

## Case study analyzes the effectiveness of early prosthetic fitting

BANFF, Canada — There is conflicting evidence in O&P literature whether it is beneficial to fit young children with prosthetic devices, especially myoelectric devices. According to Jennifer K. Peterson, MA, PT, Advanced Arm Dynamics, there has been a shift in fitting children at a young age with myoelectric devices. Peterson presented her case study on her daughter, Amber, a unilateral congenital amputee at this year's Association of Children's Prosthetics-Orthotics Clinics (ACPOC) meeting here.

After discovering that Amber would be born without a right hand while looking at an ultrasound, Amber's parents planned to fit her with a passive prosthesis at 6 months and be fit with a myoelectric prosthesis at 12 months.

"The reason for that was that if she was learning to grasp with her intact hand, she should learn to grasp with her prosthetic device at the same time," she told the audience.

At 6 months, Amber's parents had her wear her prosthesis whenever she was awake. Due to insurance issues, Amber was not fitted for a myoelectric until she was 18 months. The prosthesis was incorporated into Amber's daily living and activities.

"At 3 years old, Amber learned to understand where her prosthetic hand was in space," Peterson said, "She was quickly able to grasp and release objects in her hand without really thinking about it."



Jennifer K. Peterson

According to Peterson, Amber has benefitted from her early prosthesis fitting in terms of function. Amber, now 7 years old, has been able to participate in gymnastics and various other sports and can play the violin. Amber also has improved biomechanics and is developing symmetrically.

"She does not have spinal curvature, which we often see with congenital unilateral upper extremity amputees," she said.

One of the largest benefits from early prosthetic fitting according to Peterson was positive self esteem and quality of life. Amber is proud of her prosthesis and feels special instead of feeling bad about missing a hand.

"Why has she had success?" Peterson asked. "I think it's due to early and properly fitting up-to-date prosthetic equipment along with therapeutic training, aesthetically pleasing prostheses, a full-time wearing schedule and an opportunity to try multiple devices. It is possible to have success with young children."

### For more information:

Peterson JK. The prosthetic habilitation of a congenital, transradial limb deficient child: A case study analyzing the functional effectiveness and the benefits of early prosthetic fitting, appropriate prosthetic equipment, and consistent caregiver follow up. Presented at the Association of Children's Prosthetics-Orthotics Clinics Annual Meeting. April 11-14. Banff, Canada.

### PERSPECTIVE

Colleen Coulter-O'Berry, PT, MS, PCS

We have children with great parents who fit early and as the kids start wearing their adaptive prostheses, they tend to let their myoelectric devices go and increase use with the prosthesis that is used for a specific activity.

We are finding now that those children are coming back to their myoelectric. Even kids who haven't used their sports prostheses are coming back especially when there is a transition into school – elementary to middle school or middle school to high school. They want their prosthesis back.

**Colleen Coulter-O'Berry, PT, MS, PCS**

Team leader, limb deficiency program, Children's Health Care of Atlanta Editorial Board