sisted because of urinary stasis or obstruction caused by some congenital abnormality in the urinary tract.

Among the remaining 40 per cent a certain number of the chronic infections in girls cleared up on treatment only after the removal of infectious foci elsewhere in the body.

CONCLUSIONS
1. All chronic urinary infections in children should be thoroughly investigated, as the reason for their persistence can nearly always be found.
2. Congenital anomalies of the urinary tract causing stasis have been found in the majority of children suffering from a chronic urinary infection.
3. The diagnosis of congenital anomalies of the urinary tract causing stasis or infection should be made in childhood and not years later, in adult life.

THE VALUE OF REMEDIAL EXERCISES IN TREATMENT*

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Physicians have neglected the use of exercises as curative procedures, with the result that many quacks, cultists, trainers and others have used them as an entering wedge to obtain a medical practice.

Now, therapeutic exercises may be defined as supervised bodily movements, with or without apparatus, for the purpose of restoring normal function to a diseased or injured part. Both the amount and type of exercise must be properly prescribed in each case if good results are to be obtained. This is impossible if the doctor just tells his patient to go home and move his leg or arm as the case may be several times a day. Patients will either not move the part because it is painful or awkward, or else they will perform the movement in a desultory fashion, getting little or no benefit from it. Indeed in many cases they simply confirm themselves in some trick movement of an undesirable nature. To prevent this the patient should be taught the exercises and made to do them several times under the supervision of the doctor. It is probably best to have a trained physiotherapist technician teach the patient, as she will be able to spend sufficient time to see that the patient performs each exercise properly and encourage him with the more difficult procedures. Even after he has been taught it is wise to have the patient do the exercises under the technician’s supervision three times a week to prevent him losing interest. When the patient is able to do the most complex exercises properly, and has practically corrected his deformities then he may be trusted to carry on alone. Throughout the whole illness there should be periodic checks by the doctor to see that the proper exercises are being used.

The doctor must be ever ready to combat the attitude of the patient who expects the physiotherapy machine to cure him. Unfortunately, patients have more faith in the curative power of a machine than in their own efforts and they will remain passive, expecting to be cured by the short wave or other treatment. The machine is impressive and an adjunct in treatment, but in many cases active co-operation of the patient in the performance of exercises after such treatment is essential. Exercises are often thought of as being a series of physical jerks. Nothing could be farther from the truth. An exercise may mean simply the performance of a single movement correctly. It is in the teaching of these individual muscle movements that the physical therapist can be of value and assistance. Such movements may be performed either with gravity entirely eliminated by slings, or against both gravity and added resistance, depending on the case. Another commonly used exercise when actual limb movement is contraindicated is static contraction. The contraction of the muscle without joint movement is of great value in preventing atrophy. I shall now endeavour to point out a few common medical conditions in which exercises are of value and to describe a few of the most suitable exercises.

Backache is one of the commonest of all medical conditions. When this is due to postural deformities it can be very successfully treated by exercises. It is seen most commonly in ado-
In the child with a functional scoliosis the development of structural deformities can be prevented by exercises. In such a case the co-operation of the parents as well as of the patient should be obtained. First, the patient is taught the correct standing posture. All his postural defects in the resting position are corrected in front of a large mirror. Then, when he has learned to stand properly, simple spinal flexion exercises are started. At first he will tend to return to his original scoliotic posture. It is most important to prevent this and see that he returns to a proper position of rest. Once he is able to return to a proper position of rest then the complexity of the exercises may be increased. Too many technicians try to increase the complexity of the exercises before the patient has learned to return to a correct posture and so are disappointed with their results. Such exercises as raising the body from a lying to a sitting position both with and without the assistance of fixation of the feet should be used. Many modifications of such exercises by varying the position of the arms can be introduced.

The patient should also learn to hang from a bar. While hanging from the bar the masseuse should see that the correct position is maintained and if necessary over-correct any abnormality by manual pressure. The use of a Sayre’s sling will be a great help in the treatment of younger patients, as full extension is readily obtained in this manner. A similar scheme of exercises may be used for the correction of kyphosis and lordosis when these are the postural defects. If the condition has become a structural deformity with bony changes a modified set of exercises carefully performed will prevent the increase of the deformity, relieve the pain, and frequently eliminate the need for operative interference. The middle-aged who are developing lordosis, paunches, and pain in the back will get dramatic relief from exercises. When treating these older patients the exercises must be graduated carefully to prevent overstraining. With care they can be increased until quite a difficult series has been mastered. These exercises are better than merely splinting the back with a corset, as the muscles, if properly developed, will act as a permanent splint and not as a temporary one like a corset. If the patient is already wearing a corset an attempt should be made to get him to discard it gradually as his muscles get stronger.

In rheumatism or arthritis exercises have a very important place. In the acute forms of arthritis they are of no value and definitely contra-indicated, but in chronic and sub-acute cases they will prevent the advent of the incapacitating deformities and in many cases enable the patient to earn his living once again. These remarks apply with equal force to the chronic infectious arthritis, traumatic arthritis, and the specific infectious arthritis. By means of exercises the patient is enabled to live with his disease. During the more acute stages of the disease simple slow movements, assisted if necessary, of the affected joint through its full range once daily is adequate. This will be almost painless if it is done slowly and it will suffice to break down any adhesions that may form. As soon as the subacute stage has subsided and the patient begins to move his joints slightly himself then passive movements on a wider scale may be instituted. These should be increased gradually and assisted movements introduced. In such assisted movements the patient moves the joint as far as he can and the technician pushes it just a little farther each time. In this way the whole range of movement is increased. Full active exercises should be started just as soon as possible, to re-develop the weakened and atrophic muscles. All these exercises are best performed after the patient has had a preliminary treatment with either heat or heat and massage, as the tissues are then softer and a greater range of movement with less pain will be possible. All the active movements should be done with a long slow swing, and a slight over-swing each time will give the increase in range that is our aim. Jerky movements are useless as they lead to spasticity of the muscles. The movements should be done regularly, with an attempt at a systematic increase in amount and difficulty, or else no benefit will be obtained. Where possible the movements should be related to the patient’s normal activities, and whenever possible he should be encouraged to help himself. Sitting and just wiggling his fingers and toes aimlessly will never get any results.

Fibrositis or fibromyositis is another common condition that requires exercises besides
massage and heat. After his heat and massage the patient should be encouraged to make a few simple movements. These movements should be increased at each visit. This gives the patient confidence and prevents atrophy and prolongation of the disease such as is seen in many cases where rest has been prescribed. If the exercises are painful even after heat the pain can usually be relieved by firm pressure with the hand over the painful area while the exercise is being performed.

Periarthritis of the shoulder deserves special mention. By this term I mean to include the cases of sub-deltoid bursitis and "frozen shoulder". These patients require properly supervised exercises to prevent wasting of the deltoid. The patient should be given specific movements to develop abduction, elevation, external and internal rotation of the shoulder. Pulleys should also be provided so as to encourage the patient in increasing his range. Climbing up a wall with his fingers is helpful, and turning a large wheel suspended vertically will increase the range of movements. The wheel helps by its momentum in carrying the arm over the painful spot.

Sciatica is a condition which shows beneficial results with exercises. After the acute stage has subsided gentle active movements are started. The patient begins by learning to relax. This is best done by having him raise the leg slightly and then allow it to fall on pillows. Pressing the knees together and then letting them fall apart also produces relaxation. After this the patient begins by using the glutei and hamstrings and then works on to the quadriceps and abdominal contractions, to mobilize the lumbar spine. Then the range of exercises is gradually increased to stretch the sciatic nerve, until finally the patient is able to touch his toes with the knees quite straight and flex his hip fully with a straight leg.

Another form of neuritis urgently requiring exercises is Bell's palsy. Exercises for this condition are best given with a mirror and with the patient screened off from all other patients or alone in a room. The following are a typical set of exercises. Closing the eye, smiling, whistling and blowing, closing the mouth tightly, showing the teeth, raising the upper lip, wrinkling the forehead both vertically and horizontally, dilating the nostrils, screwing up the whole face and the pronunciation of labials.

Resistance may be given to these movements as they become stronger. Such exercises should be persisted with up to three months after the onset.

Cases of hemiplegia benefit greatly from exercises. As soon as they have recovered from the preliminary shock attempts should be made to give passive movements. After a few weeks active movements will be possible. A definite program must then be mapped out for each patient and adhered to so as to give him the feeling that he is progressing. The following outline illustrates this point. (1) Active movements in single joints. These can best be obtained by means of slings. In these the patient is allowed to swing his limb to and fro while it is suspended. He should also be taught to hold a joint in a fixed position. Holding the joint in a fixed position teaches the patient to overcome the pull of spastic muscles. (2) Hold one joint in a fixed position while moving another one. For instance, the shoulder may be held extended while the elbow is flexed and extended. (3) Teach control of the whole limb. This is an extension of the two joint control to four and can be done in easy stages. As soon as the patient can control the movements of his limb then postural faults should be corrected. In teaching arm movements a long stick such as a broom handle is a great asset because it enables the patient to assist the paralyzed side with the good one. In the same way faster co-ordinated movements can be performed if ropes with pulleys are used. Individual finger movements should also be trained. Care is taken of course not to prescribe too strenuous exercises, and this is where the technician requires medical supervision for in her enthusiasm to get the patient back to normal she is likely to work him too hard. Failure to re-educate the movements in cases of hemiplegia will result in clumsy and unco-ordinated movements being developed which are of little use to the patient.

Disseminated sclerosis responds to exercises if carefully given. Rather than tell these patients that nothing can be done I believe that the doctor should work out with them a set of exercises and routine activities that come within their limited capacity. Active movements are emphasized for the flexor and extensor groups. These movements are developed to the point where the spastic antagonists are
stretched. Instruction in walking and balancing helps to partially overcome the ataxia. Similarly cases of tabs can improve their gait by training their remaining muscle sense and using their eyes to replace the loss. In treating tabetics one should adhere to certain principles. These are, first, to insist on precision in performing the movements; next, to give movements that do not require great muscle strength; and as the patient progresses increase only the complexity of the movements not the resistance. Give the movements quickly and over a long range at first. Finer movements will have to be taught last. Do the movements first with the patient’s eyes open and later with them closed. Always make sure that adequate rests are given between exercises.

In infantile paralysis a great deal can be done from the start. The exercises should be commenced about six weeks after the onset of the disease when the fever, pain, and active processes have subsided. Graduated exercises are given, and care should be taken to see that weak muscles are never over stretched. The exercises are best done under water and with a small patient an ordinary bath tub may be used. If a suitable pool is not available the effects of gravity can be eliminated by means of slings. Improvement may be expected up to one year from the beginning of treatment and treatment should be continued for that time. After a year the patient should be observed from time to time to make sure that he continues to get full use of what muscles he has left. In giving these exercises it is best to start first with gravity eliminated, then include gravity, then add concentric and eccentric movements and finally movements against an increased resistance.

Cases of failing circulation in the legs can also be aided by exercises. Buerger’s disease and arteriosclerotic cases respond very satisfactorily to exercises. The best type of exercises for these cases are those known as Buerger’s exercises. These take many forms, but I have found the best one to be the following. Elevate the affected legs to from 60 to 90 degrees above the horizontal and allow them to rest on a support at this angle until blanching occurs. This will take from thirty seconds to three minutes. As soon as blanching occurs hang the feet vertically over the edge of a bed for from two to five minutes. To judge the time required allow them to hang down for one minute more than is required to for the leg to redden. Then rest the leg in a horizontal position for about five minutes. This cycle should be repeated six times at each sitting. The group of exercises is performed two or three times a day. If the legs are painful when elevated the period of elevation may be reduced. As improvement occurs bicycle exercises, bending and extending the toes, and making a circle with the foot may be added while the feet are in the horizontal position.

Several pulmonary conditions require exercises in addition to other treatment to obtain complete cures. Of these asthma is perhaps the commonest. By means of breathing exercises a patient can achieve comfort in from one to two months even in longstanding chronic cases. The aims of the exercises in asthma are to teach expiration, diaphragmatic breathing, and correct posture. Now, an asthmatic usually maintains a position of inspiration and breathes with the upper part of his chest, and this is what we attempt to eliminate. When giving exercises the following points must be kept in mind if any results are to be obtained. At first if the patient is a far advanced case he should take a dose of adrenalin or ephedrine before starting his exercises. After the first time or two this can be discontinued. At any time before beginning the exercises he must blow his nose thoroughly. Carry out the exercises in the beginning with the patient reclining on a bed; later put the patient on a stool, and finally have the exercises done with the patient standing. Gradual steps like this will prevent the appearance of any distressing dyspnea. Long breathing out is the first exercise taught. Never permit a long inspiration. Inspiration should always be accomplished by relaxing the abdomen. The patient should preferably make an S or F sound while expiring. This enables the instructor to see that expiration is being properly performed. When inspiring, the upper part of the chest is not used, and on expiration the abdomen should contract. All exercises should finish in expiration. Even if wheezing and coughing occur at first; persist with the exercises, as they will disappear after the second or third visit.Expiration should be timed and by gradual degrees extended until it takes about fifteen seconds. The exercises are to be done three
times daily and for at least ten minutes each time. They may be done any time the patient feels an attack coming on, and if properly performed should abort the attack. As soon as the patient has learned to do the simple exercises more complex ones may be instituted to hold his interest. The more complex exercises are no more effective than the simple ones and should only be given to the more intelligent patients. Most outdoor clinic patients will find the simple exercises difficult enough to do. Paying attention to these points, the following simple outline of exercises will be found effective with most asthmatics.

A. (1) Lie relaxed with the knees flexed. Expire slowly by sinking in the chest. (2) Inspire quickly by relaxing the abdomen, and then repeat 1.

B. (1) Sit feet apart, arms relaxed. (2) Breathe out slowly, dropping head, sinking chest and head; bend head over until the head is between the knees. (3) Rise up slowly, push out back, and breathe in. (4) Repeat 1.

C. (1) Standing, breathe out slowly sinking chest and abdomen in but keeping erect. (2) Breathe in a small breath and repeat.

A troublesome pulmonary condition complicating pneumonia is delayed resolution. In such cases quite marked improvement can be produced by making the patient do breathing exercises accentuating inspiration. The inspiration may be developed on the affected side by having the patient do his breathing in while flexed to the normal side. In a very short time satisfactory expansion will be attained.

I have endeavoured in these few remarks to show how exercises can be used in the treatment of some medical conditions. In every case the exercises must be combined with other forms of treatment, both physical and chemical. Exercises are however a valuable adjunct which have been greatly neglected by the doctors.

BIBLIOGRAPHY


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ATROPHIC RHINITIS OR OZENA IN CHILDREN*  

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Toronto

THE classical textbook description of atrophic rhinitis is a picture of this disease as it occurs in the adult, i.e., a picture of a local infection of long standing, rather the end-result of an active process than an infection in its early stages. This picture of atrophic rhinitis in the adult is too well known to necessitate giving more than the salient features. These may be summarized briefly as follows.

1. Wide nasal passages due to very small inferior turbinate bodies.
2. The nasal mucosa is pale and shrunken, especially over the inferior turbinals.
3. The walls of the nasal passages are more or less plastered with viscous pus and drying crusts.

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