SHORT REVIEW ARTICLE

EXERCISE TRAINING IN POST-MYOCARDIAL INFARCTION PATIENTS

I. M. SHARMAN

Dunn Nutritional Laboratory, Cambridge

Programmes of exercise training as a contribution to the rehabilitation of the patient with coronary heart disease (CHD) have received widespread attention during the past few years. Although improvements in work capacity resulting from such training programmes have been reported the mechanism producing the improvement has not been definitely identified. Improved oxygen delivery and extraction in the periphery will allow an increased aerobic capacity without any improvement in cardiac function, but there are suggestions that cardiac adaptations may also occur which will enhance work capacity.

The patient who has had a myocardial infarction (MI) has received the most attention in rehabilitation training studies, but there is evidence that patients with ischaemic heart disease and those who have undergone coronary artery bypass (CAB) surgery also have a diminished work capacity. The relative importance of residual left ventricular dysfunction, acute ischaemia, and coronary revascularisation on the response to exercise training in various categories of cardiac patients has not been clearly defined. Not all patients with coronary disease will exhibit improvement in aerobic capacity and exercise haemodynamics in response to training, and some may exhibit accelerated rates of decline as the disease advances. If the beneficial effects of exercise training are to take place the training must be of sufficient intensity, duration of each session, and

frequency per week to induce adaptive changes and must be repeated regularly.

In a recent trial (Hartung and Rangel, 1981) measurements were made both before and after three to six months exercise therapy in twenty-four patients who had had MI, in sixteen patients having positive test and/or multiple risk factors for CHD, and in ten patients who had undergone CAB surgery. All the patients were men with a mean age of 51.6 years. Exercise training was conducted three times a week for twenty to forty minutes per session. Walking and jogging both on a treadmill and a track, and stationary cycling were used as training modalities. A paired 't' test was employed to determine the significance of differences between pre- and post-treatment results for each group of patients.

Results showed that body fat percentage decreased in each group and that aerobic capacity increased significantly ($p < 0.01$) in all three groups ($6.2 \text{ ml/kg.min}^{-1}$ in MI, $7.0 \text{ ml/kg.min}^{-1}$ in CHD, and $8.0 \text{ ml/kg.min}^{-1}$ in CAB). Changes in the other exercise related variables were not statistically significant. Analysis of variance yielded no difference among the three groups for any of the variables evaluated.

The results show clearly that the trainability of the MI patient is equivalent to that of the cardiac patient who has not suffered an infarct, and to that of the post-CAB patient.

REFERENCE

Hartung, G. H. and Rangel, R., 1981 "Exercise training in post-myocardial infarction patients: comparison of results with high risk coronary and post-bypass patients". *Archives of Physical Medicine and Rehabilitation* 62: 147.