ABSTRACT

SOME EFFECTS OF EXERCISE ON THE DISEASED HEART

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Scrutiny of the available literature suggests quite strongly that physical exercise and sport in particular has a useful part to play in the prevention of certain cardiac diseases. Montoye's comprehensive review of the literature is a useful guide to material published relevant to the effects of exercise on cholesterolaemia and to the incidence of atherosclerosis in exercised and control animals. The effects of exercise on dogs submitted to a "surgical coronary" indicate its protective influence. Epidemiological studies of the relative incidence of coronary heart disease in physically active as compared with sedentary populations all tend further to suggest that exercise is protective to some extent.

The old myth of the "athlete's heart" seems to be disappearing although it dies hard as witness the case of the Olympic silver medallist formerly told that his heart was in poor shape, that he had a grim prognosis, and that at all costs he should give up sport! Jokl states that the normal heart is invulnerable to exercise. It is true that disturbing E. C. G. tracings may be produced by superbly fit athletes but this serves to indicate the inexactitude of the E. C. G. as a diagnostic tool rather than the cardiac frailty of the athlete.

Cardiac efficiency can be improved by training - specifically by an adaptation whereby the stroke volume is increased, and this will inevitably increase the cardiac reserve. There seems to be no inherent reason why this should not take place in the diseased heart in the same way as in the normal, even if to a lesser extent. The difficulty is to know what patients to submit to formal training, and to determine the severity of that training. It appears that suitability for such training is based on the degree of activity of the disease process rather than on the actual degree of damage, decompensation and failure being likely to supervene in the diseased heart undergoing training when the disease process is active. It is to be noted in this connection that the cardiac rehabilitation is essentially a process of training and is therefore referred to as such.

The nature of cardiac pathology amenable to exercise therapy and reconditioning may in part be elucidated by study of those cases found incidentally in the superbly fit. Direct monitoring of the heart during exercise is at present beyond our technical capabilities and one must therefore fall back on clinical observation which is of course crude and empirical. One great practical problem

is the case of the "cardiac cripple" whose actual cardiac lesion may not have been gross but who has become terrified of any form of recurrence to the point where he is almost impossible to resettle. These patients keep throwing up cardiac symptoms and it is often very difficult to decide whether such symptoms are functional or organic in origin. In practice there is little doubt of the benefit of controlled physical activity of progressive severity in the rehabilitation of the cardiac patient, at least from a functional point of view. Even if there is no significant alteration in the prognosis from a mortality point of view it is surely better to work for the higher level of functional recovery and accept the risk of the patient "dieing in harness" rather than leave him to wait for dissolution as a "cardiac cripple".