PHYSICAL ACTIVITY AS A HEALTH PROMOTE FACTOR: THE EFFECT OF HEALTH TECHNOLOGY APPLICATIONS

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PURPOSE: The effect of physical activity (PA) is undeniable in health promotion. The observation, recording and follow-up of PA is nowadays possible with the use of new health technology applications. However, the effect of this technology to increase PA is not well known. Our hypothesis was that subjects with a low PA level or a poor aerobic fitness might benefit from the use of technology applications in terms of increased PA and aerobic fitness.

METHODS: The study population consisted of voluntary healthy males and females (n=49, 34±1 yr, BMI 25±1 kg/m²). The 6-month intervention consisted of health-promoting exercise training program according to the current guidelines. Internet- or mobile phone-based questionnaire and feedback system (Coronaria Impact, Oulu, Finland) were used at weekly basis to collect the realized exercise data and to give feedback in order to motivate to increase PA. In addition, the subjects were randomized to use either heart rate monitor, step meter, or activity monitor. PA was assessed using International Physical Activity Questionnaire (IPAQ) at baseline and after the intervention. Maximal oxygen consumption was used as an index of aerobic fitness and it was measured by Polar Fitness Test (Polar Electro, Kempele, Finland). We evaluated the effect of technology 1) according to IPAQ at baseline dividing the study group to low PA (LOWACT, n=13), moderate PA (MODACT, n=17) and high PA (HIGHACT, n=19) groups, and 2) according to age- and gender matched aerobic fitness class at baseline dividing subjects to low aerobic fitness (LOWFIT, n=25) and high aerobic fitness (HIGHFIT, n=24) groups.

RESULTS: PA increased 180% in the LOWACT group (722±116 to 2019±448 MET-min/week) compared to 30% in the MODACT group (1649±180 to 2143±602 MET-min/week). In the HIGHACT group PA decreased by 29% (4414±367 to 3117±419 MET-min/week) (PA main effect p=0.003). The subjects in the LOWFIT group increased their aerobic fitness by 6% (36±1 to 38±1 ml/kg/min), whereas aerobic fitness decreased 4% in the HIGHFIT group (48±2 to 46±2 ml/kg/min) (aerobic fitness main effect p=0.001).

CONCLUSION: Use of health technology applications in conjunction with health-promoting exercise training increases physical activity and aerobic fitness among healthy persons whose level of physical activity or aerobic fitness is low at baseline.

Keywords: Physical Activity, Health and Fitness, Health Promotion, Technology

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