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Exercise prescribed to patients with cardiovascular risk factors has beneficial physiological effects. Results from a population based GP referral study (EXERT)

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Schemes where patients with risk factors for cardiovascular disease(CVD) are 'prescribed' exercise are becoming more common. However, physiological data as to their efficacy are lacking. The aim of the present study was to compare the effects of two supervised 10 week exercise regimens, an instructor-led walking programme, a leisure centre-based exercise programme (L) and an advice only (control) intervention, in male and female patients aged 40 to 75 years, who had been identified by their GP as having one or more risk factors for CVD. Subjects were randomly allocated to one of these groups. Of the total number of participants in the study (943), subgroups were randomly selected for measurements of total cholesterol and blood pressure (excluding those on blood pressure lowering medication) and heart rate during exercise at a constant submaximal workload (excluding those beta blockers). Measurements were made before, after the 10 weeks (3 sessions per week) of supervised intervention and 6 months later. Levels of self-reported physical activity were also measured using a seven day recall questionnaire. At baseline, mean (±SD) resting blood pressure for all subjects was 131(21)/83(10) mmHg, total cholesterol was 5.7 (1.0) mmol l^{-1} and heart rate measured at the same absolute work load during either a cycle ergometer or shuttle walking test was 119.3(15) and 119.9(16) bpm, respectively. No significant differences in any variable existed between the different arms of the trial at baseline.

Significant improvements in CVD risk factors were observed at 10 weeks and 6 months (Table 1), but no significant differences were observed between the three arms of the trial. However, in each group, levels of physical activity increased substantially. This study provides evidence of positive benefits of increased levels of physical exercise in reducing risk factors for CVD, as well as increasing aerobic fitness in patients.

	Walk 10w	Walk 6m	Leisure 10w	Leisure 6m	Advice 10w	Advice 6m
BP(sys)	-3.1†	-2.7†	-1.8	-2.2†	-2.9†	-0.9
BP (dias)	-3.5††	-3.4††	-1.6	-3.9††	-2.8†	-2.0††
(n)	(69)	(101)	(63)	(89)	(53)	(134)
Cholesterol	-2.2†	-2.2†	-2.7△	-6.4††	-2.6	-2.6††
(n)	(92)	(132)	(75)	(107)	(73)	(168)
HR cycle	-4.5†	-4.2††	-4.9††	-3.0†	-3.2†	-5.0††
(n)	(54)	(74)	(75)	(107)	(73)	(168)
HR walk	-3.9†	-2.8	-1.7	-3.5†	-3.4†	-0.8
(n)	(36)	(50)	(41)	(54)	(27)	(85)

Table 1. Per cent change in mean values with respect to pre-intervention values. $p<0.05$, $p<0.01$, $\triangle p<0.06$. The data for 10 weeks (10w) and 6 months (6m) are paired with respect to each base line value and paired t tests were used with consideration for multiple testing.

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Where applicable, the authors confirm that the experiments described here conform with the Physiological Society ethical requirements.