SIT-WALKING

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PATIENTS on a long-term walking re-education programme often go through a frustrating waiting period before they are allowed to start walking proper. Among them are those many cases who have done well with conservative preparatory exercises on the bed and with apparatus, but still lack sufficient strength—generally or at the site of the lesion—to be up with crutches or even in the walking machine.

This applies to patients recovering from Partial Paraplegia of various origin, Hemiplegia, Anterior Poliomyelitis, Peripheral Neuritis, Arthritic conditions, and many other causes, traumatic or other, too numerous to specify in detail.

Sit-walking proved a valuable adjunct in the training programme and helped to tie patients over this waiting period. It was an immediate success with patients in army hospitals during the war. It has become an established routine in our Rehabilitation Centre.

Apparatus :

The equipment required is simple. It is the familiar walking machine, with the addition of a seating arrangement at a suitable height from the ground.

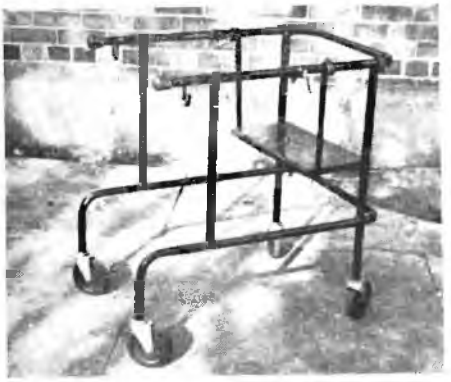

Fig. 1.

Some of the older and very substantial types of walking machines are already supplied with a seat or platform, for resting. The newer patterns and especially a type manufactured in this country are without it.

Such a seat can be attached in various ways, e.g. suspended from the top rails, or resting on the lower frame work.

A very simple structure was produced by our works department. It consists of a wooden board, 9" × 18" × 3/4", screwed to 3/4" steel flanges which hook easily over the top rails, giving a reliable four-point suspension (Fig. 1.).

The seat is easily detachable and can be inserted close to the back rail or at any desired distance from it. This is important since some patients may have deformities or disabilities which prevent them from sitting well upright. The seat can then be hung up so as to allow the patient to recline somewhat. A folded blanket, a pillow or other cushioning can be placed over the back rail for comfort.

Object:

The object of sit-walking is to teach the patient walking movements which simulate very nearly actual walking. It helps him towards careful timing and proper co-ordination. It can be graded from small forward and backward movements to a fairly long stride, thus building up muscle strength and increasing range of movement. It enables him to translate previous exercises on the bed and with equipment from the purely academic to something which appears to him substantially different, namely self-propulsion.

There is hardly a patient who does not instantaneously feel that walking in the sitting position is advancing him towards actual walking. Yet all the time he can concentrate on the stages of walking without the apprehension which accompanies early walking in the upright position, be it with apparatus, crutches, or sticks. The fear of falling is eliminated.

Preparation :

Cases showing marked weakness in one or both limbs or lack of co-ordination are as a routine put first on the bed-bicycle.

This is a simple tubular framework supporting two pedal-like footboards, to which the patient's feet are strapped. It is fixed to the bed with leather straps and buckles.

Depending on the weakness of the patient he might first be given additional support by springs or rubber slings (e.g. Bicycle tubes 26 × 2). As he gains strength, the tendency of his knees to flop outwards will disappear and the slings can be discarded.

Progression :

The patient is then transferred to the sit-walking machine. The seat is adjusted to the patient's individual requirements. Both feet are placed on the ground with the knees approximately at right angles.

As a preliminary test he is instructed to lift first the one and then the other foot just off the ground and rest it again. Sometimes not enough strength or control is present in one or both hips to carry this out satisfactorily. The beginner may then be given additional assistance. His thigh can be supported by an elastic sling which hangs from a cross

Fig. 2.

Fig. 3.

bar, placed over the top rails of the machine.

Figure 3 shows the sling adjusted to give the patient's right leg just enough assistance to lift his heel with his own effort about one inch off the ground. As he relaxes his lifting effort his foot will touch the ground again.

Most patients, however, will not require the assistance of elastic thigh supports. They can proceed immediately to the next step, a kind of "marking time" exercise while the sit-walking machine is kept stationary.

In this exercise, feet are again on the ground, and knees flexed to about 90 degrees. The patient is taught to extend one knee and place the heel firmly on the ground. Then flexing the knee he returns the foot to its initial position. This sequence is repeated with the other leg, and so on.

Progression from here leads to the first stage in self-propulsion: The patient extends first the one leg, then the other, placing both feet fairly close together. He then digs both heels firmly into the ground and flexes both knees simulatneously. This results in a pulling forward of the wheel-machine. The patient pauses when the knees are just beyond the right angle. He breathes, and repeats the movement.

At the very beginning it may be necessary for the physiotherapist to assist with a gentle push from behind the machine, but once the patient is rhythmically in his stride, he will in most instances not require further assistance.

The next step from here produces sit-walking proper It consists of extension of one leg, followed by flexion of the same knee with a sharp pull forward of the machine till the knee is flexed to about 90 degrees. Then the other leg is extended, the heel dug in firmly, and the knee flexed with another forward pull. Slowly the patient develops his own rhythm, and with a corresopnding swing of the trunk, forward and backward, he acquires an easy "gait," eventually getting a longer stride, with knee-flexion appreciably beyond the right angle.

This is shown in Figure 4; the patient, only very slowly recovering from the after-effects of a TB.-Meningitis, is moving around almost at speed and with great dexterity. (He has progressed from there to walking with elbow crutches within about two weeks, eventually using one walking stick only).

Fig. 4.

Special Cases:

Not all patients will be able to follow the above described routine. Dealihg with a large variety of conditions and afflictions of varying degrees, it is, of course, not possible to describe in detail the difficulties which may be encountered in each individual case.

But some groups can be treated by routines of their own. Hemiplegics, for example, on account of spasticity, present their own problems. The not too badly affected, however, can often be taught relaxation and control of spasms in the sit-walker.

Figure 5 shows a patient, about three months after his cerebral accident. His re-education programme followed the usual pattern which has yielded good results with this type of case. Well nursed by his own mine hospital, intelligent, and co-operative, he was sent to our Rehabilitation Centre with enough residual spasticity, inco-ordination, and lack of balance to make standing or walking with assistance still impossible. He took immediately to general strenghtening exercises and training of co-ordination in the bed-bicycle and with suspension slings.

Fig. 5.

At the beginning of sit-walking he, like most hemiplegics, used to shoot the extended right leg sharply up, simultaneously lifting the right arm in a spasm from its rest position on the rail. (Fig. 5).

It soon became possible to teach him to place the affected leg, with the assistance of the affected arm, in a more advantageous position. Coupling this with controlled breathing and a slow forward bending of the trunk, he became well relaxed at this stage of his exercises (Fig. 6.).

Now slowly extending the unaffected leg and placing his affected hand on the rail, he was ready for the next progression. With the left foot firmly on the ground he was shown to flex and extend the left knee slowly, thus gradually pulling and pushing the machine forward and back. Through this rocking movement he taught himself to ease his right knee towards complete relaxation in any intermediary position. (Fig. 7.).

Next the machine was slowly pushed forward by the attending physiotherapist, while the patient carried out walking movements in sitting, slowly extending and flexing first the left and then the affected right leg, until eventually he propelled himself quite rhythmically in the walker. He practised for about two weeks in the machine when he managed to stand up, swivel the machine around and started to push it in front of himself. (Fig. 8.). He progressed from there to walking on his

Fig. 6.

Fig. 7.

Fig. 8.

own with one crutch and later with one walking stick.

Psychological Aspects.

Sit-walking seems to boost morale considerably. Often it is instituted at a time when the patient is doubtful about his chances of ever walking again. He has frequently lost confidence in his strength and his ability to balance. Many of these patients are in a state of depression, either on account of long bed-rest, or through the nature of their affliction. Exercises on the bed or with apparatus are no longer willingly accepted, making the task of the physiotherapist almost impossible.

At that stage sit-walking often provides an approach completely new to the patient. He is quick to realize that the preceding exercises now make it possible for him to move around. Confidence in the soundness of his rehabilitation programme is renewed. He feels that walking is coming within his grasp, and doubles his efforts to achieve it.

Although not a guarantee of success in every case, sit-walking seems worth a trial.

THE COLONIAL MUTUAL LIFE ASSURANCE SOCIETY LIMITED.

SOUTH AFRICAN SOCIETY OF PHYSIOTHERAPISTS GROUP ENDOWMENT FUND.

We have pleasure in announcing that a Group Endowment Fund has been inaugurated for members of the South African Society of Physiotherapists and will be underwritten by The Colonial Mutual Life Assurance Society Limited (hereinafter referred to as the Underwriters).

The Fund will enable members of the Society to obtain assurance at a lower cost than is possible with individual contracts and will enable them not only to insure their lives for the benefit of their dependents but to save for their retirement by deduction of regular monthly contributions from salary.

The Trustees of the Fund will hold at the Society's headquarters a master policy on the schedules of which will be entered full particulars of each member's assurance.

The benefits consist of guaranteed amounts payable at the age selected by the member, or on prior death, and are subject to increase by annual bonus additions. Additional benefits in the form of Cash Payments subject to increase by bonus additions as declared in the Underwriter's Accident Department and waiver of future contributions are payable upon disablement due to certain contingencies prior to the selected age as set out on the master policy.

Members of the Society who wish to insure under this scheme must complete a short proposal form together with a stop order for the deduction of contributions monthly from salary.

Benefits will depend upon:

(1) the member's age on entry into the scheme;
(2) the monthly contribution to be paid;
(3) the selected age at which the sum assured is payable.

All members will receive a certificate of enrolment giving full details of contributions and benefits.

In the event of a member leaving the Society, the enrolment will be converted into an ordinary policy with the underwriters. Benefits and contributions will remain unchanged but future contributions will require to be paid direct to the underwriters. Such a policy on the life of a female member may, in certain circumstances, be converted into a policy on the life of her husband if he is insurable and not more than 10 years her senior.

The Fund is similar to that which has operated for the benefit of members of the South African Nursing Association for many years and the Executive of your Society hope that all members will give the Fund their full support.

CUT HERE

To the TRUSTEES GROUP ENDOWMENT FUND, S.A. SOCIETY OF PHYSIOTHERAPISTS, P.O. BOX 1106, PRETORIA.

Please supply me with details.

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THE SOUTH AFRICAN SOCIETY OF PHYSIOTHERAPISTS

CONFERENCE PROGRAMME

KIMBERLEY, NORTHERN CAPE, October 9th—11th, 1954.

Saturday, 9th October, 1954:

9.00—a.m.—10.45 a.m.	BUSINESS.
10.45 a.m.—	TALK by Dr. COLLINS. WELCOME TO DELEGATES. LECTURE to "Outline Practical Scheme for Rehabilitation, with particular reference to part to be played by Physiotherapy."
11.15 a.m.	TEA.
11.45 a.m.	LECTURE by Miss J. Blair on recent advances in methods of muscle stimulation.
12.45 p.m.	LUNCH.
2.15 p'm.	BUSINESS.
4.00 p.m.	TEA.
4.15 p.m.—5.15 p.m.	BUSINESS.
6.00 p.m.	CIVIC COCKTAIL PARTY
8.30 p.m.	BRAAIVLEIS.

Sunday, 10th October, 1954:

9.00 a.m.—10 a.m.	DEMONSTRATION of Machines by Mr. H. Kretschmer of Medical Distributors.
10.30 a.m.	Sight Seeing—DE BEERS DOGS.
11.30 a.m.	TEA.
12.00 p.m.	Sight Seeing—THE BIG HOLE.
1.00 p.m.	LUNCH.
2.00 p.m.	BUSINESS.
4.00 p.m.	TEA.
4.15 p.m.—6.00 p.m.	BUSINESS.

Monday, 11th October, 1954:

9.00 a.m.	School for Physically Handicapped.
11.00 a.m.	Helen Bishop Orthopaedic After Care Home.