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The Therapeutic Value in Mental Illness of Physical Fitness through Exercise*

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To say that our attitude towards the treatment of mental illness has undergone a radical change during the last 15 to 20 years is to run the risk of reiterating a saying which has now almost become a platitude. Nevertheless, those whose business it is to look after the mentally sick know full well that perhaps no other aspect of psychiatry represents more truly the outward manifestation of this changed attitude than the recent developments in occupational therapy. To attempt to outline this development would go far beyond the scope of this paper, but I propose to deal in a general way with a mode of treatment which should form an integral part of an organised system of occupational therapy in every modern mental hospital.

The task of doctors and nurses in mental hospitals might perhaps be summed up as follows: firstly, the treatment, and the promotion of the most favourable conditions for the *recovery* of patients admitted to hospital; secondly, the management and care of the chronic insane. Treatment may be specific or general. In the specific treatment we aim at removing the cause

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of the particular disorder where this is known (alas only too infrequently) or at hastening recovery by applying special remedies (*e.g.*, malaria). In general treatment we have to fall back on empiricism by trying to improve the patient's health, by treating symptoms, by attempting to increase his powers of resistance and by endeavouring to resocialize him, notwithstanding the fact that we may remain fundamentally ignorant of the cause of his breakdown. For this purpose we make full use of fresh air, sunlight, diet, hydrotherapy, actinotherapy, and last but not least, occupational therapy. In the periphery of the latter we would include treatment by exercise and drill. For both the above classes of patients the institution of physical exercise on a systematic basis is of the greatest importance, because not only does exercise exert its influence on the *physical* health of the patient, but also, directly and indirectly, on his *mental* health.

To enable us to understand more clearly how exercise exerts its therapeutic effect in mental disease it would be of advantage to summarise the general effects on the body of muscular exertion. By exercise, of course, I do not mean passive exercise (passive movements by means of manipulation, massage, etc.) which, though it has its uses in our branch of medicine, rather comes within the specific realm of the trained physiotherapist. Our attention is confined to active exercise which requires a definite exertion of the will power. Active exercises may be sub-divided into two classes, firstly those involving a single *effort* of one or more muscle groups, and secondly, those involving *endurance*. As examples of the former one might mention weight-lifting, feats on the parallel bars, a 100-yards sprint. Here the exercises may be more or less violent in character or compound in motion, each one beginning from and ending with a period of rest. They may be simple movements, requiring skill and accuracy as well as effort. In exercises of *endurance* the variety and intensity of movement are, as a rule, much more limited, and are frequently composed of the natural movements of the body requiring little skill, *e.g.* walking, running (not sprinting), rowing. In such instances each movement comes well within one's reserve power, but the total amount of muscular work is great. The effects on body and mind of these two varieties of exercise have been known since the days of Hippocrates and Celsus; they are of great interest from the point of view of demonstrating a possible rationale in the physical education of nervous and mental patients. Qualities which tend to become developed by exercises of *effort*, whether these are of skill, speed or strength are particularly concentrating powers, alertness, improved co-ordination of the neuro-muscular apparatus, together with a greater economy in energy in the performance of difficult movements. Continual practice results in the increase in bulk of the muscles involved. It is to be noted, however, that the exercises of effort do not result in constitutional vigour to the same extent as those of endurance. The qualities produced by the latter kind of exercise are different. No increased attention is required for the easy movements, hence concentration is normal; moreover, the skill entailed is not more than that necessary for natural movements, and individual muscle groups do not tend to hypertrophy to a marked extent. On the other hand the

indirect effect on the circulation and respiration is greater than in effort exercises, the individual developing a greater cardiac and pulmonary capacity to deal with the removal of waste and fatigue products of muscular contraction. In the long run exercises of endurance employed discriminately and in moderation produce a constitutional vigour and physical robustness far greater than those of effort.

Organisation of Exercises and Games.

The organisation of a system of exercises and games in a mental hospital presents no great obstacles and the small expenditure involved on equipment is amply repaid in the improved condition and behaviour of the patients, and in fact, as I hope to show, may actually lead to an economy. The question of staffing presents possibly the only slight difficulty. Usually instructors for drill classes can be recruited from members of the nursing staff, male and female. Very often a hospital possesses a young male nurse recently out of the army, keen on athletics and sport and who has a good knowledge of gymnastics. With the right temperament and a spark of enthusiasm such a man will in time make an excellent physical instructor. A keen member of the female occupational therapy or nursing staff also will in a surprisingly short time learn the art of drill instruction, though she will probably require some tuition in folk dancing where such facilities are available. As regards the equipment, I would venture to suggest that every mental hospital should possess a gymnasium, at least a moderately equipped one. This is a great boon in the winter, as it offers a greater variety of exercises when, owing to inclement weather, patients are frequently barred from taking part in outdoor games and sport, and Swedish drill remains the only alternative. Parallel bars, flying rings, the trapeze bar, vaulting box and spring board, ropes, high-jump outfit, Indian clubs, dumb-bells, skipping ropes, medicine balls, and a sufficiency of well-padded gymnasium mats form the most essential requirements. As far as outdoor equipment is concerned there is scarcely any need to mention cricket, football, croquet and tennis, for these facilities are usually supplied by every hospital. Perhaps one might mention basket-ball as a useful addition to this armamentarium, as it has the advantage of being both an outdoor and an indoor game. The patients themselves will of course require the appropriate clothing. For the men I have found white singlets and football shorts the most economical and useful, whilst the women wear short gym. frocks.

Patients should be carefully selected and graded for the physical drill class. Some must be excluded for mental reasons, for instance those suffering from severe depression, maniacal excitement or well-developed confusion. In acute melancholia the extreme state of emotional depression tends to be aggravated by forcing the patient to join a drill class; in maniacal excitement the attention is too defective for any useful co-operation, in addition his restlessness and exaltation would have too great a disturbing influence on the remainder of the class. In confusional states the marked clouding of consciousness and intellectual disturbance precludes the patient taking part for obvious reasons.

Physical infirmities and age will exclude others from most systematic exercises, though by no means from all. I have found it a useful practice to issue a table to the drill instructor showing the safe age limits of patients for taking part in the various types of gymnastic exercises and atheletic games. This is much appreciated by the staff and mistakes are avoided. Special significance attaches to exercise in the large group of dementia praecox cases, recent and chronic; here a great deal can be done to stimulate interest, break bad habits, diminish sleeplessness, restlessness and violence, to divert the patient's psychic (mental) energy from the unproductive phantasy life into more useful channels and to rouse him from the complete inactivity of stupor. At the other end of the scale there are the neurotic patients with their anxieties, fears and obsessions; cases of reactive depression brought about by financial or domestic worries, and other less malignant forms of mental disorder. With such varying types of cases it becomes essential to grade the classes according to the intellectual state and behaviour of the patients. In my experience it is most convenient to work with three grades: an "A" grade, consisting of a class of newly admitted patients of the psychoneurotic type, those with mild psychotic symptoms or showing good insight into their own condition, and convalescing patients; a "B" grade consisting of chronic patients and those with more severe symptoms who, though perhaps demented and displaying various manifestations of their psychotic disorder, are nevertheless co-operative and sufficiently interested to be able to perform the necessary exercises almost up to average skill; and thirdly a "C" grade for excited, difficult and regressed patients. It is of course necessary to hold these three classes separately, either in time or place, according to the arrangements of the hospital. Immediately after breakfast patients should take a brisk walk either within the ward gardens or in the grounds, prior to attending the occupational therapy class or other occupational centre. Most of the remaining time in the morning should then be devoted to the grade "C" class with the simpler forms of Swedish drill, marching exercises, skipping and throwing the medicine ball. These exercises should be held in the open air whenever possible, usually on the lawn of the ward garden (a cold morning with frost is no contra-indication); in rainy weather the entertainment hall is probably the best place. The accompaniment of music to the rhythmic exercises is almost as important as the drill itself. It has been found, particularly in negativistic and resistive patients, that the desire to imitate and take part in gymnastic movements of a rhythmic character is enormously enhanced by the addition of music. This is due to the fact that the sense of rhythm is retained long after the intellectual and emotional faculties have deteriorated, and in this way it can be used to direct the patient's energies from morbid activities into the healthy channels of muscular exercise. The size of such a grade "C" class should certainly not exceed 20 in number, about a dozen being the optimum, in order to enable the nurse to give adequate attention to each individual member. In this connection it has been found extremely profitable to have a nurse assisting the instructor, who can walk around from patient to patient and encourage and help them with the various movements. This class of patient is the most difficult to deal with

and requires considerable tact and perseverance on the part of the instructor and nurse, but it is time well spent, for nowhere else do we see such surprising and gratifying results. Such patients as make sufficient progress are then promoted to grade "A" or "B," according to their mental state.

The afternoon should be reserved for the better grades. Each class should not exceed 30 in number, and the time allowed for physical drill is 45 to 60 minutes, followed by half an hour's complete rest. The first half of the period is best devoted to some formal group exercises, such as Swedish drill, exercises with Indian clubs or dumb-bells, marching, skipping, to the accompaniment of music. The second half can then either be spent in informal group play (basket ball, throwing the medicine ball, a game of rounders) or in special exercises on gymnastic apparatus (vaulting horse, flying rings, parallel bars, high-jump). Certain patients from these groups showing special aptitude can be picked out for the more difficult and advanced gymnastic exercises, particularly those involving apparatus and movements of precision. Those who distinguish themselves and who possess the right temperament should also be given the opportunity of acting as drill instructors at certain times and under supervision. It is found that patients readily obey the commands of a fellow inmate and perform their exercises just as efficiently as under the usual instructor. Of course many of the above exercises will be found unsuitable for female patients, and alternative programmes must be adopted. One of the most suitable substitutes is undoubtedly folk dancing, the learning of which is perhaps laborious and tedious, but creates a genuine sense of satisfaction and pleasure in a group that has learnt the art.

Following the rest after the afternoon session patients may then return to their various occupations or to the wards as the case may be. After tea it is an exceedingly good practice (weather and light permitting of course) to allow as many patients as possible, apart from those on parole, to take a good walk within or without the grounds accompanied by an adequate number of nursing staff. It is unfortunate that some hospitals are so cramped for space that these walking tours are precluded, but I think most of my colleagues will agree that a steady walk through the hospital estate or outside it is more beneficial than the usual automatic tramp around the ward gardens, or "airing courts" as they are sometimes termed. These walks should never last less than an hour, and they are of particular value in cases of restlessness and insomnia. As regards games such as cricket, football, tennis and croquet, these are already utilized to the full in our mental hospitals. They should form an integral part in any scheme of physical exercise and athletics, but on account of the comparatively small number that can take part at one time they are of necessity limited in scope. The watching of these games by a large body of patients is a healthy and pleasant pastime but falls under the category of amusement and recreation; certainly it is no exercise except perhaps that involved in their vigorous applause of opponents at a hospital match.

The above remarks I think suffice to show the kind of scheme which the average public mental hospital will find most workable, though the details may be varied to some extent. It follows in a general way the methods adopted

at one or two hospitals in this country, though it differs in that a greater use of gymnastic apparatus is urged. This is an innovation which I venture to suggest will be found attractive by many patients as it adds more variety to the programme, and thus stimulates interest, a highly important factor in cases with marked introversion and inhibition. It furthermore increases the scope of exercises of precision, requiring for their performance a certain degree of skill in co-ordination and a good deal of mental concentration. A spirit of competition often creeps in which lends zest to the execution of these exercises. This is also true of competitive games and athletics, particularly when the rivalry is between groups such as in the various ball games, tug-of-war, etc. It must be emphasized, however, that competitive athletics, more especially those of an individual nature, may have the very reverse effect of that intended when they are employed without discrimination. I am referring to their use in those patients whose psychosis is characterized by sensitiveness and marked feelings of inferiority and who overcompensate for this by an over-indulgence in phantasy life or day-dreaming, where all their fond ambitions find realisation. Well-meant but misdirected efforts to bring the patient into contact with reality by placing him too early in a competitive milieu will only result in his withdrawing completely into his shell. Such cases require delicate handling and active co-operation on the part of the doctor in charge, so that exercises may proceed in gradual stages from the elementary to the more complicated, and from the purely objective to the more subjective forms.

In the light of the above-considerations it will now be easier to appreciate

The Therapeutic Value of Exercise in Mental Patients.

Every scheme of physical training for mental patients should be organised so as to allow of an adequate proportion both of exercises of effort and of endurance. The line of demarcation is not a hard and fast one, indeed many exercises are a mixture of both, but on the whole there is a strong predominance of one over the other in each of the usual forms of gymnastics, athletics and games. The optimum ratio is discovered with increasing experience, and it is when that condition is fulfilled that we get the best results.

The therapeutic effect is both physical and mental. The physical effects are well known to everybody; I will merely enumerate them. The bodily weight is rendered more normal; the circulation is improved, respiration is stimulated and breathing becomes fuller; the muscles become firmer and movements more resilient and freer, and their tone is improved; the physical reserve power is increased, in other words the patient is in "good training." The appetite is increased and digestion improved; there is better elimination both by the skin and the bowels; there is also a lessened susceptibility to colds and a diminution in the incidence of such minor complaints as catarrh of the upper air passages, headache, indigestion and lassitude. The net result is an all-round improvement in the general health. In fact exercise acts in a way which no physic does; it is, to use medical phraseology at one and the same time a cardiac and respiratory stimulant, a digestive tonic and apêtitif, a

diaphoretic, an analgesic, an aperient and a general tonic. Open air exercises by their hardening effect on the constitution increase the powers of resistance to disease, and will in the course of years quite perceptibly lessen the incidence of morbidity from respiratory and catarrhal affections, digestive disturbances and skin complaints.

Of the *mental* effects of exercise we can draw no such uniform picture. So much depends on the type of disorder from which the patient is suffering, on its duration and whether faulty modes of thought and action have been allowed to become too firmly established. In the majority of cases great improvement can be effected. Whilst the treatment is admittedly only palliative, in some it is a definite aid towards recovery. Although, as is generally the case in psychiatry, it is the individual who must be studied, we are nevertheless able to make some generalisations of the therapeutic value in each of the various mental types of illness. A few concrete examples offer the best illustration of the mental effect. A young girl, a patient of mine, who had been in hospital for many months, and whose illness dated back a year or so prior to admission, had been tried on various forms of treatment, but had in spite of everything steadily become worse. After about six months she had merged into a condition of stupor in which she was completely inactive and mute, negativistic and hostile to those around her, and in every way had to be looked after like a child of two. Her regression was so marked that she would do nothing for herself and all attempts at persuading her to do some very simple task in the occupational therapy class proved futile. It was then decided that she should join the physical drill class for difficult and regressed patients. At first she remained inactive, but after some coaxing and steady perseverance on the part of the nurse in charge she gradually started to perform the movements to the accompanying music. Once this stage was reached progress was rapid and she went on to perform the more complicated exercises (skipping, Indian club drill, folk dancing, etc.) with conspicuous success. After a few weeks her habits had distinctly improved and though she still would not talk she became more amenable, less negativistic, and was able to look after herself. At this stage she was again tried in the occupational therapy class and this time with greater success for she was first persuaded to do sorting of coloured wools and later was transferred to basket making at which she became quite proficient. This case illustrates very forcibly how a stubborn attitude of negativism in a repressed patient can be overcome more easily by approaching it through the more pleasant avenue of rhythmic exercises. There must be thousands of such cases in our mental hospitals to-day whose condition is or can be influenced in a similar way.

Then there is the restless case who is sleepless at night, often irritating other patients by talkativeness and noisiness, and showing a marked pressure of activity. He is too unsettled and impatient to be able to concentrate on any occupational task and gives the impression that he is overflowing with pent-up energy and cannot find a satisfactory outlet for it. Many such patients gradually merge into a state of maniacal excitement with violent and destructive behaviour, and thereby become a special problem in treatment. I believe,

however, that this excited phase may often be prevented by judicious application of physical drill at the right moment. They are difficult patients to deal with and often will not conform to the discipline of a class, hence informal exercises and play often work better than formal drill. An hour should be spent at this every morning or afternoon to be followed in the evening by an hour's walk in the grounds. In this way the restless patient obtains a healthy outlet for his excessive energy, and his unpleasant feeling of repressed activity disappears. I am sure many physicians and nurses have noticed the contrast in the behaviour of these patients when such a programme is carried out regularly and when these activities are restricted on account of rainy weather. In the latter instance restlessness, irritability and quarrelsomeness unfortunately are often only too conspicuous. Most significant of all, however, is the fact that natural sleep is induced by the healthy fatigue engendered by the daily exercises, particularly by the long evening walk. This is of importance not only because it leads to improvement in the mental state and bodily health of the patients, but also because it minimizes considerably the need for the administration of sedative and hypnotic drugs, and thus effects a not inconsiderable economy in the long run. In the large mental hospital near Constance a systematic attempt was made to treat patients of the disturbed type with physical exercises and athletics, with a view to reducing or eliminating the need for narcotics. In the case of 60 female patients treated during the course of a few months the average saving on narcotic drugs amounted to £15 per month, and no hypnotics were administered at all! To a less extent economies are effected through the improved behaviour and better discipline, lessened destructiveness and fewer breakages.

Let us also take the example of the young patient suffering from early dementia praecox, with ideas of reference or delusions of persecution and perhaps with hallucinations of hearing. These people are shy and seclusive, usually roam about the wards preoccupied with their morbid thoughts or absorbed in phantasy. They are often very sensitive and resent any interference; they answer questions curtly and without display of interest or emotion, although their intellectual faculties are intact. They become slovenly and neglectful and flare up into tempers without adequate reason. If such a patient is allowed to deteriorate he withdraws more and more from reality; the phases of impulsive behaviour become more frequent with the increasing influence of his delusions and hallucinations, and reasoning powers are distorted. Finally the emotions become severely blunted, intelligence is grossly impaired, and during the course of a few years the condition issues into a state of dull secondary dementia. All means at our disposal must be brought into play to arrest this seemingly fated process of deterioration. Our aim must be to bring the patient into contact with his surroundings, to evoke in him as much social feeling as he is capable of displaying, and to stimulate his interest in some form of occupation. Where occupational therapy fails to achieve co-operation, physical exercises and games may succeed. This is in fact borne out by experience both in this country and America. The appeal must be made to the patient's instinctual life to rouse him. Music, rhythm and

the urge to imitation is more likely to break through the ice of negativism than purely objective methods. Daily group drill to music and throwing the medicine ball should be persevered with, but without unduly forcing the patient. Ball throwing has been found a particularly useful exercise; there are few patients who will not catch or attempt to catch a good weighty ball when it is thrown at them. These exercises are a pleasant way of stimulating their interest in the surroundings, and do not evoke antagonism. The daily activities in a group have a socialising influence on the young schizophrenic, and during formal exercise a certain degree of mental concentration is required which tends to direct his attention outwards and to divert his mind from his delusions and hallucinations. Once the vicious circle of negativism and self-absorption has been broken the time is ripe to send him to the occupational therapy class, where if he is judiciously managed, the improvement in behaviour and habits can be maintained.

Finally a few words about the value of exercise in the benign and recoverable cases of mental disorder. It is undoubtedly a useful adjuvant to supplement other forms of treatment, but its use must be subordinated to the needs of the individual case. One may say without hesitation that it is applicable to all varieties of neurosis, except perhaps in severe forms of anxiety neurosis, where panic attacks are frequent. The effect of exercises is to lessen the intensity of neurotic symptoms, and generally to produce a pleasurable feeling which goes far to re-establishing self-confidence and dispersing morbid conflicts. The self-centred hypochondriac becomes less absorbed in his imaginary bodily ailments, the obsessional has a smaller chance of giving way to his compulsive urges, the hysteric becomes more stable in mood and under the strong suggestive influence of a capable instructor he may be cured of his paralysis, his tremor or his tic. In the rather larger group to which the anxiety neurotic belongs there is a definite tendency to a diminution in the unpleasant feeling of anxiety or fear, and through the concentration on the drill which he willy-nilly must maintain his mind is of necessity diverted from preoccupation with conflicts. In most cases of mild depression there is noticeable improvement, the patients themselves own to feeling happier, there is a lessening or disappearance of the awful feeling of inadequacy and constantly an increased feeling of self-confidence. It must be admitted, however, that in severe cases of depression, this beneficial effect is not produced, in fact as I have stated above exercise may lead to a worsening of the condition. In considering the therapeutic value of exercise in neurotics we must not lose sight of the fact that in some measure the improved mental state may be a direct result of the effect on the physical health causing an increased feeling of well-being, general toning up of the musculature, improved circulation and better sleep through the fatigue produced.

I have described the therapeutic effect of exercise in several typical forms of mental disorder, benign and malignant, and though I have by no means exhausted the list, I feel sufficient has been said to give an indication of its value. To summarise then, it may be said that the institution of a system of physical exercises, both formal and informal, has a marked bene-

ficial effect on the general health of the mental patient. In the great majority of cases it produces an improvement in his mental state and conduct. Its socialising effect is a valuable means of combating negativism and faulty modes of behaviour. The patient's mind can be diverted from his conflicts, his delusions and hallucinations. It provides a healthy outlet for excess energy in restless cases, and thus lessens both the frequency and the periods of disturbed phases. It may succeed in bringing many a dementia praecox patient into increased contact with his surroundings where other methods have failed, with the result that he can be made sufficiently co-operative to become a useful member of the occupational therapy class. In producing a healthy fatigue physical exercise induces natural sleep in restless, nervous or apprehensive patients and in this way considerably lessens the need for administering sedative and hypnotic drugs. Powers of concentration, mental alertness and capacity for work are increased, discipline is improved and a feeling of well being and contentment is engendered. In the convalescing patient it has the effect of hastening recovery and promoting constitutional vigour, and may thus shorten his stay in hospital.

In conclusion I should like to put forward a plea for the adoption of physical training on a systematic and extended basis in all our mental hospitals. I feel that a method, so simple and inexpensive and yet so obviously beneficial for the health and happiness of our patients, has won for itself an assured place in modern psychiatric treatment.

✓ The Need for Community Care of Epileptics*

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There is a considerable epileptic population in institutions in our country. Over 11,000 epileptics are to be found in public mental hospitals, perhaps 3,000—4,000 in institutions for mental defectives, and just under 4,000 in colonies and residential schools for epileptics who are neither insane nor mentally defective. There are no figures to show the number of epileptics in general Public Assistance Hospitals and Institutions. It is probably pretty considerable and includes many who are badly placed in general or in "mental" wards.

The number of epileptics living in the community, no one can number, nor is it likely that any accurate enumeration will be forthcoming, as cases with infrequent or slight fits would always escape observation. It is generally

* Paper read at Public Health Congress, London, November, 1936.