

The Goals of Child Prosthetics Research



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Adult amputees have been fitted with some type of prosthesis since early historical times. The chief incentive or goal for prosthetic fitting has been to allow the amputee to carry on a vocation and to earn a living. Thus, the goal was to rehabilitate the amputee with a specific job or type of work in mind.

Such an immediate goal is not directly applicable to children. Therefore, the fitting of children with prostheses has raised a number of questions:

1. How could the frequent changes for growth and rough wear be accommodated?
2. What material could be used for the prosthesis that would be light and yet strong enough to withstand active use?
3. How could the cost be justified when the fitting would not immediately or directly provide income?
4. What kinds of components would be needed and what would be available?
5. How and for what purpose should a child be trained?
6. What would a prosthesis do for the child?
7. What would a prosthesis do for the child's family?

Despite these questions, requests for prosthetic fitting were coming from parents and physicians. The U.S. Children's Bureau was aware of these requests and the need for more understanding of the feasibility and benefit of fitting young children.

As a result, the Child Amputee Prosthetics Project at the University of California at Los Angeles and other similar groups were given the unique opportunity of exploring the many aspects of the problem of fitting children with prostheses. These problems included the surgical, medical, mechanical, training, social and emotional problems of the child, his family, friends, and associates.

Several principles of treatment have evolved during the last six years at the Child Amputee Prosthetics Project, where more than 200 amputee children have been treated on an out-patient basis. These principles have included taking advantage of the natural patterns through which a child develops, such as being able to grasp before release or pulling up before walking. These patterns can be used to advantage in timing the fitting and training procedures.

It has been found that many scaled-down adult components work fairly well for children. There is also a wide range of very strong and light plastic materials, which can be well suited to a child's needs. Still, adaptations made necessary by the special problems of children are actively sought and provided. Frequently, these have been found to have useful application for adult amputees too.

Fabrication and fitting of a child's prosthesis must be planned so that adjustments for growth can be made. In most cases, its use can then be prolonged for one, two or three years.

A consistent and sustained training program and good medical care is necessary for a satisfactory and satisfying prosthetic experience. Such a program enriches the child's life as he sees himself able to compete adequately with his playmates. An interdisciplinary treatment group has been found to furnish the best approach to these multifaceted and complex problems.

The staff at the Child Amputee Prosthetics Project have found that children and their families do benefit from early fitting of prostheses. A well-rounded prosthetic program enables the child amputee to be comfortable and at home with his prosthesis. He obtains satisfying experiences from his own achievements and in his relationship with his family, playmates, school and community. Without these experiences, he can develop a hostile, defensive attitude which could interfere more with his success and usefulness than the amputation itself. A prosthetic program is successful to a child when it helps him grow into a mature and productive adult.

