INTRODUCTION

“Although an aesthetic upper limb prosthesis may facilitate rehabilitation in the traumatic amputee, it is usually a hindrance to the congenital amputee possessing a mobile hand and wrist, even when fingers are absent.” (Light, 2004) In addition to this belief, held by many rehabilitation professionals who see congenital limb absence at the partial hand level, the critically important component of preserving sensation is yet another reason for not fitting the young child, with congenital limb absence, with a prosthesis of any type, with the exception of an activity-specific type device.

As the child with congenital limb absence approaches adolescence however, the desire for appearance, and increased independence in bimanual activities, becomes increasingly important. Is there an indication for prescribing an electric multi-articulating digit prosthesis for the adolescent with congenital limb absence, and if so, what are the functional outcomes that can be experienced?

METHOD

The subject, with congenital partial hand absence of the thumb and digits 2-5, was fit with a 5 digit ProDigits multi-articulating hand prosthesis at 14 years of age. A comprehensive evaluation and functional profile was obtained at the outset of this fitting. Short and long term goals were identified and a thorough explanation of the prehensile advantages and disadvantages of the prosthesis were addressed.

A collaborative team approach from the prosthetist and occupational therapist, in concert with participation of the young lady, was accomplished. At 3 and 9 months following the delivery of the prosthesis and occupational therapy directed training, follow-up of this fitting, and evidence-based functional outcomes were well documented.

RESULTS

The objective results of this 5 digit ProDigits fitting included documentation of specific unilateral and bilateral functions not previously possible. These included the unilateral task of using the “index point” feature to operate an ATM, cell phone and computer. Picking up small objects, such as grapes and small candies, with a tip pinch was now possible with her non-dominant hand using ProDigits.

Bilateral functional tasks, that were now possible, included blow-dry and styling hair, using a cell phone and taking notes, folding laundry, holding both ends of a serving tray, holding a plate while serving food, painting her nails, cutting meat with 2 “hands” using a knife and fork and several other bimanual activities.

Subjective results included remarks such as “I am now really independent,” “I don’t need to always explain to people what ‘happened’ to my hand”, and “Now I don’t need to cover-up my hand any more.”

DISCUSSION

Based upon the results of this young lady, and several other adolescent individuals with congenital partial hand absence, there appears to be a growing acceptance and desire for these individuals, when they reach their teen-age years, to be more independent in 2 handed activities, and a desire to have a more natural appearing hand. The disadvantage of “losing” sensation in the remaining partial hand, when their palm is covered, appears to be insignificant when compared to the functional and psycho-emotional advantages an electric multi-articulating hand affords.

CONCLUSION

These findings suggest a significant “paradigm shift” in how adolescents, with congenital limb absence, are evaluated by a physician or prosthetist, and demonstrates the need for additional evidence-based outcome studies of this unique population.

REFERENCES