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 VO₂ 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.

<table>
<thead>
<tr>
<th></th>
<th>Pre-post means</th>
<th>% Change</th>
<th>Significance (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SWIMMING</strong></td>
<td></td>
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<tr>
<td>12-min swimming test (m)</td>
<td>362-480</td>
<td>+33</td>
<td>0.05</td>
</tr>
<tr>
<td>2-km walking (mL CV min⁻¹ kg⁻¹)</td>
<td>34.5-38.3</td>
<td>+11</td>
<td>0.05</td>
</tr>
<tr>
<td>2 hand-grip (kp)</td>
<td>60.3-70.7</td>
<td>+17</td>
<td>0.05</td>
</tr>
<tr>
<td>Curl-up (reps-min⁻¹)</td>
<td>42-68</td>
<td>+62</td>
<td>0.05</td>
</tr>
<tr>
<td>Diastolic pressure (mmHg)</td>
<td>67.91-61.82</td>
<td>-10</td>
<td>0.05</td>
</tr>
<tr>
<td>Haemoglobin (g-dL⁻¹)</td>
<td>14.90-14.17</td>
<td>-5</td>
<td>0.01</td>
</tr>
<tr>
<td>Haematocrit (%)</td>
<td>44.8-43.4</td>
<td>-3</td>
<td>0.05</td>
</tr>
<tr>
<td><strong>WALKING</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-km walking (mL O₂·min⁻¹ kg⁻¹)</td>
<td>35.1-39.3</td>
<td>+12</td>
<td>0.05</td>
</tr>
<tr>
<td>2 hand-grip (kp)</td>
<td>61.0-70.8</td>
<td>+16</td>
<td>0.05</td>
</tr>
<tr>
<td>BMI (kg·m⁻²)</td>
<td>24.9-26.2</td>
<td>+5</td>
<td>0.05</td>
</tr>
<tr>
<td>Waist-hip ratio</td>
<td>0.87-0.81</td>
<td>-7</td>
<td>0.05</td>
</tr>
<tr>
<td><strong>CONTROL</strong></td>
<td>No significant changes</td>
<td>-</td>
<td>-</td>
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</table>

**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.

**REFERENCES**
Cooper, K.: The aerobics program for total well-being. Exercise, diet, emotional balance.
Oja, P., Laukkonen, R.M.T., Pasanen, M., Tyry, T., Vuori, Y.: A 2-km walking test for
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Reliability and feasibility of a health-related fitness test battery for adults: the AFISAL-
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For example, walking or cycling to work or school, doing housework, gardening, DIY around the house, or any active or manual work that you may do as part of your job. Active recreational activities. This includes activities such as dancing, active play amongst children, or walking or cycling for recreation. Sport. For example, exercise and fitness training at a gym or during an exercise class, swimming and competitive sports such as football, rugby and tennis, etc. Our picks for Exercise and Physical Activity. The best forms of exercise for those who hate the gym. Older adults who participate in any amount of physical activity gain some health benefits. Some physical activity is better than none and more physical activity provides greater health benefits. Purpose: To compare the effects of self-paced high-intensity interval and continuous cycle training on health markers in premenopausal women. Methods: Forty-five inactive females were randomised to a high-intensity interval training (HIIT; n = 15), continuous training (CT; n = 15) or an inactive control (CON; n = 15) group. Conclusions: Twelve weeks of self-paced HIIT and CT were similarly effective at improving cardiorespiratory fitness, resting HR and cognitive function in inactive premenopausal women, whereas blood pressure, submaximal HR, well-being and body mass adaptations were training-type-specific. Both training methods improved established health markers, but the adaptations to HIIT were evoked for a lower time commitment. Local complications of self administered anabolic steroid injections, 349 Gym and tonic: a profile of 100 male steroid users, 54 Evans NA, Evans RON. Playing with metal: fracture implants and contact sport, 319 Evans R see Moscrip VJ et al Evans RON see Evans NA and Evans RON Ewen SWB see Waterston SW et al. Ferrauti A et al. Effects of an 18 week walking programme on. cardiac function in previously sedentary or relatively inactive adults, 48 Wright IA et al. Dynamic obstruction of the external iliac artery in endurance athletes and its relationship to endothelial function: the case of a long distance runner, 156 Wyllie SE see Vickers AJ et al. in previously sedentary or relatively inactive adults, 48 fluid and electrolyte balance, Factors influencing the restoration of.
The secret to walking off the weight: intervals, says Michele Staten, a walking coach and author of Prevention's Walk Your Way to Better Health. "Interval walking really cranks up your after burn—"the calories you burn long after your official walk is over," Stanten says. To add intervals, warm up for 3 minutes. One of the most cited studies on walking and health, published in The New England Journal of Medicine, found that those who walked enough to meet physical activity guidelines had a 30% lower risk of cardiovascular disease, compared with those who did not walk regularly. A study in the Journal of the American Geriatrics Society showed that adults between the ages of 70 and 90 who left the house and were physically active lived longer than those who didn't.