We live in a world made for hands. Myoelectric technology, provided at an early enough age, is the most aesthetic and functionally appropriate prosthesis for a young child.

The first fitting in the United States of a myoelectrically-controlled hand prosthesis for a child under age ten occurred in September of 1975. After 20 years, many questions remain unanswered and some experts continue to challenge this technology as being appropriate for a developing child.

Much debate and controversy centers around the cost of providing such technology to a child; other considerations include the functional advantages and disadvantages of a mechanical hand/hook prosthesis versus an electric powered hand prosthesis. Perhaps even more controversial is the decision as to what age it is appropriate to fit a child with a myoelectric prosthesis.

Data sparse

Given the fortunately low numbers of children born with complete hand absences, it would take a lifetime to collect sufficient data to answer objectively many of the key questions posed. Also, obtaining objective clinical data adequate to satisfy those opposed to the pediatric use of this technology, will likely take another generation.

Based on my personal observations, plus feedback from parents and several of the children fit with this type of prosthesis, I feel myoelectric technology has been both a rewarding and positive experience — especially for two adults who have worn myoelectric hand prostheses since early childhood.

Just this past year, Allison Craig was married, and Thomas Hoffman, Jr., was graduated from college. Both received their first myoelectric prostheses before the age of five; they continue to wear and use their prostheses daily. These young people have thus far achieved or exceeded all of their personal goals, as well as the normal childhood, adolescent and early adulthood expectations of their parents. They have integrated the use of their prostheses into normal activities of daily living. Both have experienced and participated in all of the traditional activities one would expect of any child.

Allison has excelled in academics and athletics, receiving many awards and recognitions for accomplishments both due to and independent of the assistance provided by her prosthesis. While growing up on a dairy farm, Thomas distinguished himself in 4-H youth activities and received many 4-H awards and honors, thanks to skills made possible by his prosthesis.

Throughout their respective childhoods, adolescence, and early adulthood, both developed a level of acceptable comfort and adjustment to their disability. Both young people and their parents agree, without a doubt, that having a hand prosthesis played a major role in their acceptance and social development among their peers. Further, they agree that having a myoelectric hand prosthesis gave them a more attractive and functional assistive device for normal activities of daily living.

A functional world

The experiences with Allison and Thomas, and with those who have followed, clearly indicate that a myoelectric hand prosthesis with proportional control is the most aesthetically and functionally appropriate prosthesis for a young child. We live in a world that is made for hands. A cosmetic, functional prosthetic hand is what most parents prefer for children congenitally missing a hand. Further, experience to date suggests the introduction of a functional prosthesis should occur between the ages of 9 months, at the earliest, and 16 months, at the latest, to achieve the best results from a developmental standpoint.
About the author ...

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