

# MEDICAL PRACTICE

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## *Clinical Topics*

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### Cardiac Rehabilitation 1975

#### Summary of the Report of a Joint Working Party of the Royal College of Physicians of London and the British Cardiac Society on Rehabilitation after Cardiac Illness\*

*British Medical Journal*, 1975, 3, 417-419

##### Introduction

Rehabilitation is the process by which sick patients are restored as quickly and efficiently as possible to a healthy, contented, and useful life. The concept, originating in the fields of trauma, orthopaedics, and rheumatology, has been extended to the problems of heart disease in general and of myocardial infarction in particular. Rehabilitation is those measures leading to speedy and complete recovery rather than a special form of management for those who have failed to recover. Much cardiac rehabilitation is an extension of conventional clinical practice and only in some late problem patients does it involve the special government-based rehabilitation measures already available to patients from other disciplines (these facilities are described in section 11 of the main report<sup>1</sup>).

##### Present Position of Cardiac Rehabilitation in the United Kingdom

In the United Kingdom efficient early medical and nursing care of the patient with myocardial infarction is seldom matched by proper attention to psychological and social aspects of his illness, the consequences for his employment, or his physical activities, so that

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unnecessary invalidism results. Few hospitals have a planned rehabilitation service or facilities for supervised physical training classes. While the overall requirement for this kind of management remains uncertain, some cardiac patients undoubtedly need help of some sort.

##### The Position in Other Countries

Visits to centres abroad and contact with the World Health Organization and the International Society of Cardiology, have shown that this country, in some respects, has lagged behind others in devoting physiological and clinical research to the study of exercise in relation to full recovery of cardiac patients. Though totally comprehensive and widespread cardiac rehabilitation facilities do not exist anywhere a few research workers have described the merits of various cardiac rehabilitation techniques. Several World Health Organization pamphlets on the subject are most freely available, and these confirm the widely varying approaches to the problem found in different European countries, where the methods described may not always be applicable to Britain.

##### Return to Work after Myocardial Infarction

It has been said that return to work is the best form of rehabilitation, and conversely, that the longer a patient is off work the more difficult he is to rehabilitate. While not the only index of successful rehabilitation, return to work is one of the most important and also the most easily measured. Among previously employed survivors of myocardial infarction 80% return to work eventually, but unnecessary delay is common. This encourages invalidism and causes unnecessary economic loss to the individual and the community. The reasons for delay may be summarized as physical (heart failure and angina), psychological (chiefly anxiety and depression), and social (redundancy, a job now considered unsuitable, or the discouraging advice and habits of family, friends, and employers). Only a few patients have persisting disability from heart failure, crippling angina, or mental breakdown. Most can return to the level of physical and intellectual activity which preceded the attack. Certain occupations are unsuited to those who are left with physical disability while others, which involve aircraft and driving

heavy goods and passenger service vehicles, should be forbidden to all who have had a heart attack. Most patients, however, should return to their usual occupations within a few weeks if the infarct has been uncomplicated. Initially, a shorter working day is better than light work, and the doctor may wish to advise the employer accordingly. If there is unusual delay in returning to work, perhaps longer than three months, the patient should be assessed by a physician with a special cardiological interest so that the reasons for delay may be determined and plans set in motion for further assessment and special management. Successful rehabilitation may sometimes require the combined skills of the cardiologist, cardiac surgeon, social worker, psychiatrist, disabled resettlement officer, and the industrial medical officer.

### The Significance of Psychological Factors

Psychological factors, mainly anxiety and depression, are at least as important as organic cardiac disability in delaying and preventing return to work. Initial denial of concern followed by fear, anxiety, and depression are common after myocardial infarction, and in their milder forms may be missed if the clinician is not expecting them. Early discussion with the patient should emphasize the expectation of return to a way of life as useful and interesting as before. Anticipation of his feeling of anxiety and weakness when attempting new activities, awareness of the prevalence of so called "home-coming depression," and constant encouragement are part of sound clinical management. Patients with mild infarcts or ischaemic attacks are equally liable to psychological disturbance, which may compromise return to work and normal activity. Physical conditioning, coupled with simple psychological advice, can be a potent antidote to this type of reaction.

### Physical Conditioning and the Place of Exercise Testing

Regular accustomed exercise is safe for cardiac patients and they may undertake any exertion for which they are trained. Physical fitness can be acquired just as in a healthy individual. Joint mobility and muscle co-ordination can be induced by suitable gentle calisthenic exercises, but cardiopulmonary fitness requires graduated exertion of a more prolonged and vigorous kind to the extent of producing some breathlessness and slight sweating. Such improved physical fitness makes exercise performed in everyday life easier for the patient, who uses a smaller proportion of his physical working capacity for any given everyday task. Improved physical fitness may dispel or help to relieve angina, allow a greater range of physical activities within safe limits, and help to prevent or relieve anxiety and depression. Exercise treatment does not necessarily hasten return to work, increase life expectancy, or prevent further attacks, but results from a few primary prevention studies suggest that sudden death from heart attack is less common in those who undertake regular vigorous exertion.

Clearly, the patient must make his own decision about exercise, but lest he gains a false impression that physical incapacity is necessarily a permanent residue of his illness he must be informed about the possible benefits, methods, and precautions: (a) though it is not yet known whether sustained fitness prolongs life or prevents reinfarction the benefits on angina, morale, and physical agility seem definite. (b) Patients may safely exercise after myocardial infarction providing they do it carefully, exercise at least three times a week, and increase the intensity gradually so that the desired degree of fitness is attained over several months. (c) This level of fitness, which can be measured by exercise testing, will to some extent depend on what the patient wants to do with his life. He should know that while upper levels of fitness are desirable they are not mandatory and that light regular exercise is better than none at all. (d) Though cardiopulmonary fitness can be achieved in most cardiac patients by supervised exercise classes it seems unlikely that these can ever be widely acceptable. Initial feasibility studies do suggest, however, that shorter term hospital classes can be developed to teach methods of maintaining physical fitness. (e) Some instruction manuals (Section 7.7<sup>1</sup>) can be recommended for those wishing to increase their level of fitness at home. Initial explanation and follow-up are advisable and the doctor should have knowledge of the gradual increments of exercise levels described in the particular manual, appropriate to his patient's age and cardiac capacity. (f) Unaccustomed heavy exertion is dangerous. (g) Adverse weather conditions, a full stomach, and psychological upset may dangerously interfere with physiological responses to exercise. (h) Any

interruption such as minor illness must put the training schedule back temporarily to a lower level. (i) Even when fit energetic sports should not be resumed in an aggressively competitive way after infarction.

### The Place of Exercise Testing in Cardiac Patients

Exercise testing is essential for the scientific study of physical effort and is a valuable addition to clinical assessment during rehabilitation. Heart rate, blood pressure, oxygen intake, ventilation, and subjective stress may be measured while the patient is monitored by electrocardiogram during graduated exercise on a treadmill or bicycle ergometer. Where apparatus is not available pulse rate measurement and clinical observation while exercise is being performed on stairs or on a hill are useful guides.

### Secondary Prevention as Part of Rehabilitation

While there is no strong evidence that control of coronary risk factors, such as hypertension, hyperlipidaemia, and physical inactivity, after a heart attack will prevent further episodes there are often other reasons for paying attention to these risk factors—for example, in the control of hypertensive heart failure and in the management of hyperlipidaemic states. The working party strongly supports the antismoking campaign, believing that the evidence is convincing and that patients who have suffered infarction are more receptive to this kind of advice. The rehabilitation period affords an excellent opportunity to introduce changes in the patient's way of life, and sometimes in that of his family, aimed at improving standards of physical and mental health. An example is simple dietary advice to achieve weight control when indicated and to balance approximately the polyunsaturated animal fat intake ratio. To deprive a patient of smoking and to discourage overeating will require a degree of motivation in the patient that may largely depend on the doctor's convictions and his ability to communicate them. If the rationale and mode of achievement are not fully explained restrictive advice may lead to depression and lack of co-operation. Graduated exercise is useful positive advice in these situations and there may be a limited place for mild sedation.

### Practical Points in Rehabilitation after Myocardial Infarction

Supervision, explanation, and encouragement from the start of the heart attack to full recovery are the most important measures in rehabilitation. Ideally, this should be done by one person but hospitals and doctors will arrange locally how it is to be organized. Whether and how much he is personally involved in planning individual rehabilitation programmes is a matter for each doctor and will depend on his interests, his available time, the resources at his disposal, and the extent of the patient's problems.

Factors which influence methods of rehabilitation are: age and sex; psychological make up; social and economic background; the type and suitability of the patient's work; the individual's wish to take part in physical recreation; whether he has been treated initially at home or in hospital; the particular convictions of the physician, cardiologist, or family doctor; and the availability of allied health personnel and specialist facilities. One of the most important factors is the severity of the condition, which may be assessed soon after the attack; later resulting myocardial disability usually parallels this. The patient with a mild uncomplicated infarct, especially if it is a first infarct, should be identified and managed in a comparatively unrestricted fashion, remembering that prevention of iatrogenic disability is more important than its management by sophisticated rehabilitation methods. Over 40% of survivors will have had such a mild attack without resulting physical incapacity.

Communication between clinicians is vital. Continuity of care is a natural function of the family doctor and ultimately rehabilitation is his responsibility. There is value here in well-designed advice booklets for patients. Repeated follow-up clinic attendance should be for a definite stated purpose but hospitals can continue to play an important part in integrating services at district level; arranging co-operation with family doctors; organizing short-term classes in fitness education for selected patients; conducting exercise tests to assess physical capacity; and providing specialist cardiological advice in rehabilitation of problem cases.

### Special Situations

Other forms of heart disease are equally likely to be followed by rehabilitation problems and reference is made in the report to rehabilitation of the patient with a pacemaker, the geriatric cardiac patient, children, and the surgical cardiac patient and to the selection during rehabilitation of certain candidates for cardiac surgery.

### Education and Communication

Information about management of cardiac patients, especially after heart attacks, should be given to medical students, doctors, nurses, allied health professions, trade unions, and employers. The public and politicians should know that the techniques of cardiac rehabilitation, though relatively simple, are time-consuming and that their adoption on a wide scale will require additional staff and facilities.

### Research and Future Trends

Areas of research in this relatively new discipline are outlined in the main report. Though much is known about the physiology

of exercise further research is needed into its application to the clinical field. It is recommended that pilot studies should be set up in which model cardiac rehabilitation units might be established, with cardiologists and a back-up team of nurses, physical educationists, psychologists, and social workers. This would seem a worthwhile and fairly inexpensive way of testing views about the feasibility and benefits of various rehabilitation measures. Trials of physical conditioning early in the illness, with appropriate measurements of fitness, should be instituted. Special attention to the selection of patients for this type of intervention and to its effect on infarct recurrences and survival is recommended.

Copies of the full report may be obtained from the Royal College of Physicians, price £1.00, post free.

### Reference

- <sup>1</sup> Joint Working Party, *Journal of the Royal College of Physicians of London*, 1975, 9, 281.

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## Letter from . . . South Australia

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### Cyclone Tracy

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During the early hours of Christmas Day 1974, cyclone Tracy virtually destroyed Darwin—a city of about 45,000 people and 12,000 homes. In that dreadful night 49 people were killed and another 16 were missing at sea. Only 500 houses withstood the winds more or less undamaged. It was a night of miraculous escapes from death and injury as people cowered in cupboards, baths, and closets, praying for torment to cease. Cars and fridges flew, trees and telegraph poles were uprooted and swirled about like twigs. The rain teemed down and flooded everything. In the words of eye-witnesses, tall buildings danced the tango while walls went in and out like concertinas. The light of Christmas Day showed the devastation, which was worse than anyone could have imagined. Pictures show the floods, the wrecked houses, the tangled telephone wires, the litter of corrugated iron roofs on the floor, the smashed light aircraft at the airfield, and the stranded capsized boats in the harbour. The photographs are of the kind to which the world, in these days of easy communication, has become accustomed—yet they still clutch at the heart in sympathy.

Hurricanes, typhoons, and cyclones are all the same thing. They arise over warm waters, especially where there are islands, and there has to be a zone of low pressure which draws air towards it. The vortex begins as the winds move towards the low. Excess air moves out at the top and warm moisture moves in at the bottom and the process is self-generating until the conditions of maintenance peter out, especially as the cyclone moves over land. Cyclones may move in any direction and they proceed at about 9 to 15 m.p.h. They may be up to 720 km wide. The most terrifying thing about them must be the relatively still centre—"the eye." This is from 8 to 48 km across, and during its passage the sun may shine and the winds be comparatively still. But there is the further holocaust to come as the trailing edge comes in, and it was this which caused the most damage in Darwin. The wind races round the cyclone at about 350 km.p.h., just over 200 m.p.h., and gusts may increase this speed by half as much again. Because of terrestrial rotation, cyclones in the southern hemisphere always blow in a clockwise direction, whereas in the northern hemisphere they are always anticlockwise.

### National Disasters Organization

About four to five months before this awful event, the government had set up a National Disasters Organization, with Major-General Alan Stretton as its head. He heard of the disaster about 7 o'clock on Christmas morning and began to mobilize the teams needed to help. These included the armed Services with all their resources as well as medical and surgical teams. He was granted full powers over the whole area and command of everything required. This prior appointment of an *el supremo*

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