

# FUNCTIONAL SPLINTING s/p TRAUMATIC PARTIAL HAND AMPUTATION

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## Introduction

The patient is a 48 year old right hand dominant male who sustained a traumatic partial hand amputation in a miter saw accident in November of 2003. He obtained several medical opinions which included amputation at the wrist, fitting with a body-powered prosthesis and bilateral second toe transfers.

My charge was to create a splint that would mimic a second toe transfer. In the end, the patient declined surgery and uses my splint everyday. It was also used as a prototype for a custom prosthetic device for prehension. Here is the story.

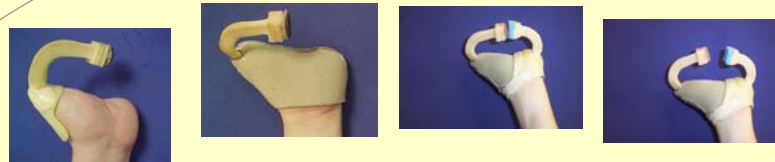


### Attempt #1



- +** Two separate components: stable ulnar post and moving radial post
- Difficult to oppose against spherical ball on ulnar post
- Insufficient conformity of cone over thenar eminence → toggling of radial post

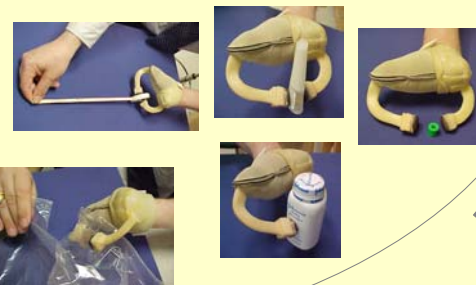
### Attempt #4



- +** Good conformity of Orfit™ cone for radial post
- +** Distal position of radial post on thenar eminence
- +** Conforming neoprene glove for stable radial post

- Overall durability of materials

### Permanent Prosthesis



### Attempt #3



- +** Palmar orientation of posts
- +** Very conforming neoprene glove
- +** Silicone pad at tip of posts for improved hold on objects

- Rivets rust and irritate skin
- Seams irritate skin
- Radial post too proximal on thenar eminence → limits width of opening

### Attempt #2



- +** Adjustable conformity of neoprene wrap
- +** Square, flat surfaces of posts

- Ulnar and Radial posts in plane of hand → awkward wrist position during prehension