If the medical expense is in excess of the allowance provided by the rates on that particular risk, the business immediately becomes unprofitable. Because of the fact that some think that the fees allowed for treatment of industrial accident cases are too small, there has been a tendency to take advantage of the fee schedule and make charges for unusual amount of time and dressing. Sometimes on examining X-rays that were not extremely clear, the physician has been able to see a chipped bone or a slight discoloration, where further X-rays showed a normal condition.

The expense of physiotherapy is another item which gives promise of causing trouble between the physicians and the insurance carriers. Physiotherapy is necessary and helpful in many cases, but should not be used as a means of increasing the medical expense in industrial cases.

The medical cost in workmen's compensation insurance is an economic problem, and the organized medical profession should co-operate with the insurance carriers to make this expense as reasonable as possible, and at the same time be fair to all parties concerned.

The first consideration must always be service to the injured employe, and the profession should go on record as favoring better service for industrial cases, just as they have gone on record for the betterment of hospitals.

In case of a controversy arising as to the amount of a medical bill, or any other question with reference to an industrial accident case, the matter should be promptly referred to the office of the State Medical Society, and their opinion or ruling should be cheerfully accepted by the physician. The establishment by the society of a department to arbitrate matters with reference to industrial practice, is the first real constructive work that has been accomplished by the medical profession since the passage of the Workmen's Compensation Law.

If the individual physician will work in harmony with the medical society and not be influenced by a few whose main mission in life seems to be to stir up strife between the physicians and insurance carriers, many of the troubles and misunderstandings will be a thing of the past.

(333 Pine street.)

Physotherapy in the Treatment of the Child with Rheumatic Fever*

By Edith Bronson, M.D., San Francisco

Children suffering from the rheumatic cycle of affections, acute arthritis, carditis, and chorea, occupy a number of days of hospital beds disproportionate to the actual number of such cases admitted. After a period of acute illness, many a child ceases to improve and settles into an invalid state. Nutrition and musculature degenerate, and of even more importance, the weariness of discouragement is added to the actual physical disability. The unconscious attitude of the physician to the chronic cardiac is too well registered on the sensitive nervous system of the child. Finally a bed can no longer be spared, the child is allowed to sit up, perhaps walk about, and is sent home, physically incapacitated and mentally discouraged.

The purpose of this paper is to report an effort to shorten the hospital stay of the rheumatic child, to prevent the physical disability of prolonged confinement in bed, and to have the patient leave the hospital in posture and general physique, superior to the average untrained healthy child. Finally we have been attempting to help the child to remain keen to improve, during the difficult adjustment stage in his own home.

In the treatment of acute cardiac disease, too often we can not prevent impaired function in the heart itself. Healing in damaged valves and muscles, as healing elsewhere in the body, takes place by fibrosis, and the presence of non-elastic fibrous tissue in an organ whose function depends in a peculiar degree on the elasticity of its muscle, causes an unavoidable permanent injury. We have escaped from the interpretation of the functional disability following such injury, by the presence of the signs of valvulitis. The function of the heart as a whole is being studied. Gradually we are beginning, I may better say returning, to the study of both the pathology and function in an organ in its relation to the physiology of the individual as a whole, and to his adjustment as a member of society. Of the greatest importance it is, that we consider in the physiology of the circulation, the interchanging balance between circulatory, respiratory, metabolic, and nervous systems. What physiotherapy attempts to do is to preserve and increase the usefulness of these compensating functions.

In whatever ailment, physical treatment may be applied, whether to postural defects, or to cardiac insufficiency, the principles for success remain the same, and for them we have to thank the experimental physiologist. An attempt to treat cardiac injury in itself by physical methods, would be like attempting to treat acute rickets by putting plaster casts on the child's legs. For success the individual as a whole must be the object of therapy.

Probably each observing physician has developed a method of his own for estimating cardiac effi-

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ciency, but we live in an age of classification and standardization. Exact measurements are taking the place of clinical opinion. Efficiency tests, the significance of the measurements of the vital capacity, the interpretation of changes in pulse and blood pressure, are being studied in cardiac clinics. If such methods are used to develop clinical judgment, the patient will be better cared for. There is a danger that, as the results of researches are standardized, the standard will be applied without due regard to the individual patient, and will increase the present tendency to turn the physician into an expert manipulator of machines. Tests of function and methods of treatment are of value to the patient only when utilized with observing and sympathetic judgment.

I have made these digressions upon the subject to which I am assigned, partly to justify myself for the rather narrow outlook which I may seem to take in the actual work which I am reporting. By carefully graded exercises we have been able to shorten the hospital stay, and improve the exercise tolerance of cardiac children. An outline of the method of treatment which we have gradually evolved is presented below.

PHYSIOTHERAPY IN THE TREATMENT OF CHILDREN WITH RHEUMATIC FEVER

CARDITIS

First Stage (10 minutes twice daily)—To be started as soon as pain subsides:
1. Effleurage to arms and legs.
2. Teach correct breathing. When possible include abdominal massage for five minutes.

Second Stage (20 to 25 minutes daily)
1. Effleurage and light petrissage (to extremities and back or abdomen).
2. Passive arm movements with breathing.
3. Passive leg movements—gradually adding active ankle and knee flexion and extension.

Each exercise to be done from three to five times.
When possible increase active work. Do one arm, including exercises, before massaging the next. In bad cases do arm, then leg.

Third Stage (30 to 40 minutes daily)
1. Massage (medium) general.
   (a) Effleurage, petrissage, friction, tapotement.
2. Light resistive and increase gradually.
   Exercise given for every joint movement and each exercise repeated three to eight times.
3. Deep breathing.

Fourth Stage (40 to 45 minutes daily)
1. Active exercises in bed.
2. Start standing—teach posture.
3. Heel raisings, arm exercises with breathing for a couple of days, then add trunk bendings and twistrings and leg exercises gradually increasing at the rate of one to two daily.

Fifth Stage (45 to 60 minutes daily. According to age and strength of child)
1. Vigorous exercise, including stair climbing, running and jumping.

CHOREA

First Stage—To start immediately on admission to hospital:
1. Effleurage to extremities and back or abdomen.
2. Teach breathing as soon as possible.

Second Stage
1. Effleurage and light petrissage (to extremities and back or abdomen).

2. Passive movements combined with breathing.
3. Assistive, active exercises.
   (a) For co-ordination.
   (b) For re-education.
   (c) For rhythm.

Third Stage
1. Massage (medium) general (no tapotement).
2. Active exercises with breathing.
3. Active exercises especially for back (assisted at first).
   (a) For co-ordination.
   (b) For re-education.
   (c) For rhythm.
4. Chorea tests.
5. Singing vowel sounds.

Fourth Stage
1. Active exercises in bed.
2. Start standing, teach posture. Begin with easy exercises and gradually increase, not allowing an unassisted movement until child has balance and confidence.
3. Continue 4, 5 and 6 of Stage Three.

Fifth Stage
1. Vigorous gymnastics. Prepare to go home.

We have tried to make the system as elastic as possible. A “stage” may last less than a week or several weeks, according to the condition of the patient. Again, we have not been able to state definitely when physiotherapy should start. In the type of rheumatic fever in which a high temperature and an acute arthritis subside rapidly under treatment, the first stage of physiotherapy is started as soon as the pain and swelling have disappeared. If, however, we should always wait until there were no rise in temperature, we should deprive of massage and passive exercise, the type of cardiac child who has at no time a high fever or acute arthritis, but who for months may run a low grade septic temperature curve—the subacute chronic rheumatic child. Such a patient is in the greatest need of physical training. On the other hand, a child with no rise in temperature may be suffering from a degree of cardiac failure which may contraindicate the gentlest of massage. Clinical judgment must be used as to when to start physiotherapy, as well as when to pass from one stage to the next.

During the first three stages the patient is carefully protected from exertion of any kind except that which accompanies the exercises. He is fed by the nurse and encouraged to do nothing for himself. It is a well recognized fact that the ordinary routine of work, for example, that of the housewife, brings weariness without giving training to the physiological functions. The training of the athlete is accomplished by increasingly severe muscular exertion interposed with periods of complete relaxation. Co-ordination of respiration with muscular contractions is imperfect in the untrained individual as contrasted with the trained. The training of the cardiac child is essentially the same as that of the athlete. He is first of all taught relaxation, taught how to rest, taught how to breathe as a means of improving his vital capacity, and how to breathe rhythmically with the passive arm and leg movements which
are gradually added. In passive movements attention is given to counteract the tendency to tendon tightening which is so frequently a sequence in all chronic illnesses. The length of the period of exercise is increased gradually, as well as the degree of work. By the end of the third stage the type of massage has become vigorous, especially to the abdomen and back. Friction and tapotement as used probably produce tendon and muscle relaxation not unlike that secured by certain of the cults in their manipulations. Resistive now take the place of passive exercises. These require voluntary effort, yet effort which is under the control of the technician. Though by the end of the third stage, it is not infrequent to have produced muscular hypertrophy, the predominating effort has been to teach relaxation and co-ordination.

The pulse, respiration and systolic pressure are taken daily by the technician, before and after exercise, and again in two minutes. Once weekly the physician is present throughout the period of treatment taking the systolic blood pressure to note the type of curve, and to make observations on the child's general reaction. Up to the end of the third stage, rarely does the pulse increase more than fifteen, or the systolic blood pressure rise more than ten millimeters of mercury.

By the fourth stage active exercises for arms, legs, back and abdomen are substituted for resistive. These are interposed with short periods of breathing. The child has now learned rhythmical breathing. He begins to stand and is taught first of all, posture. A correction of postural defects has been emphasized throughout the previous stages. Probably no other word has this importance in physiotherapy. Postural training not only increases the vital capacity, diaphragmatic contraction and expansion, but it has a very definite relationship to the functional nervous system of the child. Setting up exercises develop "backbone" as well as muscle.

The fifth stage is a preparation for the activities of home life. The attention to posture and breathing is carried into such exercise as climbing stairs and running and jumping. The ideal is to have the child leave the hospital a trained individual, able to do the routine work of his childhood with co-ordinated and not wasted effort.

Not all children with corditis ever reach the degree of physical well-being which I have pictured. Those unfortunate who, after months of illness, are left with a developing stenosis, damaged muscle, and adherent pericardium, may pass their lives, usually of only a few years, unable to perform the equivalent of our fifth stage of exercises. Even in these crippled children, the trained use of the compensatory functions has surprised us in the results obtained. With the co-operation of intelligent parents these children, leaving the hospital able to take only the third stage of exercise, may continue to improve so that they can carry the burden of school life, and in a narrowed sphere, lead a useful existence. Reinfection, rather than overt-exertion, is to be dreaded. Their course of training has taught them when they should rest, as well as how to make the ordinary duties of life exercise, rather than work. Our failures have been from environment adjustment, rather than the actual condition of the child. The crying need for such children is a cardiac convalescent home. After a period of hospital care improvement may cease. Children with acute illnesses come and go, the cardiac child remains. Unless his own home is exceptional such a child should continue his treatment in a home with his own kind, with games and school suited to his endurance. As a problem of preventive medicine, the rheumatic cycle child needs the same careful study as the child from a tuberculous environment. I have used the title "Rheumatic Fever" advisedly, so as to include that manifestation of the rheumatic cycle called chorea. If chorea is associated with arthritis and carditis, the treatment is the same as for these with the addition of special co-ordination and educative exercises. In uncomplicated chorea treatment starts the day following admission to the hospital. The usual routine of quiet and isolation is enforced. No sitting up is allowed, no book or plaything. The teaching of relaxation is especially valuable here and assistive movements controlled by the technician give the child confidence. So far as I have been able to observe, no specific cure, such as is not infrequently seen, if some acute illness like influenza or measles intervenes in the acute stage, has followed physiotherapy. However, in rather frequent instances, a time comes when chorea as an "infection" has passed, but the "habit" of chorea remains. In such cases the work of the physiotherapist in re-education, is of inestimable value. The ideal would be for a full-time technician for each child, to assist in his play, at his dinner, and in all the ordinary duties the performance of which he must relearn.

In conclusion, we are able to state that after even severe rheumatic infection, a child wisely treated by physiotherapy reaches the stage of convalescence with a posture and muscular development superior to that previous to his illness, and that he leaves the hospital physically trained to use to the best advantage the functions compensatory to his cardiac injury.

I have to thank Miss Boville, physiotherapist, for her enthusiastic co-operation in this work.

(240 Stockton street.)

Rejuvenating Roues—In a recent Sunday edition of a California paper, in a department advocating free organ recitals, religious ceremonies and fakes, we find under prominent display some more purported news about how old broken-down roues may be restored to youth, and even how their white hair may resume the color of youth and their wrinkles fill out under the skin under the latest goat gland operation. The article in question indicates that it is a Universal Service report from London. It takes up a further exploitation of "Professor" Steinach's operation... The article goes on to say that "Professor" Steinach is kept busy rejuvenating elderly men and women. It states that after the operation "white hair turns to its natural color and wrinkles fill out and take on a new color." Further quotation from this article is: "In England interest in the rejuvenation craze subsided about the beginning of the year, when an old man who returned from Paris after treatment died on the day he was announced to give a lecture on his recovery of youth."