

Physical Therapy for the Pre-School Child Amputee*



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It is my purpose to clarify the responsibilities and tasks performed by the physical therapist for the clinic chief or physician to assist him in making his decisions for the best treatment programs for child amputees.

Briefly, the therapist works in four primary areas. These are: evaluation of developmental status; assisting parents in understanding the physical limitations of their children and guiding them in assisting the child through his different stages of development; the prevention of deformities and promoting the maximum use of all motor power which is so important during pre-fitting of the prosthesis; and lastly, the actual training in the use of the prosthesis.

The primary purpose of evaluating developmental status is to make sure that the prosthesis is prescribed at the proper time. Locomotor status gives the most useful clue for determining this time. On the basis of clinical experience in the Child Amputee Prosthetics Project, prescription for the lower extremity prosthesis is made when a child begins to show a desire to stand. Experience has not been long enough to prove whether this is really the most satisfactory stage for prescription of a prosthesis or not, but only through the systematic and detailed collection of data can this be proven.

A record form for pre-locomotor evaluation has been devised, listing the stages of head control, sitting posture, prone progression and transition from sitting to standing. The performance of the child is graded on the

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basis of whether he can or cannot perform an activity, or if he is in a stage of transition from one phase to another. The child is re-evaluated at regular intervals.

Information gathered as a result of these evaluations assists the physician in programming treatment for the child and assists the parents with their management problems. The physician's prescription may instruct the physical therapist to give home instructions to the parents for play activities and toys which tend to stimulate the child to perform at his maximum level. Parents can be steered away from extremes of over-protection or insistence upon premature independence by the child. The prescription may also request instructions for stretching or the use of special equipment to prevent deformities.

Parent contact with the therapist before prosthetic training begins can be valuable for the parent and therapist alike, affording an opportunity to prepare and plan for approaches to the training program. Integration of the training program into the family activities is the result of planned pre-prosthetic care. It is more evident, when the therapist is aware of the home and its facilities, what activities should be emphasized during formal treatment sessions and what activities should be emphasized at home.

Early contact with the family and child through pre-prosthetic care thus prepares the way for training with the prosthesis. The child does not have to become acquainted with strange surroundings and people in addition to adjusting to a new limb. The family will have been prepared for their role and the total program will be better integrated.

Training with the lower extremity prosthesis must be geared to the level of maturation of the child. Equipment must be kept at the minimum and the environment without clutter and confusion. A table, a few small chairs, and some toys placed strategically or presented at opportune moments for motivation and interest are usually sufficient equipment.

Harnesses, parallel bars, stabilizers and standing tables have not been used for the treatment or instruction of the toddlers or children beginning to use a prosthesis at their normal time for learning to walk. The harness, stabilizers and standing tables force them to balance under restriction and in positions where balance is difficult to obtain or maintain. The usual methods of teaching adults gait in parallel bars requires reciprocal arm and leg motion. The majority of these children have not yet reached that stage of locomotor development.

Basic control motions of the prosthesis must be thoroughly understood by the therapist because this information must be imparted to the child by the child's experience with the limb and this is not an easy task. These control motions must be integrated into activities which promote standing balance and later reciprocation. For example, the control motion of the Canadian Hip Disarticulation prosthesis is basically a sudden tilting of the pelvis which causes the hip joint of the prosthesis to flex and thus the series of motions which comprise the swing phase of the prosthesis are set in motion. Secondly, when the patient sits down solidly in the socket of this type of prosthesis with his weight properly centered over the joints of the leg, his hip and knee are so aligned that the leg will not buckle and he will be able to stand on the leg.

How is the child of one year taught to perform control motions which are difficult to describe and which appear to be unnatural to his normal pattern of development? At the present time this can be done by placing the child in an upright position and moving his trunk into a position of

stability over the leg so that he can begin having the experience of standing and balancing on the leg. He may need a solid object to hold onto for support or he may take the hands of the therapist at the level of his chest to hold for support as it is needed. Later he can be moved through the motions which cause the hip and knee to break as in beginning to walk. The child will learn balance and reciprocation by trial and error. He must also be placed in a situation which makes his need to walk reasonable and necessary. Since play is his world of work, play is the most logical means by which his interest in walking can be inspired. He should be expected to lose his balance and to fall, just as any other child does when learning to walk.

The length of time that training takes for the pre-school child varies, but in general it is surprisingly short. Initial training sessions are preferably scheduled daily for two weeks. The time may take less than this or, in cases of very complicated problems, may require as long as a month. Training does not stop after the initial intensive training period, but continues until the child is functioning at the maximum efficiency of his ability. Regular checks are made of the child's progress until he reaches his full growth. There are always periods when re-training is needed and when the prosthesis must be changed or a new one prescribed.

In summary, the physical therapist has an important role under the direction of the physician in the evaluation of developmental status, preparation of the child and parents for training, and finally in the training program for the successful use of the prosthesis.

In Memoriam

LOUIS P. MONFARDINI, Vice-President and Sales Manager of The Florida Brace Corporation, of Orlando, Florida, died June 6, 1962, at his home. Mr. Monfardini became ill while attending the meeting of Region VII, of the American Orthotics and Prosthetics Association, in Houston, Texas, in March. He is survived by his widow, Mrs. Dolores Monfardini, also an official of the Company, and three children.

Mr. Monfardini had been associated with the Florida Brace Corporation for several years and had attended many medical meetings and meetings of AOPA. He served as Membership Chairman of the Association for the year 1960-61. During his term as Membership Chairman, fifty-five new members were enrolled. In recognition of his services, the 1961 Or-



LOUIS P. MONFARDINI

thotics and Prosthetics Assembly adopted a resolution of appreciation.