

# The Hinnant Prosthetics Quarterly

Experience Our Road to Prosthetic Excellence

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## Children: More Than 'Small Adults'

Children and adolescents comprise a significant portion of the world's limb-loss population. Their partial or complete limb absence may be the result of a congenital defect corrected by amputation after birth, a congenital amputation through one or more of the long bones, or an acquired amputation resulting from disease or trauma. In training and practice, our staff has experienced the unique challenges, and joys, of initiating or restoring function/mobility for young people with congenital or acquired lower limb absence, from infants to adolescents.

For numerous reasons, providing artificial limbs to children is distinctly different from creating limb prostheses for adults: Besides the need for smaller componentry—scaled-down versions of adult components seldom deliver the function of which a pediatric patient is capable—the overall treatment approach and interaction with patient and family take on a very dissimilar character when treating kids.

We are thus guided by the admonition *Children are not small adults*. The physiology, mental and physical capabilities, and emotional character of an otherwise-healthy child or teen compared with

that of a diabetic senior citizen are as different as night and day. In the former case, the goal is to enable the child for a lifetime in which he or she can grow and develop more-or-less normally and matriculate into adulthood with as much normal ability as possible. For the opposite end of the life spectrum, the goal is to restore an acceptable quality of life in the "golden years."

Family issues and concerns are correspondingly different as well. When possible, prosthetic treatment for children should be determined, prescribed and monitored by a multidisciplinary team including surgeon, pediatrician, therapist, prosthetist, patient (if of appropriate age), and family members. A physiatrist, psychologist and social worker may be added as well.

The initial step in developing a prosthetic treatment plan is to gain a full understanding of the cause and character of the limb loss and determine whether surgical intervention is warranted, as is sometimes the case with a congenital longi-

tudinal deficiency. International Standards Organization nomenclature describes the two major types of congenital limb anomalies:

*Transverse deficiency*—A deficiency in which no distal (i.e. beyond the point of reference) structures exist. In other words,

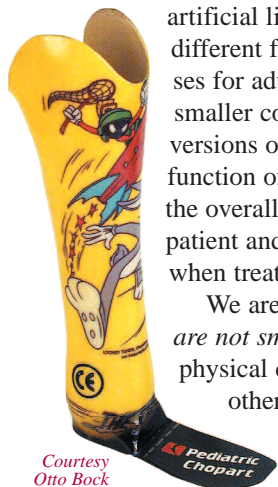
the limb essentially ends at the location of the deficit.

*Longitudinal deficiency*—A total or partial absence of structure along the long axis of a segment, beyond which normal skeletal elements may exist. An example would be the congenital absence of a tibia with an essentially normal foot. Other longitudinal anomalies include absence of the femur (better known as proximal femoral focal deficiency or PFFD) and absence of the fibula.



Courtesy Fillauer LLC

### Prosthetics Today



Courtesy Otto Bock HealthCare



Pediatric socket liner

Courtesy Össur

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### Now Dispensing the WalkAide

Hinnant Prosthetics is now certified to dispense the WalkAide FES system, a recent breakthrough for managing foot drop secondary to stroke, M.S., C.P., and nerve damage related to trauma. The WalkAide enables wearers to overcome their disability without conventional orthotic bracing or surgery.

This small, lightweight stimulator worn just below the knee is easy to don and doff and is invisible when worn with dresses or pants. Absent the ability to control the necessary muscles in the foot, the patient must drag his/her foot forward or use an exaggerated step to compensate. Both of these accommodations are extremely energy-inefficient and cause many sufferers to limit their walking and, unfortunately, their lifestyle. WalkAide uses gentle FES impulses to simulate peroneal nerve signals that would normally activate the muscles that raise the foot during ambulation, thereby enabling the wearer to walk in a more normal fashion with a smoother, more natural gait.

For additional information, call our offices in Charlotte – 704-375-2587 – or Columbia – 803-787-6911.



