THE VALUE OF FREEDOM AND EXERCISE AFTER OPERATIONS.

BY

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THE object of this paper is to suggest that the need of rest after operations has been greatly exaggerated, with the result that patients are kept in bed much longer than is really necessary. Traditions and long-established habits are generally followed blindly and without question, whereas it is our bounden duty, in the interests of progress, to submit them to criticism, to continue what is good, to cast aside what is useless, irksome, and harmful, and to evolve better and more humane methods. For some ten or more years I have been asking myself the following questions:

Is it necessary or kind to insist on so much rest? Is it not dangerous, as well as irksome to the patient? Is it economical—in the widest sense of that word—to keep patients in bed and in hospital for such a long time? Do not unnecessary restrictions add to the personal fear, as well as to the danger of operations? Is it true that wounds heal faster and better when at complete rest, or that they may give way when patients are allowed up early for gentle exercise?

As a result I have gradually changed, and I hope and believe greatly improved, the after-treatment of my patients. I submit that many of the dangers of operations are due to unnecessary restrictions imposed during this time, and that the public fear of operations is very largely due to the same cause. My patients often tell me that, if they had known beforehand how simple and comfortable the after-treatment could be made, they would not have hesitated so long before undergoing operation. For this reason it is kind and wise to describe and explain the plan of after-treatment before the operation, so that the patient may expect and welcome the method. It cheers him to know that he may move as much as he likes in bed from the first, have the freedom of the room after four days, of the bath after seven days, and may take short walks or drives in the open air after ten days.

It is true that rest in bed is valuable while the nervous system is exhausted and the body is in pain immediately after a severe operation, but when reaction has set in and pain and tenderness have subsided, as they generally do after a few days, it is no longer necessary. Nay, the normal mind and body chafe under undue restrictions and want to return to more natural conditions and habits as soon as possible. Complete rest in bed depresses the spirits and lowers the physiological actions and general vigour of the body. The heart beats less frequently and less forcibly, the breathing becomes slower and shallower, the appetite fails, the digestion flags and the bowels become sluggish. Under these conditions the risk of clotting of the blood in the auricular appendages and in the veins is increased, and it is a matter of experience that thrombosis and pulmonary embolism are far more likely to occur in bedridden patients. The best way to avoid these serious complications is to keep the patient and the blood stirring. Clots large enough to obstruct the pulmonary artery take some time to form, and it is known that such clots rarely cause fatal embolism within the first week of an operation. The catastrophe nearly always takes place between the eighth and seventeenth day. It appears to be easier to avoid the formation of clots than to prevent their shifting, and I therefore keep my patients moving as much as possible from the beginning, getting them to walk a little within four or five days of the operation, unless there is some grave contraindication. As a result I very rarely see thrombosis or pulmonary embolism now.

It is, again, well known that the dangers of hypostatic pneumonia and other pulmonary complications are greatly increased by the incomplete aeration and congestion of the bases of the lungs which prevail in bedridden patients. The muscles, especially those of the legs and abdomen, begin to waste and lose their tone after a few days in bed, and this deterioration progresses so rapidly that standing and walking become more and more difficult. By getting up early and walking a little every day this loss of power is prevented and the need of massage abolished.

Undue adhesions of the viscera to each other and to the parietes, and of the various layers of the abdominal wall to each other, can be very largely prevented by early voluntary movements. For instance, many patients kept too still in the

sitting up and flexed positions, find it difficult and painful to straighten their bodies and hips on getting up, whereas if they are encouraged to move freely and get up early they are spared these troublesome complications, for any adhesions that form are sufficiently stretched while they are still soft and comparatively painless. It is far easier and better to prevent limitation of movements from adhesions than to correct these limitations once developed or confirmed by the prolonged adoption of unnatural positions during healing. Man is punished by his limitations, not by his movements.

Constipation is usual, if not invariable, when patients are kept in bed too long after operation, whereas it can be minimized, if not entirely avoided, by letting the patient get up early, take gentle exercise, and adopt the natural position for defaecation. Constipation, besides being very unpleasant and troublesome to the patient and nurses, brings many evils in its train, such as loss of appetite, excessive straining and the purgative habit, which is difficult to abandon afterwards. It is probable that it also increases the risk of infection of the blood stream and thrombosis. Excessive straining is to be avoided, for it is certainly a severer test on an abdominal or hernial wound than gentle walking exercise.

As regards the healing of wounds, years of observation have convinced me that complete rest is unnecessary and even harmful by interfering with general and local circulation and nutrition. I have no recollection of any delay of healing due to getting up early and taking gentle exercise, nor have I ever seen hernia develop or recur from this cause. Fractures of the ribs always join promptly and well in spite of the inevitable movement of the fragments. Similarly, gentle movements of wounded soft parts do not hinder but help the process of healing. Confinement to bed, or even to a room or indoors, almost inevitably deprives patients of some of the great benefits of fresh air, light, and sunshine, which have a most stimulating effect upon healing of body and mind, as was well shown during the great war.

It is not economical to keep patients so long at rest in hospital. Let us take appendicectomy and the radical cure of hernia as examples. Patients are generally kept in hospital for about three weeks after these operations, whereas, even under present conditions, they can safely leave after ten days, or even earlier. Under ideal conditions—as, for instance, the existence of a simple and economical convalescent home or camp in the country—they could be moved there after four or five days, for these patients need very little nursing or medical attention after that time. In this way two or three times as many patients could derive benefit from the charity, or, as an alternative, the number of hospital beds in London could be greatly diminished. Very soon the long and costly delay in getting into hospital would be abolished.

Much thought, trial, and observation have convinced me that the ideal after-treatment cunningly combines rest with exercise and freedom—at first much rest and little exercise, later less rest and more exercise every day. The sooner the normal habits of life are restored the better. I have learnt much from children and infants, who are difficult to keep still, and yet heal and recover better than adults.

I do not claim that the views I venture to express are original, but (what is far more important) I believe them to be true, and that a reasoned account of them is long overdue. That there is need of it is evident to anyone who cares to look around and think. A few brief examples which have recently come my way may help to show this.

A short time ago I saw a surgeon of ability and repute fix a child in a long Liston splint after the radical operation for hernia—surely an unnecessary punishment. A lady, after an operation for acute appendicitis, with pelvic peritonitis, was, in spite of instructions, kept in the Fowler position, with a pillow under the knees, for a month, with the result that she could not stand or walk in the upright position for three months, and even then required massage for her withered legs. Again, an elderly gentleman, having had his gall bladder removed in New Zealand in April, came to see me in October because he leaned forward and to the right, and could not stand or walk about without pain in his right flank, due to adhesions and retractions of his abdominal muscles. He had been kept at rest, in the sitting-up and flexed position, and had been asked to keep as still as possible in order to ensure healing. Compare this result with that of a patient who, after cholecystectomy and cholecystectomy, went home on the twelfth day and voluntarily walked up three flights of stairs to his bedroom in London. Two days later he motored thirty miles to his cottage in the country, and three weeks later, after a perfect

holiday, returned to his professional work in London in excellent health.

It is not suggested, however, that patients should be hurried back to work, or that all should be treated alike, for some need a longer holiday than others, and after some operations a long convalescence is essential. For instance, some overworked or exhausted patients, even after comparatively trivial operations, require a long convalescence to restore them to health; but the rest and change from work is all the more effective when it is combined with gentle, interesting, and increasing exercise, with mental diversion. Similarly, after gastro-jejunostomy, especially for an active duodenal ulcer, prolonged convalescence and dieting for from two to three months are necessary to ensure permanent healing of the ulcer and stoma, but only the first few days of this period need be spent in bed. The greater part can be passed more profitably in the open air, taking gradually increasing exercise, just short of fatigue, so that the patient becomes strong and well before he returns to work, about three months after the operation.

THE TREATMENT OF TUBERCULOSIS WITH COLLOID OF CALCIUM.

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It is generally admitted that the present methods of treating pulmonary and also so-called surgical tuberculosis leave much to be desired. The methods suggested have been numerous, but a great deal of controversy is always in progress as to their respective merits. The dispute over tuberculin is perhaps the most familiar example of divergence of view. I am of opinion that the conflicting views on the value or otherwise of tuberculin arise from the two-edged nature of this substance, which although undoubtedly beneficial in some cases is harmful in many others; the difficulty of differentiating these cases without actual experiment makes many very chary of using the remedy.

With regard to new remedies there is always the difficulty of deciding whether any given improvement or other change is due to our treatment or is the result of the vagaries of the disease. Many new methods of treatment have apparently yielded good results in the hands of those who first used them, but have after a time been abandoned; this makes it appear possible that some of the results were psychic in origin, and it is therefore with some diffidence that I bring a new remedy to the notice of the profession.

In the BRITISH MEDICAL JOURNAL of March 19th, 1921, page 420, I published some remarks on the treatment of tuberculosis by means of calcium. There was considerable variability in the results obtained by the administration of calcium lactate—the particular salt I used—and it occurred to me that this might be due to differences of absorptive capacity in different individuals. I therefore cast about for some other method of administering the drug. I had at that time, for a rheumatic condition, been using with success some collosol iodine prepared at the Crookes Laboratories. I therefore asked whether I could obtain calcium in the colloid state, and was informed that at the suggestion of Sir Malcolm Morris—who I may say has taken a great interest in this investigation—they had just prepared some colloid calcium and sent me a supply to try.

Mr. J. F. Ward, the chief chemist at the Crookes Laboratories, who has rendered me every assistance in this investigation, tells me that the calcium is protected by glutaminic acid, which is prepared from gelatine; this is autoclaved to 140° C., which guarantees freedom from living organisms and spores. The strength is 1 in 2,000, representing the actual amount of calcium present, the amount of calcium oleate being approximately seventeen times as much. The colloid calcium, when examined with the ultra-microscope, is seen to be in active movement. The fluid is homogeneous, has the appearance of milk, and easily passes through a very fine hypodermic needle.

The drug is administered hypodermically. I inject it under the skin of the back of the forearm, as that situation is easily accessible, and the local reaction can more easily be observed. The skin is rendered aseptic, and the injection is made with

a Record hypodermic syringe graduated in tenths of a cubic centimetre. I use a very fine steel needle which renders the injection little painful—a matter of some importance. Veins should be carefully avoided. I have used an initial dose of 0.5 c.cm., the average dose used having been 0.7 c.cm., and I have not given larger doses than 1 c.cm.

The actual dose of calcium is extremely small, and I would warn any who are inclined to use this remedy not to increase the dose without due consideration; those indicated appear to have been quite sufficient. For instance, in a very acute case with very high temperature and night sweats I gave 1 c.cm., and the sweating ceased for ten days, but the temperature remained rather higher, and no benefit apparently followed. I have not yet quite decided as to the correct spacing of the doses; as a rule I have given them every five days to begin with, but I am not sure that a week is not a more satisfactory interval, and in some cases an interval even longer is perhaps better. This point must be decided by the general clinical condition of the patient.

There is generally some local reaction at the site of the injection visible the next day. This is a very variable factor, in some cases it is almost negligible, in a few severe; in one case which was suffering from tuberculous glands with discharging sinuses, the first reactions were very pronounced, and the second caused swelling of the whole of the forearm from the wrist to the elbow; nothing was done in the way of treatment; she continued her work as usual, and the swelling and redness disappeared in three days; as she was feeling so much better and the sinuses had ceased to discharge, she cheerfully went on with the treatment. I have not yet been able to satisfy myself whether there is any connexion between the amount of reaction and the amount of benefit or otherwise which follows, but it is quite possible that this can be worked out with more experience.

Most of the patients make no complaints after the injections, but certain symptoms follow in others. Vomiting occasionally occurs the day after an injection, and in some few cases palpitation has been complained of; in one case there was a complaint of giddiness; this, however, soon passed off, and no treatment was necessary except that it is perhaps advisable to decrease the dose and lengthen the intervals. One beneficial result of the injections is that in many cases the patient sleeps very much better. I generally give the injections in the evening, so that patients will not be taking exercise until the next morning. Where a patient is suffering from fever it is well to be cautious, as it sometimes happens that the injections are followed by a rise of temperature and the symptoms of a mild tuberculin reaction, including increase of sputum. The rise in temperature has never been much in my cases. I have given over 800 injections, many of them to young children of 5 or 6, and I have never experienced any anxiety—a very different experience from that one has when giving tuberculin.

All the 56 cases upon which this account is based, with the exception of one which was a domiciliary case, were living under sanatorium conditions—favourable conditions to improvement; the temperature in all cases was taken in the rectum, and I believe unless this is done it is impossible to gauge properly the effect of treatment. I would urge those who try this remedy not to omit keeping their patients in bed if they are suffering from fever.

I commenced treating cases with colloid calcium at the beginning of July, 1921; for obvious reasons I have to confine my report to immediate results which could be most easily observed. Of 56 patients treated 24 were males and 32 females. Owing to the less stable metabolism of calcium among females than males, we might expect that administration of calcium would be more beneficial in their case; nevertheless a considerable number of males benefited. It should be remembered that the actual amount of calcium given was extremely small.

Of the 56 cases treated 24 were males and 32 females. Of the 24 males 10 had tubercle bacilli in the sputum, and of these 3 lost them during treatment. Of the females 9 showed tubercle bacilli and 2 lost them.

Among the males, haemoptysis ceased in 4 cases, the temperature became normal in 1, the sputum dried up in 2 and became much less in 4 others; in 1 case breathlessness was markedly lessened, and in another with limitation of night sweats there occurred marked improvement in acne. One case suffering from Pott's disease showed much less spinal irritability. One case was doing so well that it was impossible to ascribe any of the improvement to the calcium. In 2 cases the general improvement in energy and appetite