THE EFFECTS OF SELF-ADMINISTERED SWIMMING AND WALKING PROGRAMMES ON HEALTH AND FITNESS IN PREVIOUSLY INACTIVE ADULTS

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INTRODUCTION

Regular exercise is now considered essential in order to maintain and enhance physical and psychosocial health in industrialized societies. Health-related physical fitness is also regarded as an important component of quality of life. There is increasing evidence that higher health-related fitness levels are associated with lower mortality and morbidity. However, there are few studies proving the efficacy of professional exercise counselling and prescription. Simple individually-assessed and self-administered exercise programmes are probably among the most useful tools for exercise promotion, provided they are effective and efficient in eliciting changes in the health and fitness individual status.

The purpose of this study was to analyze the longitudinal changes in several health and health-related fitness indicators during self-administered five months swimming and walking programmes in previously inactive adults.

METHODS

Thirty healthy and physically inactive subjects (15 men and 15 women, 24 to 53 years of age) volunteered to participate in the study. After a medical evaluation and according to their preferences, they were divided in three groups: 1) Swimming group: 17 subjects (10 men, 7 women); 2) Walking group: 5 subjects (1 man, 4 women); and 3) Control group: 8 subjects (4 men, 4 women). The weekly schedule of the swimming programme consisted of three self-administered swimming sessions of 30 minutes at the same intensity. Subjects were free to choose the swimming stroke and technique at any moment. An expert advisor was available to help subjects, but was not to lead the exercise sessions. The weekly schedule of the walking programme consisted of 5 self-administered walking sessions of 30 minutes at 65-75% of predicted maximum heart rate. The control group did not change their physical activity patterns.

Medical evaluation included a physical examination by a physician, and blood and urine tests (including haemogram, haemoglobin, glucose, triglycerides, and total, HDL-, LDL- and VLDL-cholesterol). Fitness changes were assessed using a health-related fitness test battery for adults, the AFISAL-INEFC test battery (Rodriguez et al. 1996), and a 12-min swimming test (Cooper 1982), performed in three different occasions: pre-training, half training (3 months) and post-training. The battery consisted of the following items: 1) anthropometric and body composition assessment (BMI, waist-hip ratio, adiposity and estimated fat percentage), 2) two-hand-grip, 3) one-leg balance with closed eyes, 4) modified curl-ups, 5) modified sit-and-reach, 6) vertical jump, and 7) 2-km walking test for *Vo~,* max prediction (Oja et al. 1991). Changes were analysed using the Friedman Test for K-related samples or the Wilcoxon Rank Test for matched paired samples.

RESULTS

Twelve subjects (7 men and 5 women) completed the swimming programme. Other three persons left the programme because of mild health problems (two because of ORL

mild conditions), one moved and another abandoned because of lack of motivation. All participants completed the walking programme. The following clinical and fitness parameters did significantly change in the three groups (Table 1).

Table 1. Significant changes in selected health and health-related fitness indicators during the three exercise programmes.

SWIMMING	Pre-post means	% Change	Significance (p)
12-min swimming test (m)	362-480	+33	0.05
2-km walking (mLCV min'^kg"[1])	34.5-38.3	+11	0.05
2 hand-grip (kp)	60.3-70.7	+17	0.05
Curl-up (reps-min"[1])	42-68	+62	0.05
Diastolic pressure (mmHg)	67.91-61.82	-10	0.05
Haemoglobyn (g-dL*[1])	14.90-14.17	-5	0.01
Haematocrit (%)	44.8.43.4	-3	0.05
WALKING			
2-km walking (mLO_2- min'^kg"[1])	35.1-39.3	+12	0.05
2 hand-grip (kp)	61.0-70.8	+16	0.05
BMI (kg-rn[2])	24.9-26.2	+5	0.05
Waist-hip ratio	0.87-0.81	-7	0.05
CONTROL			
No significant changes	-	-	>0.05

DISCUSSION

The exercise adherence in the swimming programme was quite reasonable (65%), but lower than in the walking programme (100%). These results clearly show a significant impact of both exercise programmes on several health and health-related fitness indicators. Performance capacity and cardiorespiratory endurance did markedly improve in both exercise programmes (11-12%). The swimming programme was more effective in positively influencing abdominal muscular endurance and diastolic pressure, and possibly also in eliciting an increase in plasma volume, while the walking programme was more effective in modifying body composition. Balance and flexibility did no significantly change. Consequently, the five months, three or five times per week, moderate intensity, self administered swimming and walking programmes proved to be both effective and efficient in enhancing health-related fitness in previously inactive healthy adults.

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Key words: mental retardation, physical fitness, water and swimming exercises It is well known that children with MR have isoâ€ Introduction lation problems in society what leads to their physical inactivity (Horvat and Franklin, 2001). Mental retardation (MR) causes important effects Some research reports indicate that children with on childrensâ€™ physical fitness, as well as cognitive MR achieve very low scores in cardiovascular fitness activities during life span. Most research in the litâ€ tests (Vannier and Faith, 1975; Ã–ktem, 1987). In adâ€ erature states that children with MR have poor leve