

MYOELECTRIC FITTING AND TRAINING PROCEDURE OF PRE-SCHOOL CHILDREN IN THE NETHERLANDS:

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Introduction

Following the Swedish model, we started at the end of 1979 to train pre-school children in order to prepare them for using a myoelectric handprosthesis later on. The know-how that we received from the clinic of Dr. Sörbys in Örebro, Sweden, was concentrated in two rehabilitation centres in the Netherlands.

Motivation and possibilities.

Due to some articles in certain magazines and television broadcasts in the recent past concerning the Swedish myoelectric handprosthesis for very young children, several families with a peromelic child wanted their child fitted with such a prosthesis. All of them rejected the possibility of fitting the child with a conventional prosthesis consisting of a hook and a bandage.

In the framework of the social legislation it is usual for a conventional prosthesis for young children to be authorised and payed for by the health insurance. But the new and very expensive small myoelectric prsthesis was certainly not allowed to be issued to children. So the parents who insisted that their children be fitted with a myoelectric prosthesis and who could afford to do so, had to pay the costs themselves.

In the meantime, in the first quarter of 1981, weregistered two cases in which the Swedish myoelectric prosthesis had been issued to children of approx. $2 \frac{1}{2}$ years old by one of the health insurances.

To be able to meet the wishes of these parents mentioned above, we opened the possibility of myoelectric fitting and training in the Netherlands in close cooperation with Dr. Sörbye of Sweden.

Methods.

The first group of patients consisted of 6 children, all of which have a unilateral peromelia of the forearm ("congenital amputation"). Their average age was 4 years, the oldest being $6 \frac{8}{12}$, the youngest $2 \frac{9}{12}$ years old. (see also table 1).

Although being proschool children the oldest one was nearly 5 years old at the time we started the fitting and training. It appeared that she had grown beyond the possibility of being figged with the Swedish prosthesis of Systemteknik, because her own hand was already larger than the prosthesis. Therefore we chose the Otto Bock, size $6 \frac{3}{4}$ myoelectric hand.

During the pre-training period the children were given sockets with a passive handprosthesis, which gradually was increased in weight by filling it with lead beads to match eventually the weight of a myoelectric prosthesis.

At a certain moment guided by the motor development of the child, it was given the myoelectric prosthesis. It appeared that, after a period of habituation, the relatively high weight of this type of prosthesis did not bother the child at all.

Without going into details, we can say that the training itself has to be done by way of playing games, as a child tends to become bored very quickly. For older children of approx. 7 years of age, it is already possible to train them according to a predetermined schedule. We did this already in 1973 (Soerjanto, 1974).

During the training period of these young children, it is of at-most importance that the prosthesis does not get out of working order for longer than a day. In case of a defect the prosthesis should be repaired or exchanged the very same day. During our first year of operation, these breakdowns were limited to some minor causes, like torn gloves or a bent finger.

Fitting and training procedures are always carried out by the rehabilitation team as a whole, which consist of a rehabilitation doctor, an occupational therapist, a fysiotherapist, a social worker and last but not least, an orthopaedic instrumentmaker. At the start, and later on twice or three times a year the child and it's parents are interviewed extensively by each of the team memebres first mentioned.

The training itself is mostly carried out by the occupational therapist and the mother of the child and consists of two or three periods of training per year, in which the child and it's family are coached intensively by the team. Each period of training is concluded with an outpatient visit of the child during which the strategy of the next period will be determined and the progress of the previous period evaluated.

Conclusion.

Although our experience so far is very limited, we have the impression that we have met an existing need of the society for providing the opportunity to fit and train young children with a myoelectric prosthesis.

We also have the impression that the technical reliability of the myoelectric prosthesis today is much greater compared to that during the introduction of the myoelectric prosthesis for adults in the early seventies. This may stimulate the designers and constructors of future prostheses a great deal.

References:

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TABLE 1

Patient nr.	Sex	Age per 01-01-81	side of peromelia	myoelec. prosth.
1	F	6 $\frac{8}{12}$ yrs.	R	Otto Bock size 6 $\frac{3}{4}$
2	M	4 yrs.	L	Systemtechnik
3	M	3 $\frac{9}{12}$ yrs.	L	Systemtechnik
4	M	3 $\frac{9}{12}$ yrs.	L	Systemtechnik
5	F	3 yrs.	R	Systemtechnik
6	F	2 $\frac{9}{12}$ yrs.	R	Systemtechnik

Note: Exept patient nr. 1, all children received their first passive prosthesis at an age of 10-12 months.