

The effects of a 12- month exercise intervention and follow-up to the well-being and work ability of the employees in small- and middle sized companies

Kettunen O¹, Vasankari T^{1,2}.

1. Department of Sports and Exercise Medicine, Sports Institute of Finland, Vierumäki, Finland

2 Department of Health and Exercise, University of Turku, Paavo Nurmi Center, Turku, Finland

e-mail: oili.kettunen@vierumaki.fi

The effect of a 12-month exercise training intervention and 12-month follow-up on the well-being and work ability of the employees (n=339) was studied in small- and middle sized companies. It was hypothesized whether the stress, psychological and somatic symptoms will decrease and mental resources and work ability will increase during the intervention. At baseline, 4-, 8-, 12- and 24-month, Occupational Stress Questionnaire (OSQ) and Work Ability Index (WAI) were measured. After 12-month intervention, the stress and psychological symptoms estimated with sum points of the OSQ decreased respectively in the intervention group and the positive result was still seen after 24-month. The subgroup having the greatest stress symptoms at baseline decreased stress symptoms the most. The exercise intervention group reported favourable changes in well-being and work ability. The positive effect was still seen after 12-month follow up.

Key words: exercise, well-being, work ability

1. Introduction

There is a positive connection between individual well-being and job satisfaction. Job satisfaction itself seems to maintain health and prevent illnesses (Romney & Evans 1996). In the context of present study, physical activity and health related issues are important to promote positive well-being among workers in the workplace (Thøgersen-Ntoumani & Fox 2005).

The aim of the study was to evaluate the effect of a 12-month exercise training program and one year follow up on the well-being and work ability of employees in small and middle sized companies. This is a sub study of a larger health and exercise intervention and it took place years 2002-2006 in the Sports Institute of Finland.

2. Objectives

Intervention consisted of exercise training group (213 women and 126 men) and control group (22 women and 19 men), both blue (n=104) and white collar (n=267) workers from 15 small and middle sized companies. Blue-collar workers with physical work load were from cleaning companies-, small restaurants, newspaper- and woodworking industry and small metal workshops. White-collar workers with mental work load were from bank, insurance company, newspaper (journalists), school (teachers), book keeping companies and advertising agencies (different kind of office-work). Mean age was 44 years (± 8.8 y).

3. Methods

The intervention group underwent a 12-month supervised exercise program and one year follow up without supervised exercise. Every subject's individualized exercise program was based on estimated oxygen uptake (VO_{2max}) and varied between 90 and 180 min. The exercise program contained 2-4 supervised exercise sessions per month mainly by walking, skiing, biking and gymnastics. In addition, the exercise group had 2 days training sessions every fourth month at the Sports Institute of Finland, where all the measurements were done. Employees kept exercise diary and they had a possibility to contact their coach (physiotherapist) by e-mail to get support or guidance. Control group participated in all measurements during the same time points (baseline, 4-, 8-, 12 and 24-month), but they did not get any exercise guidance or supervised exercise sessions. Well-being and stress level were measured by Occupational Stress Questionnaire (OSQ) (Elo et al. 1992). Work ability was measured by Work Ability Index (WAI) (Tuomi et al. 1994). The study group was also divided in 4 subgroups by the sum scales of the baseline OSQ and WAI in order to investigate the effect of the baseline symptoms of OSQ and WAI on the intervention induced results. Statistical analyses were run by SPSS (Statistical Package for Social Sciences, version 11,0) software. After the test of normality, repeated measures ANOVA were first done for intervention and control groups. In case of a significant trial*group interaction in ANOVA a paired T-test within intervention or control group was done as a post-hoc test.

4. Results

The results were analysed between women and men (intervention/control group) and between blue-and white-collar employees. There were no statistical differences in results between sexes or between blue- and white- collar employees. Therefore the results are presented combined in this paper.

The stress symptoms of the intervention group decreased during the exercise program and after one year follow up: 4-month by 9%, 8-mo by 14%, 12-month by 16% and 24-month 11% ($p < 0.001$ in all). The psychological symptoms of the intervention group decreased during the exercise program and after one year follow up: 4-month 5%, 8-month 6%, 12-month 7% and 24-month 7% ($p < 0.001$ in all). No significant changes were seen in the results of the control group. The subgroup having the greatest stress and psychological symptoms at baseline decreased their symptoms most. The subject's having poor Work Ability Index at baseline increased their work ability to moderate and those having moderate work ability at baseline increased their work ability to good.

5. Discussion

We studied the response of a 12- month exercise-training program to the well-being and work ability of employees from 15 small and middle sized companies. After training program was 12 month follow up without supervised exercise. We found positive effect between exercise group, well-being and work ability. In control group positive effect was not found. The control group was asked to remain their exercise habits unchanged during the intervention. After exercise intervention stress- and psychological symptoms of the exercise group decreased and after 12- month follow up the symptoms did not return to the baseline level. The result is in accordance with some earlier studies, which have found stress and anxiety reduction after acute exercise (Schnor et al. 2005, Salmon 2001, Taylor 2000). The subjects having the most symptoms at baseline and lowest

work ability, gained the greatest benefit from the intervention. Targeting employees at high risk and great need is a challenge for campaigns of employee well-being (Thøgersen-Ntoumani & Fox 2005).

These are the first results of a large data and the deeper analysing is going on. There is some evidence explaining that exercise interventions do not attract aging, blue-collar, female, less educated, inactive and poor motivated employees (Thøgersen-Ntoumani & Fox 2005 Pohjonen & Ranta 2001). In our intervention group were more women than men and more white-collar employees than blue-collar, difficult to say if that has influenced to the results. Self-selection of health conscious minority to physical exercise programs in the work place seems to be problematic (Thøgersen-Ntoumani & Fox 2005). In our intervention the small work-units formed training groups and they had their own coach. When the deeper analysis of exercise diaries, fitness tests and social background compared to well-being and workability results are ready, we can discuss more from the benefits of the whole exercise intervention. There is a need for good practices preventing stress, improving health and maintaining workability among employees. More tailor made programs responding individual needs of employees are needed. Follow-up showed that the participants had long time benefit from the intervention.

6. References

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