, feelings, daily activities and social activities items.

Conclusion A significant increase was found in the number of MET-min/week for all activity levels. Therefore, a general physical exercise programme initiated by a physiotherapist led to a positive change in level of physical activity.

Keywords: Musculoskeletal diseases; Physical therapists; Exercise; IPAQ; Physical activity level

Introduction

Engaging in regular physical activity is crucial for the health of adults of all ages. Physical inactivity increases all-cause mortality and has resulted in increasing public

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health challenges over recent decades. Increased physical activity and exercise, however, has been shown to be effective for the prevention and treatment of chronic diseases, without any negative side-effects [1]. The greatest benefits from increased physical activity occur when individuals who are least fit start exercising, even at a low intensity [2,3] and in modest amounts. Previous studies have shown that patients with chronic pain, in addition to their condition-specific problems, are prone to low physical activity and have significantly poorer physical fitness compared with population controls [4]. The consequences are increased risk of developing lifestyle diseases such as cardiovascular problems, cancer, type 2 diabetes and obesity.

In order to achieve important health benefits, the revised US physical activity guidelines recommend that both adults and older people should perform at least 150 minutes of moderate-intensity physical activity, or at least 75 minutes of vigorous physical activity, or an equivalent mix of moderate-intensity and vigorous physical activity per week [5]. The activity can be spread out over the week, and can be broken up into smaller amounts of time during the day for at least 10 minutes at a time. In addition, the recommendations include muscle strength activities that work all major muscle groups on at least 2 days/week. Fitting regular physical activity into their daily schedule on a permanent basis may seem difficult for many people [5], and may be even more difficult for patients with chronic health problems.

Primary healthcare providers such as physiotherapists routinely meet patients with chronic pain and reduced function. Physiotherapists are trained in exercise and physical activity prescription, with a particular focus on the correct type and dosage (intensity, frequency and duration) of activity adjusted to the patient's specific needs. As such, physiotherapists should be in an ideal position to promote physical activity and support patients to establish habits that are adjusted to their specific health condition. In a cross-sectional survey, Shirley *et al*. [6] determined the knowledge, confidence, role perception and barriers of physiotherapy students regarding promotion of general physical activity for better health. They concluded that physiotherapy practice appears to be an excellent avenue for promoting a physically active lifestyle, and could potentially play an important public health role [6].

The main purpose of this pre–post-intervention study was to examine if patients receiving a general physical exercise programme in addition to their disease-specific physiotherapy intervention reported an increase in their level of physical activity at the end of the treatment period. It was hypothesised that a general physical exercise programme would influence patients' physical activity pattern, especially in patients who were less active before treatment.

Methods

Physiotherapists from ix clinics participated in the recruitment and treatment of patients. From January 2011 to April 2012, 190 patients with different long-term musculoskeletal conditions seeking outpatient treatment for pain and/or decreased function were asked to participate in the study. They were a subgroup of patients participating in a larger study evaluating the psychometric properties of field tests and questionnaires evaluating health-related physical fitness for use in outpatient physical therapy clinics (the FYSIOPRIM research programme [7]). In addition to disease-specific treatment based on international guidelines, the patients were asked to perform a multimodal individually tailored exercise programme (including aerobic, strength and/or balance components) as part of their treatment plan, with the main aim of improving their general health-related physical fitness and activity level, under the supervision of their physiotherapist. The long-term goal was to change patients' physical activity habits.

Based on the findings from the initial examination (including a set of physical fitness tests), the exercise programme was individually tailored to each patient. The programme usually included aerobic activities (e.g. walking or cycling) and muscle strength exercises. Each patient was followed closely by their physiotherapist once a week, and progress concerning intensity, dosage and frequency was adjusted for each individual as required. The average session lasted for approximately 30 minutes. The intention was that the patient should perform the programme at the clinic twice per week. A home exercise programme was given if the patient wanted additional activities.

Demographic data including age, weight, height, body mass index, sex, diagnosis, main complaint, duration of symptoms, occupation and employment status were collected at the baseline visit. The study was approved by the Norwegian Ethics Committee of Medical Research, and the patients gave their written, informed consent to participate.

The International Physical Activity Questionnaire short form (IPAQ-sf) was used to assess patients' level of physical activity. The IPAQ-sf includes seven questions divided into frequency, intensity and duration of participation in physical activities at low (walking), moderate and vigorous levels, and total physical activity per week. It also includes a question about sitting time, expressed as min per day. The data collected are reported as continuous data [expressed as metabolic equivalent task (MET)-min/week] and as a categorical score [divided into low, moderate and high activity level (www.ipaq.ki.se/scoring.pdf)]. The IPAQ has been shown to have acceptable reliability and criterion validity [8].

The amount of physical activity was also assessed by a single question: 'How often do you exercise for at least 30 minutes resulting in increased breath and/or pulse?' The five response categories were: 'three or more times per week', 'one to two times per week', 'one to two times per month', 'no regular exercise' and 'no regular exercise due to reduced function'.

The COOP/WONCA functional assessment charts were used to evaluate changes in functional health status [9]. The six charts assess quality of life at a generic level, covering the