

## Introduction

Recent studies have highlighted the problem of “sitting disease”. The Lancet initiated in 2012 its series on physical activity and concluded that physical inactivity is as important and modifiable risk factor for chronic diseases as obesity and tobacco. Adults spend 3/4 of their time awake still, mainly sitting. Work is physically light, most people drive to work, and much of the free time is spent sitting. Sitting needs to be restricted as it is clearly hazardous for health. The first countries to give recommendations regarding sitting is Australia and Canada. Finland is the first country to give recommendations for all age-groups.

## Purpose

The aim of this pilot study was to test a combination of a comprehensive physical Check-up, called Welmed. And a 3+3 minute Smart Break workplace exercise solution for physical activation in a workplace where people mainly sit.

## Participants

Workers from two sister companies in the shipping industry participated in the project. Initially 50 signed up for the project. Out of these, 46 volunteered to take the physical pre check-up and a total of 24 volunteered for the post physical check-up. The average age was 45 and 80% were male. One third were truck drivers and the rest were office workers and supervisors.

## Data

The physical check-up data included isometric muscular strength for leg extension/curl, grip strength, anthropometric data (body composition, waist circumference), PEF, Åstrand submaximal fitness test, sit & reach, mobility, balance test, pain (VAS). Data was also collected through questionnaires concerning physical activity. All participants received a questionnaire after the project, and 6 persons were interviewed.

## Methods

The participants were tested before and after the 4 month Smart Break (SB) intervention period. The 3 minute exercise included one upper body exercise (1 min), one lower body exercise (1 min), and one cardio exercise (1 min). The recommended amount of exercises was 2 x SB session per day, one during the morning coffee break and one during the afternoon break. Once every month the employer awarded participants with prizes using the SB reward application. The best team received a bigger prize at the end of the project.



Picture 1. Smart Break session (stock picture)

The workers were given freedom to design their Smart Break sites. Some trained in a group and some on their own using their personal computer. During the training intervention progress reports were sent to participants comparing both individual and team results.



Picture 2. Chairs in the truck drivers' coffee break room

## Results

The participants were able to improve in several areas of physical functions and mobility. The average improvement in muscle strength, e.g., right knee curl was 9.1%, A total of 10 persons improved by more than 10%. (figure 3).

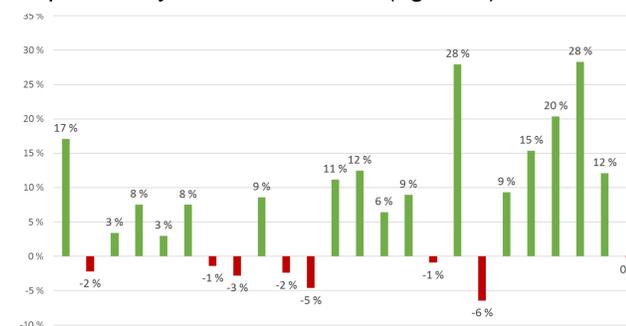


Figure 1. Post-pretest improvements (green)/worsening (red) of right isometric knee curl.

Improvement rates were also seen in mobility, sit & reach, hip-extension, rest pain, and exercise pain. Blood pressure values decreased from an average of 144 to 141 (SYS) and from 89 to 85 (DIA).

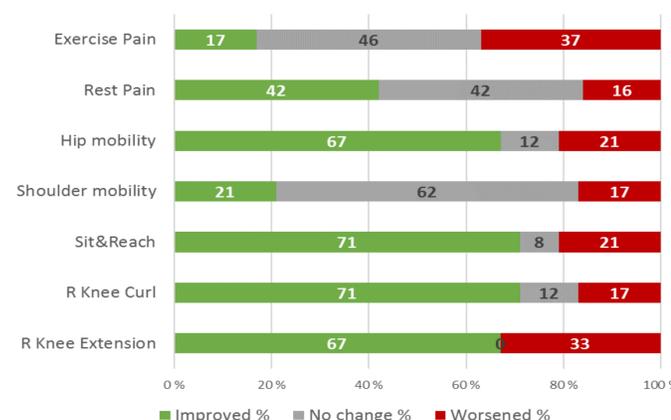


Figure 2. Changes in Physical Check-up Tests

Based on the user survey 75% strongly agreed that the Welmed Check-up gave new information physical functions and fitness. Of the respondents 95.6% viewed the Smart Break exercises as suitable and 79.2% said that twice a day was an appropriate amount of workplace exercise per day.

Half of the respondents viewed that the project had a positive effect on workplace climate. Participants felt more energetic during the working day and more motivated to exercise outside working hours.

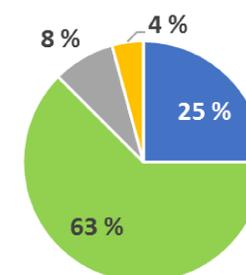


Figure 3. I felt more energetic during the working day

■ Strongly agree ■ Agree to some extent  
■ Disagree to some extent ■ Strongly disagree

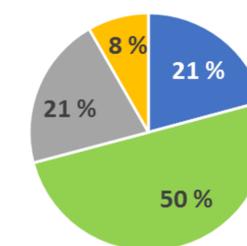


Figure 4. The project gave me motivation to exercise outside working hours

■ Strongly agree ■ Agree to some extent  
■ Disagree to some extent ■ Strongly disagree

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