

Talking to Leading Orthopaedic Surgeons and Paediatrician about Child Physiotherapy

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In order to promote child physiotherapy I wrote to Professor J. Trueta in 1964. The idea occurred to me as I read his Founder's Lecture to the Annual National Congress of Physiotherapists in London, 1963. Its title was "Rehabilitation, Past and Future" and contained a brilliant account of the early beginnings of rehabilitation at the dawn of civilisation, its status in ancient times, its condition through the Middle Ages right up to modern times and to Professor Trueta's own efforts to throw scientific light on our vague notions about body reactions to physical stimuli. For example, he conducted experiments with electrically stimulated muscles on an anaesthetised dog which showed increased interosseus fluid pressure during muscle contraction and decreased pressure during relaxation. This led to the discovery that the nourishment and health of bone and of articular cartilage depended on activity of nearby muscles. In the same way skeletal growth and health of the embryo, the child and the adult were dependent on the close interaction of circulation and muscle action. Osteoarthritis could be shown to develop from such parts of the hip joints where cartilage nourishment had become poor due to absence of sufficient use of that section of the joint. It was no coincidence that among people with the habit of squatting on the floor osteoarthritis of the hip did not occur. The influence of muscle contraction upon bone could also be shown to be greater in the young or pre-ossesus skeleton than in the more developed bone structure. Professor Trueta visualized systematic examination of the newly born child and at least one annual assessment of the growth and development. In this way, he thought, we might, one day, be in the position "to correct or reduce most of the defects of the body at a stage when we consider them postural or functional". He concludes: "Now we understand why rehabilitation, to be scientifically based, should begin as early in life as a defective tendency is detected."

It was this sentence which electrified me into action. It put into a nutshell what Detleff Neumann-Neurode had preached and practised with utter dedication. I asked myself whether Professor Trueta knew of Neumann-Neurode's method of systematic remedial exercises for babies and children. Or did he have other methods in mind for early correction? Without doubt I had to find out. I wrote a long letter enclosing my translation of Neumann-Neurode's booklet and my articles on baby gymnastics and orthopaedic gymnastic equipment for children. In his answer Professor Trueta, the Nuffield Professor Orthopaedic Surgery in Oxford, said: "The subject in your letter is one that interests me greatly . . . I would be most interested in personally meeting you and seeing some of your work with children." Now reality had to be faced. The struggle began to arrange my practice and to find the substantial means for a journey overseas. For a time it looked as if I could get the necessary professional and financial support. When it was refused in the end I had no other choice but to abandon the project. My father then realized that, perhaps, a rare opportunity was going to be lost and decided to help the cause by paying for my journey.

On 14th September, 1965 I found myself waiting for Prof. Trueta amongst his patients from all over the world. When he had finished his surgery we arranged a date for the

following week when he wanted to hear my talk and see my film with some of his colleagues and the physiotherapists on his staff. The arrangement allowed me a few days to get an impression of the Centre and to find one or two babies for a practical demonstration. My task was made easy through the helpfulness of Mr. B. T. O'Connor, Assistant Orthopaedic Surgeon to the Professor. He soon found a baby who was not too ill for exercises. As I went along to see little Paul, he turned out to be deaf, blind and slightly spastic. Still, he liked exercises and I agreed to have him for the practical demonstration on the day of my lecture.

To introduce my subject, Prof. Trueta made a speech on the reasons why he considered remedial exercises for babies of great importance. He explained that, as a young man, he had known of baby gymnastics. I assume it was at the time when Neumann-Neurode himself was spreading the idea amongst medical men. Since then Prof. Trueta had gained the impression that the art of giving remedial exercises to infants had been lost, until, out of the blue, I had written to him about it. In order to show how important it was to carry out treatment as early as possible, he pointed out that only the still growing bone can regain its normal shape. In osteomyelitis, he explained, the disease normally leaves horrible scars and loss of bony tissue. In children under nine years of age, however, it will heal without leaving the slightest mark on the bone. It needed to be more widely known that the skeletal plasticity of the toddler begins to disappear at six or seven years and is lost almost completely at twelve. Congenital dislocation of the hip and club feet were two typical examples to show how treatment during the first year of life brings excellent results, results that can never be achieved when treatment is started after two years of age. Prof. Trueta then referred to the idea of Sir Dennis Browne who had so clearly pointed out the paramount importance of a correct muscle pull on the cartilagenous bones of the foetus. Normal shape and growth of the foetal skeleton were largely dependent on the existence of normal and balanced muscle activity. Overaction of one muscle group would cause more serious deformities in very young bones than in those already ossified. The infantile hip joint was a good example. Insufficient contraction of the abductors would cause the formation of a shallow acetabulum, also the wrong angle between shaft and neck of the femur and an unstable joint with the danger of dislocation or osteoarthritis late in life. Weak and under-active muscle groups of infants had to be over-developed and over-active ones had to be discouraged in order to normalize the shape of joints and bones.

The demonstration of baby Paul's exercises followed, and then my talk and film. I gave a short history of the development of Neumann-Neurode's baby exercises and mentioned the opening of the State Registered Neumann-Neurode School for Remedial Exercises for Babies and Children in Berlin, following a previous testing period at the famous Childrens' Hospital in Berlin-Charlottenburg. I pointed out that, since the closing of that School, proper training in Neumann-Neurode's exercises had dwindled down to almost zero. I stressed the need for medical support. Without the active interest of medical men no progress could be expected. Even Neumann-Neurode had needed recognition and sup-

part of outstanding doctors of his time such as Prof. Bier, Prof. Klapp and later Prof. Schede.

When I had finished, as the lights came on after the film, Prof. Trueta said: "Very, very good. Your plea shall not go unheeded!" Afterwards he asked me to hand him Neumann-Neurode's booklet. I told him that the Pergamon Press in Oxford had shown interest in publishing my translation. Would he consider writing a new introduction for the English edition? An emphatic "Yes" and the offer to contact the editors was his reply. When afterwards the film was handed back to me, Prof. Trueta gave me good advice: "Cut the running time down to 30 minutes, speak for 15 and leave the rest for discussion. If on top of it you can give the lecture in French, you have something you can take with confidence round the world."

Since not many doctors had attended the film show, a fact openly regretted by Prof. Trueta, I tried to win the interest of a few more whilst I was staying at the Nuffield Orthopaedic Centre. Visits to the Orthopaedic Out-Patients' Department gave me some welcome opportunities. I could show a father how he could make a foot-stool in order to stretch his son's contracted heel-band. A mother did not know how to stretch her baby's sterno-mastoid muscle without provoking the child's protective resistance. I showed her how she could gently tilt the baby's whole body upside-down, resting for a few seconds his shoulder and head on a soft surface. After a few attempts and a few mistakes, the mother mastered the "trick" sufficiently well for the doctor to be pleased with the procedure.

At the Club-Foot Clinic the doctor took kindly to the "foam rubber wings" I had brought for the very young baby with club-foot, and wanted to know where I had developed them.

A sister tutor asked Mr. B. T. O'Connor whether he would give up his lecture time in order to let the student nurses see what could be done to hospitalized babies in need of physiotherapy. He agreed and requested that I should notify a Miss Chiwandimira, a remedial gymast from Rusape in Rhodesia, who was in London on a study tour sponsored by the African Development Fund. When the young and very pleasant African therapist arrived she also had a short film. It showed her caring for a host of crippled children in a village treatment centre, all of them performing corrective exercises on Neumann-Neurode's apparatus. It was an amazing coincidence.

Mr. O'Connor found the approach to remedial exercises "unusually sensible and refreshingly new and suggested another film show to the entire medical staff. A short report of this meeting reached our South African *Journal* from Miss A. M. Symons, Head Physiotherapist at the nearby Churchill Hospital. She happened to hear of the occasion and I was delighted to have a colleague sharing the experience with me. Mr. O'Connor explained why he had wanted his colleagues to see the film. This was followed by a lively discussion. A medicine specialist thought this kind of physiotherapy desirable for all his child patients, including those after fractures and operations. A surgeon considered it important that strengthening exercises were given to babies with deformities of the spine. No harm, only good could come from this active approach, whilst plaster beds had their bad and sad side. He welcomed the possibility of active participation by instructed parents.

In London I met the new C.S.P. Secretary at Tavistock house. Mr. Jack Rose gave me the impression of a man with great strength, integrity and friendliness. His approach was straightforward: "This is common sense and very much needed" was his emphatic comment as he looked at the last photo in my album of orthotoys. The question of getting

orthopaedic play apparatus known and produced followed quite naturally.

From the Chartered Society I went to Dr. and Mrs. Bobath at their Private Clinic at St. John's Wood, London. I met them treating spastic children with many therapists around them. "Let me show you OUR orthotoys" Mrs. Bobath said when the moment came for my introduction. She demonstrated to me her huge beach ball with a small child learning to relax over it. Also her low, padded benches which made many suitable positions possible. Whilst Mrs. Bobath was still busy teaching a group of students, Dr. Bobath took me aside to show me the newest sound film on cerebral palsy he had made in America. When Mrs. Bobath and a few teachers on her staff joined us, I showed my film. Its message was nothing new to them. They knew much about the late Neumann-Neurode's work and I noticed his booklet on a desk. What made them so thrilled about the babies at work in my film, I do not know. I just heard delighted remarks by Mrs. Bobath about certain points and then a final: "I can see this must be learned properly. We need it for our atonic babies. You must let me know when you give a first course on baby gymnastics in London." Dr. Bobath quietly added that, if I ever contemplated another film on babies, he would gladly make it. I was overwhelmed by such acknowledgement and support. What is more, I was moved that the wish to learn the exercises came from a person who was already known throughout the world for her skill in handling notoriously difficult spastic babies. At a later visit, Mrs. Bobath remarked how difficult it was to make therapists see that a technique cannot be acquired in a week or two without running the risk of seeing it degenerate into superficial gestures bringing weak results and consequent lack of confidence of medical men and physiotherapists alike.

When I showed the film at Great Ormond Street, Dr. Basil Kiernander, Director of Physical Medicine, said that his hospital had already started to use remedial exercises for babies, at the turn of the century, long before anybody else in the world. He complimented me on the designs of orthotoys and believed that the teaching of the subject of "Infantile Physiotherapy" was badly needed.

Among the spectators at Great Ormond Street was Mr. G. F. Butler from the National Research Development Corporation. With him I discussed the subject of royalties for the designs of orthotoys. He informed me that no personal gain could come from medical designs. Royalties paid were ethically bound to go to some benevolent institution or into a fund for further development of orthotoys. This state of affairs explains, perhaps, why comparatively few aids are developed in medical departments, whilst motor cars and aeroplanes soar ahead with one invention following the next, bringing maximum comfort to the command of our toes and fingertips.

A refreshing note of hope rang in my ear when I heard the opening lecture by Sir Herbert Seddon at the annual C.S.P. Congress in London. His inspired call to physiotherapists to accept the every day need for rethinking and for new attempts at better solutions, were a delight to hear from a man who was known for a lifetime of creative service to medical science. When later I was introduced to him at a dinner at the Café Royal he told me that he considered baby gymnastics to be one of the important new branches of physiotherapy. He suggested my contacting Miss Lois Dyer at the Royal National Orthopaedic Hospital. As it happened I was in close touch with her already.

My next step was to contact Professor Illingworth at the Department of Child Health who had agreed to see me at the Children's Hospital in Sheffield. The interview with him consisted mainly of searching questions: What particular conditions did I believe I could beneficially influence? Why chronic bronchitis? What could I do for spinal deformities?

How much did physiotherapy achieve with spastic babies? How could I prove that knock-knees did better with than without specific exercises? What about valgus ankles? Had I thought of the need of proving my points by experiments with controls? I was happy to have the opportunity of providing information on these points. Prof. Illingworth took me round his modern departments and let me watch his own clinic for baby consultation. He was proud of an exceptionally low rate of baby mortality in Sheffield.

I was also given a chance to witness an afternoon session at the Spina Bifida Clinic under the charge of Mr. W. J. W. Charrard. He was especially interested to close the gap in the coverings of the spinal cord within 24 hours of the baby's birth. At that moment the skin stretched more easily over the gap, less bulging of cerebral fluid occurred; consequently there was less strain on the nerve roots with less paresis and paralysis developing. His patients were given intensive physiotherapy as soon as they were old enough to understand what was expected of them. I asked him whether he would welcome it if systematic exercises could be given already at the baby stage. He had no doubt about the advisability of very early exercise to the inactive musculature. Unfortunately, there was no time to show photographs or film.

Another, most gratifying appointment was with the Professor for Preventive Medicine and Public Health in Sheffield. Professor Knowelden told me that what I showed and explained was entirely new to him. "You must try and talk to leading orthopaedic surgeons and paediatricians. Only with their support can you hope to become effective and spread the news what early physiotherapy can do." This, of course, had been the very purpose of my journey. I was also interested in his remark on what he called "woolly thinking about children's valgus ankles and flat feet". He felt completely confused about what to think of the condition. He had heard the most diverging opinions. Some doctors considered valgus ankles and flat feet a definite weakness, hard to cure, perhaps incurable, often giving rise to pain, particularly at middle age; others thought that the majority of children grew out of them, contradicted by another group who considered them normal for all ages because of their frequency. I said that I thought it was a matter of preventing the condition from developing at the baby and toddler stage. Furthermore, the Nursery School could do a lot to help the child to gain really strong and healthy feet. With this in mind I had started designing and laying out an orthopaedic playground where nursery school children could train their feet and generally posture as they played.

From Sheffield I travelled to Manchester. Here I visited Dr. Ben Epstein, the paediatrician, formerly of Pretoria. To my surprise he had arranged a programme of hospital visits and a film show. With him I had the pleasure to witness the opening of a wing for mothers which enabled them to stay with their children who had been operated on. This was a heartening example of progress I saw in hospitals and clinics. I also saw some retrogression. At Gartside Street Out-Patient Department, where I had worked for several years during the last war, I learned that only one physiotherapist was now employed instead of the former three. Even at the Main Hospital, the Royal Manchester Children's Hospital, a single physiotherapist was doing all the work in a cramped room that did not even have the appearance of a treatment room or gymnasium. Baby gymnastics had long disappeared. Elsewhere, I was informed that remedial exercises for pre-school children had been discontinued in practically all English Child Welfare Centres. Such retrogressive development appeared to be somehow related to the apparently very small amount of teaching Paediatric Physiotherapy at training schools. However, I found an exception in the slow rate of development concerning physiotherapy for children in the field of cerebral palsy. Here, the value of early treatment with suitable baby exercises has been grasped and in many places put into practice. A good example of enterprise

was shown at the "Horse Show of the Year" at Wembley. Here, for the first time, a group of about 20 spastic children on their ponies entered the floodlit arena. They gave a demonstration of the exercises they had been taught with the aim of improving their condition and self-confidence. Those physiotherapists and organizers who had the courage to place the children into this brilliant show certainly deserve congratulations.

Back in London, my last days were crowded with showing the film to doctors, medical students and occupational therapists. Professor Bowden's medical students at the Royal Free School of Medicine gave the film the loudest and longest applause it ever received, perhaps, because the subject had taken them completely by surprise and displayed a welcome simplicity of concept. Lively interest was also shown at the Occupational Therapy Centre and Training School in Hampstead. Here I had a most welcome surprise. The Secretary of Sir Dennis Browne telephoned that Sir Dennis would like to come. I felt immensely grateful for this response to my recent letter. It seemed most important to me that somebody who had been the first paediatric surgeon for 29 years at the London Hospital for Sick Children in Great Ormond Street, and who had been knighted for his services to orthopaedics, should form his opinion on Neumann-Neurode's baby gymnastics and the orthopaedic gymnast equipment. Sir Dennis wholeheartedly agreed with the principle of early correction. He liked the way in which remedial exercises were made interesting to the child with the help of apparatus. On the way out he asked me to come and see him next day. At this occasion he showed me photographic slides of orthopaedic conditions of babies, mentioning the advantage of passive as well as active correction in cases of infantile scoliosis and valgus ankles. I was also shown some recent correspondence in which his theories were strongly attacked and defended. His explanations about the causes of some infantile deformities fascinated me. The idea that they frequently stemmed from a malposition in utero fitted singularly well with my experience of overcoming limitations of movement in babies and of coaxing into action muscle groups that must have been inactive for a considerable time. According to Sir Dennis Browne's own experience, many early mild malformations do not cure themselves but often persist and frequently develop into worse deformities as the child grows into school age, teenage and adulthood.

One more experience deserves mentioning. The visit to the Children's Orthopaedic Hospital in Carshalton. The physiotherapist in charge had managed to arouse the interest of his doctors and colleagues. At the end of the film on apparatus, he just burst out: "I want them all!" A few days later he called me back to present my theme to the other section of the huge hospital, that is for retarded children. The doctors understood immediately the advantage of orthopaedic play equipment for these mentally deficient children. Such children often suffer from a number of smaller and larger physical defects, for which individual correction is made problematic by their lack of understanding and limited conscious co-operation. The doctors felt that an in- and outdoor gymnasium, properly fitted out with ortho-toys, could contribute a great deal to normalize weight-bearing and the general physical development of these children.

In conclusion, I wish to say gratefully that my hopes to find support for the early treatment and early prevention of orthopaedic conditions with the help of infantile remedial exercises and special gymnastic equipment were richly fulfilled.

Footnote: "I am pleased to report that, thanks to the active interest of Professor J. Trueta, Nuffield Professor of Orthopaedic Surgery in Oxford, the Pergamon Press, Oxford, has now agreed to publish my translation of Mrs. Kaiser's booklet on 'Neumann-Neurode Baby Gymnastics'."

The publishers intend printing the booklet in time for the W.C.P.T. conference in Melbourne, 1967."