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Reducing the Risk of Inactivity among Office Workers: An Interventional Workday Steps Programme - Part 1

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Abstract **Original Research Article**

Background: The requirement to physically move in the workplace has been significantly reduced because of modern technology. ***Objective:*** The purpose of this project was therefore to explore the impact of a workday steps programme among office workers at a North London National Health Service Foundation Trust in the United Kingdom. ***Materials and Methods:*** A pre- and post-test design was used to explore the impact of a 6-week workday steps programme. The programme was based on total workday steps, body mass index (BMI) and waist circumference. Data collection was scheduled at the workplace and health coaching sessions were scheduled online. ***Results:*** Office workers walked significantly more workday steps compared to pre intervention. There were no significant changes found in the BMI or waist circumference of office workers. ***Conclusion:*** The office workers that enrolled in this 6-week intervention increased their daily workdays steps. The findings have implications for occupational health and wellbeing clinicians who develop interventions at worksites.

Keywords: Inactivity, Risk, Office Workers, Occupational Health, Health Promotion, Interventional Programme.

INTRODUCTION

In the workplace today, the requirement to physically move has been significantly reduced because of modern technology [1]. Office employees, who are considered to be performing sedentary jobs because of the prolonged sitting nature of their work, are reported to distribute uneven strain on the neck, shoulders and lower back, impair circulation in the lower limbs and can increase the risk of musculoskeletal disorders compared to those performing physical jobs that require manual handling [2]. As a result, this has given rise to serious physical, mental and social ill-health. Studies have shown positive correlations between physical fitness programmes and improvements in musculoskeletal injuries, stress, absenteeism, work culture, employee motivation and organisational image [3, 4]. Employees that are physically active are overall healthier and work more productively.

Consequently, organisations such as the National Health Service in the United Kingdom, have promoted health promotion programmes that prioritise physical activity in the workplace. The impact of workplace physical fitness programmes on promoting vitality and fitness of employees, reducing the cost of treatment and improve efficacy at work has been well documented [5]. However, despite the importance of being physical active, many employees struggle to maintain their physical fitness citing reasons such as cost, lack of time and loss of motivation. In a study by Tu *et al.*, [6], walking was cited as the physical activity most valued by employees to stay physically fit. Several reasons have been cited for its convenience, namely, it can be done free and anywhere, no equipment is needed, easily adaptable to all levels of ability and lifestyles and higher levels of social interaction [7].

The concept of walking 10,000 steps a day comes from a hugely successful marketing campaign launched ahead of the 1964 Tokyo Olympics [8]. There is evidence that walking 10,000 steps a day reduces the onset and severity of several diseases and illnesses, such as joint pain associated with arthritis, dementia, stress and anxiety, premature death and cardiovascular diseases [8]. The purpose of this project was therefore to explore the impact of a workday steps programme among office workers at a North London National Health Service Foundation Trust in the United Kingdom.

MATERIALS AND METHODS

This project used a pre- and post-test design to explore the impact of a 6-week workday steps

programme. The programme was based on total workday steps, body mass index (BMI) and waist circumference. Data collection was scheduled at the workplace and health coaching sessions were scheduled online.

Sample

The participants in this project were 12 office workers employed at a North London NHS Foundation Trust, United Kingdom. Officer workers were recruited via presentations at departmental staff meetings. Before participation all officer workers completed a Physical Activity Readiness Questionnaire to determine whether or not they needed to consult their General Practitioner (GP) prior to commencing the workday steps programme.

Measures

Demographic data such as age, gender, years of service, work status and shift patterns were captured on a spreadsheet. Heath data such as weight to determine BMI and waist circumference were collected at baseline and post intervention. To determine the daily workday steps each officer worker was given a pedometer for 3 weeks at baseline and 3 weeks post intervention. Officer workers were instructed to wear the pedometer only during working hours and to remove it during their rest breaks and when going to the toilet. Officer workers were instructed to log their daily workday steps at the end of their work shift in their logbook. The average daily workday steps were calculated at the end of the 3 weeks at baseline and 3 weeks post intervention.

Intervention

The physical activity intervention used in this project was a modification of the 'Walk with Me' programme [9]. This programme was based on cognitive behaviour theory and consists of weekly coaching sessions and self-monitoring. The weekly coaching sessions were done virtually using Microsoft Teams and consisted of setting daily workday steps goals, reviewing pedometer use, recording workday steps at the end of each shift, tips for increasing workday steps, and discussing strategies to overcome barriers.

Analysis

Data analysis was performed using the Statistical Software for Excel package. Paired t-tests were used to determine significant differences between baseline and post intervention means. The level of statistical significance was set at $p<0.05$. This project was classified as a service improvement initiative and therefore ethical approval was not required [10].

RESULTS

A total of 13 office workers were initially recruited for this project, however, one officer worker withdrew because they were leaving the Trust. Overall, 12 (92.3%) office workers made up the sample and were included in the analysis. The demographics characteristics of the office workers are shown in Table 1. The mean age of the office workers was 49.8 years, and the mean years of employment was 14.1 years. More females (83.3%) attended the workday steps programme than males (16.7%). A third of the office workers on the programme were working full time (75%) and the remainder were working part time (25%). Of those attending the programme, all were at work (100%) and no staff went off sick during the programme due to pain and/or injury. The initial health screening questionnaire confirmed that all officer workers were in good general health and none had any mobility issues or disabilities that might affect their normal daily routine.

Office workers walked 3349 more workday steps compared to pre intervention as depicted in Table 2. This difference in workday steps post intervention was statistically significant ($p < 0.05$, $t = 18.2456$, $df = 11$, $SD = 183.56$). Office workers had a reduction of 0.2 in BMI compared to pre intervention as depicted in Table 3. This difference in BMI post intervention was not statistically significant ($p > 0.05$, $t = 1.2081$, $df = 11$, $SD = 0.869$). Office workers had a reduction of 0.1 inches in waist circumference compared to pre intervention as depicted in Table 4. This difference in waist circumference post intervention was not statistically significant ($p > 0.05$, $t = 1.9149$, $df = 11$, $SD = 0.013$).

Table 1: Demographic Characteristics

Variables	***n***	***%***
All staff	12	100
Gender		
Female	10	83.3
Male	2	16.7
Work status		
At work	12	100
Not at work	0	0
Shift pattern		
Full time	9	75
Part time	3	25

Table 2: Baseline and Post Intervention Workday Steps

Officer worker	Baseline (M)	Post Intervention (M)	Improvement
1	3546	7235	3689
2	5489	9867	4378
3	6213	9231	3018
4	8742	11245	2503
5	4391	8457	4066
6	7643	10936	3293
7	5498	8964	3466
8	6754	9101	2347
9	7323	10674	3351
10	5129	9034	3905
11	8324	11894	3570
12	4627	7231	2604
Total	6140	9489	3349*
Note. M=Mean			
*Statistically significant difference compared to baseline			

Table 3: Baseline and Post Intervention Body Mass

Officer worker	Baseline (M)	Post Intervention (M)	Improvement
1	27.5	27.3	0.2
2	37.1	36.5	0.6
3	29.9	29.4	0.5
4	20.4	20.3	0.1
5	24.9	24.7	0.2
6	34.5	34.1	0.4
7	20.3	20.2	0.1
8	22.6	22.5	0.1
9	28.2	28.1	0.1
10	30.1	29.9	0.2
11	34.1	34.1	0
12	25.5	25.4	0.1
Total	27.9	27.7	0.2*
Note. M=Mean			
*Not statistically significant difference compared to baseline			

Table 4: Baseline and Post Intervention Waist Circumference

Officer worker	Baseline (I)	Post Intervention (I)	Improvement
1	31.5	31.5	0
2	40.2	40.2	0
3	32.3	32.2	0.1
4	22.5	22.5	0
5	25.8	25.7	0.1
6	39.7	39.6	0.1
7	22.4	22.4	0
8	24.6	24.6	0
9	32.1	32.1	0
10	32.6	32.6	0
11	39.3	39.3	0
12	26.1	26.1	0
Total	30.8	30.7	0.1*
Note. I=Inches			
*Not statistically significant difference compared to baseline			

DISCUSSION

The purpose of this project was to explore the impact of a workday steps programme among office workers. The total sample increased their daily workday steps. This was a statistically significant change compared to baseline. However, there were no significant changes found in the BMI or waist

circumference of officer workers. The baseline workdays steps in this project averaged 6,140 steps, which is lower than the 9,703 steps when compared to office workers reported in another project [11]. There is some support to the belief that office workers in this project are less physically active in general.

No changes were found in BMI or waist circumference as might be expected after an intervention of short duration. It is likely that a longer duration is needed for positive changes in BMI and waist circumference. Voukelatos *et al.,* [12], suggested that interventions of 48 weeks or more is more likely needed. This project has a small sample size and it is recommended that in future a larger sample is recruited. Furthermore, the tendency for the officer workers to revert back to baseline levels after the conclusion of this project is likely. Therefore, longer term monitoring is advised at 6 months, 9 months and/or 12 months. The experiences of the office workers who participated in this project should also be explored.

CONCLUSION

In conclusion, the office workers that enrolled in this 6-week intervention increased their daily workdays steps. This increase is attributed to the success of the intervention which has demonstrated that a programme based on cognitive behaviour theory and weekly health coaching sessions and self-monitoring can promote health and wellbeing. The findings of this project have implications for occupational health and wellbeing clinicians who develop interventions at worksites.

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