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Occupational Health Physiotherapy Can Influence Physical Activity by Making Every Contact Count: A Case Report

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Abstract | **Case Report**

Low levels of physical activity are associated with a poorer health status. Physiotherapists have a role to play in influencing physical activity outside therapy time. This case study demonstrates how using motivation has the potential to increase the levels of moderate and light intensity physical activity and decrease sedentary behaviours.

Keywords: Physical Activity, Physiotherapy, Every Contact Count, Motivation.

INTRODUCTION

The physical activity levels of healthcare employees are low [1]. This physical inactivity has been observed across a wide range of healthcare cohorts including orthopaedic, neurological, medical and surgical specialities [2]. The lack of physical activity is a problem as low levels of physical activity are associated with muscle deconditioning, joint pain, poorer functional outcomes and cognitive and psychological decline [3]. The role of the physiotherapist in assessing, treating and promoting physical activity among healthcare employees is well documented [4-6]. However, physiotherapy-led interventions to increase physical activity have focussed mainly on increasing physical activity during therapy, which does not always translate to increased physical activity outside of therapy. There is certainly scope for physiotherapists to influence physical activity outside of therapy time, for example, the physiotherapist could add additional activities to the usual healthcare tasks of employees with the goal of increasing their physical activity. Reported barriers such as time constraints, competing clinical priorities, lack of staff and lack of a physical activity culture must be considered in order to ensure any increase in physical activity levels are maintained [7]. The aim of this project was to determine whether occupational health physiotherapy can influence physical activity and reduce sedentary time in every contact with a healthcare employee attending the clinic.

CASE

Subjective Examination

A 46-year old male employee self-referred to the occupational health physiotherapy clinic with a complaint of lower back pain. His symptoms were present for 6 months but had flared-up in the previous week. He sought advice via his GP and was prescribed analgesia, however his symptoms did not settle. His low back pain radiates down his right leg and he reported an 8/10 discomfort on the Visual Analogue Scale (VAS). His job is sedentary in nature with prolonged periods of sitting and requires very minimal manual handling tasks such as lifting, carrying and pushing or pulling movements. The client denied having any red flag signs or cauda equina symptoms that would warrant onward referral to a medical practitioner or emergency department. With no contraindications identified an objective examination was planned.

Objective Examination

Lumbar spine range of motion testing revealed end of range pain in all directions. The straight leg test was positive on the right side. There was decreased light tough sensation on the lateral border of the right foot. Reflexes were normal bi-laterally. There was tenderness of the lumbar extensor muscles on the right side. An MRI scan was performed which indicated disc degeneration and a relatively marked disc bulge at L5/S1 levels. Transition into a small medial to right disc prolapse with migration into the right recess. No disc fragmentation was noted. Compression on the S1 nerve roots which was more pronounced on the right side. There was slight indentation of the thecal sac but no relevant compression on the cauda equina and possible mild stenosis of the left foramen. Physiotherapy treatment consisted of advice and education, manual therapy, rehabilitation exercises

and a home exercise programme to promote self-management.

Physical Activity Intervention and Evaluation

The intervention used by the physiotherapist to increase the levels of physical activity was motivation. The concept of motivation can be defined as "the hypothetical construct used to describe the internal and/or external forces that produce the initiation, direction, intensity and persistence of behaviour" [9]. This approach was informed by the self-determination theory which posits that competence, autonomy and relatedness are universally essential for optimal human development, motivation and integrity [10]. The International Physical Activity Questionnaire (IPAQ) is the most widely used physical activity questionnaire consisting of two versions namely, the 31-item long form (IPAQ-LF) and the 9-item short form (IPAQ-SF) [11]. This project used the IPAQ-SF which is both valid and reliable [12]. The short form records the activity at four intensity levels: (i) vigorous-intensity activity such as heavy lifting, aerobics or fast cycling, (ii) moderate-intensity activity such as carrying light loads, cycling at a regular pace or playing doubles tennis, (iii) walking, and (iv) sitting. The original authors who developed the scale recommended the 'last 7-day recall' version of the IPAQ-SF for physical activity surveillance because this reduces the burden on participants to report their activity [13]. The baseline physical activity level of the client was recorded in the initial physiotherapy session, and post-intervention the mean physical activity levels were recorded over the course of four follow-up sessions over a sixteen-week period. A 1-hour or more improvement in physical activity levels was considered to be a significant improvement compared to baseline [14]. Table 1 depicts the scores for the IPAQ-SF. This project has contributed to a significant improvement in moderate and light intensity physical activity and a decrease in sedentary behaviours.

Table 1: International Physical Activity Questionnaire (Short Form)

Physical activity level	Baseline (H/M)	Post Intervention (H/M)	Improvement (H/M)
Vigorous	0.10	0.15	0.05**
Moderate	1.25	3.50	2.25*
Walking	2.30	4.00	1.7*
Sitting	6.30	3.20	3.1*

Note. H=Hours, M=Minutes
*Significant improvement compared to baseline
**No significant improvement compared to baseline

DISCUSSION

Vigorous-Intensity Activity

Most healthcare employees perform very little vigorous-intensity activity on a typical day This is possibly due to the fact that it requires between 6 to 9 times the resting levels of metabolism and considerable homeostatic disruption within the physiological systems [15]. The health benefits of regular vigorous activity are irrefutable with the recommendation being that those under 65 years of age should perform vigorously intense cardiorespiratory activity for 75 minutes per week [16].

Moderate-Intensity Activity

Physical activity guidelines recommend that adults achieve a minimum of 30 minutes of moderate-intensity activity on most, if not all, days of the week to achieve health benefits [17]. Most healthcare employees do not undertake moderate-intensity activity at the levels recommended to achieve health benefits. Despite these limitations moderate physical activity is the category most commonly referred to in health promotion campaigns. The reason for the focus on moderate activity is related to the effort-versus-benefit relationship [18]. Healthcare employees that lead relatively inactive lives and have low occupational activity demands can achieve health benefit by performing 150 minutes of moderate activity per week. The health benefits of moderate activity over the long-term include lowering major risk factors for chronic illnesses and premature death [18].

Walking (Light-Intensity Activity)

Light-intensity activities include domestic or occupational tasks such as washing dishes, hanging washing, ironing, cooking, eating, working at a computer desk or performing other office duties [19]. These activities have been shown to be the major determinant of variability in total daily energy expenditure because they consume on average about 6–7 of the waking hours [19]. Previous evidence has also revealed associations between energy expended in non-exercise activities such as light-intensity household, garden and occupational tasks and obesity risk and glucose control [20].

Sitting (Sedentary)

Sedentary time is a relatively subjective term because the difference in intensity between sedentary and light activity levels are not clear. The evidence shows that long-term sedentary behaviours are associated with a variety of health risks [21]. Those that undertake moderate–vigorous physical activity exhibit numerous health benefits, while those that undertake significant periods of sedentary activity negate these positive benefits [21]. Activities such as watching television or riding in a car, standing quietly in line, or sitting reading are considered sedentary, however standing reading, fishing or playing a musical instrument would not be sedentary [21]. Some activities such as sitting playing with children, fishing from a boat or

standing reading can be interpreted to be sedentary activities by some and light activity by others. The International Physical Activity Questionnaire [IPAQ] helps to overcome this problem by including a question on sitting activities. Recent evidence indicates that between 15-18% of the adult population reported they are completely sedentary [22].

CONCLUSION

A physiotherapy-led intervention has the potential to significantly increase the levels of moderate and light intensity physical activity and decrease sedentary behaviours.

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