

An eHealth Intervention Using Accelerometer- Smart Phone-App Technology to Promote Physical Activity and Health among Employees in a Military Setting

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Abstract : Working in the military sets special demands on physical fitness, however, reduced physical activity levels among employees in the Finnish Defence Forces (FDF), a trend also being seen among the working-age population in Finland, is leading to reduced physical fitness levels and increased risk of cardiovascular and metabolic diseases, something which also increases human resource costs. Therefore, the aim of the present study was to develop an eHealth intervention using accelerometer- smartphone app feedback technique, telephone counseling and physical activity recordings to increase physical activity of the personnel and thereby improve their health. Specific aims were to reduce stress, improve quality of sleep and mental and physical performance, ability to work and reduce sick leave absences. Employees from six military brigades around Finland were invited to participate in the study, and finally, 260 voluntary participants were included (66 women, 194 men). The participants were randomized into intervention (156) and control groups (104). The eHealth intervention group used accelerometers measuring daily physical activity and duration and quality of sleep for six months. The accelerometers transmitted the data to smartphone apps while giving feedback about daily physical activity and sleep. The intervention group participants were also encouraged to exercise for two hours a week during working hours, a benefit that was already offered to employees following existing FDF guidelines. To separate the exercise done during working hours from the accelerometer data, the intervention group marked this exercise into an exercise diary. The intervention group also participated in telephone counseling about their physical activity. On the other hand, the control group participants continued with their normal exercise routine without the accelerometer and feedback. They could utilize the benefit of being able to exercise during working hours, but they were not separately encouraged for it, nor was the exercise diary used. The participants were measured at baseline, after the entire intervention period, and six months after the end of the entire intervention. The measurements included accelerometer recordings, biochemical laboratory tests, body composition measurements, physical fitness tests, and a wide questionnaire focusing on sociodemographic factors, physical activity and health. In terms of results, the primary indicators of effectiveness are increased physical activity and fitness, improved health status, and reduced sick leave absences. The evaluation of the present scientific reach is based on the data collected during the baseline measurements. Maintenance of the studied outcomes is assessed by comparing the results of the control group measured at the baseline and a year follow-up. Results of the study are not yet available but will be presented at the conference. The present findings will help to develop an easy and cost-effective model to support the health and working capability of employees in the military and other workplaces.

Keywords : accelerometer, health, mobile applications, physical activity, physical performance

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