

# ACADEMY OF SPINAL CORD INJURY PROFESSIONALS



## Creating Low-tech Assistive Technology In Order To Improve Independence and Quality of Life for Individuals With Spinal Cord Injury/Dysfunction

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### Background

Individuals with spinal cord injury, especially tetraplegia, experience a loss in independence due to upper and lower extremity weakness. There have been pieces of adaptive equipment developed for these individuals however, this equipment can be costly for patients and/or hospitals, there may be supply chain issues or the devices may not work properly because they are not individualized. Many adaptive devices can be fabricated out of simple materials in order to increase these individual's independence and to improve their quality of life. These devices then can be modified within the clinic based on performance during trial and error; for example: angle of silverware can be modified to compensate for lack of pronation strength for increased ability to scoop or stab food.

### Common Materials Used to Create Adaptive Equipment and Average Costs

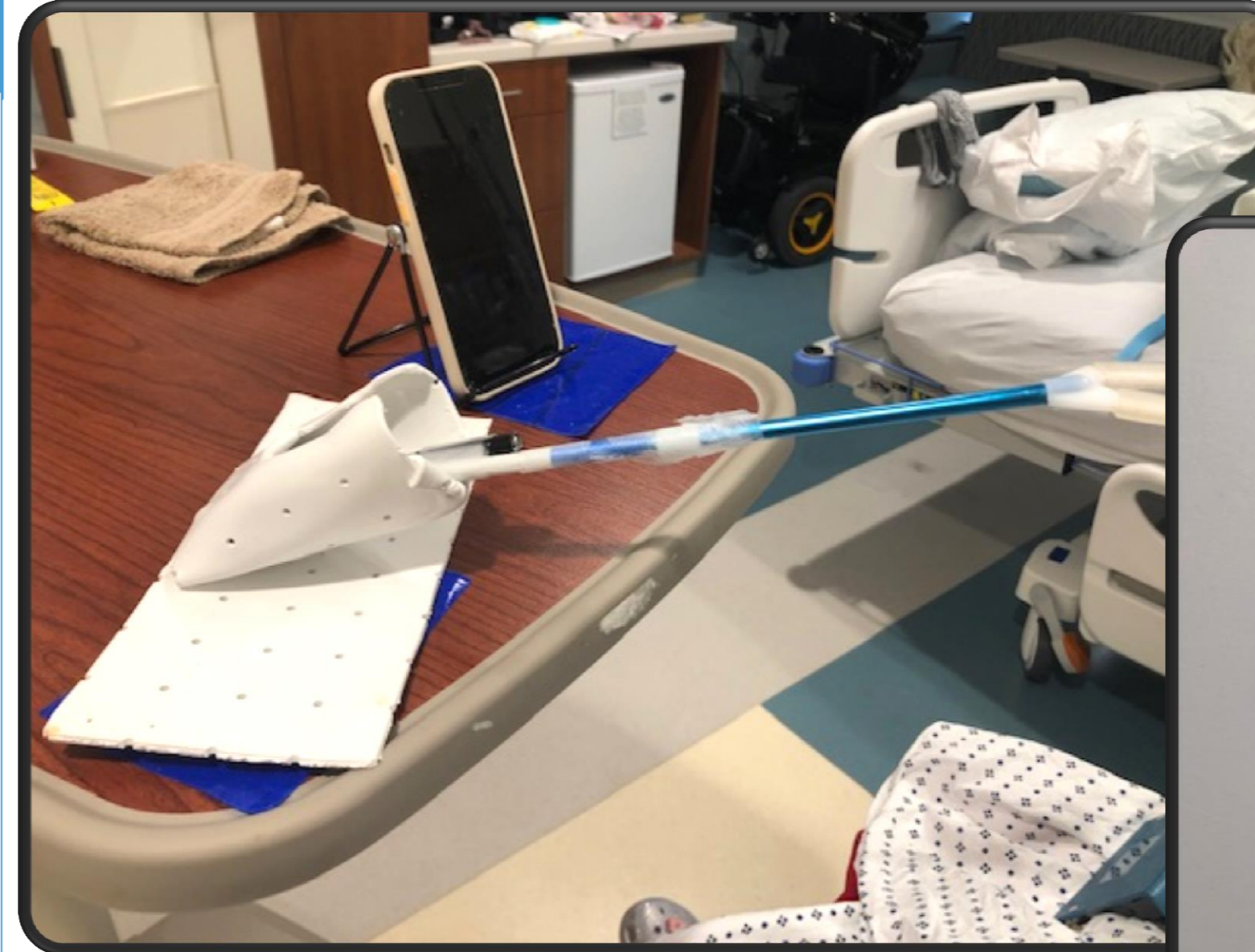
- Splinting material- \$120 per case
- Velcro- \$50-\$75 per roll
- Dycem- \$148 per roll
- Strapping material- \$30-\$50 per roll
- Wash cloth- free

### Examples of Adaptive Equipment and Average Time That It Takes to Fabricate

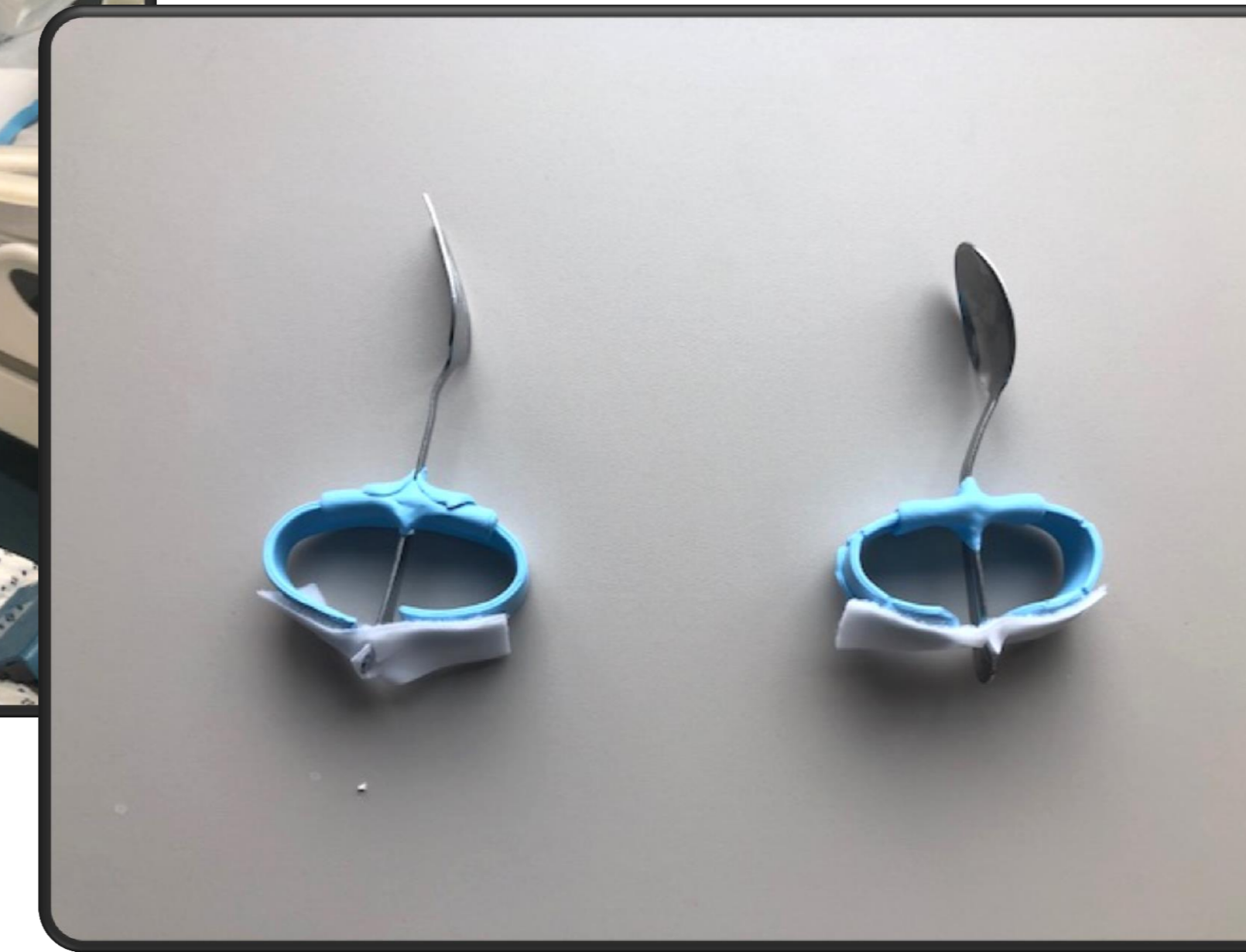
- Plateguard- 60 minutes or 1 treatment session
- Silverware- 15-30 minutes
- Pant Holder- 15-30 minutes
- Leg straps- 60-120 minutes or 1-2 treatment sessions
- Wash Mitt- 15 minutes
- Mouthstick- 60 minutes/ 1 treatment session
- Docking Station for Mouthstick- 30 minutes
- Cellphone Holder- 10 minutes
- Cup Holder- 10 minutes

### Equipment Needed to Fabricate Adaptive Equipment

- Sewing Machine
- Splint Pan



- MOD I with cell phone use with AE
- Docking station fabricated from orthoplast
- Dycem utilized for stability
- Stylus attached to mouthstick



- Set up with self-feeding with custom AE
- Custom handle fabricated from orthoplast, secured with Velcro strapping



- With standard u-cuff, patient was grossly MOD A for feeding due to lack of forearm pronation (unable to scoop/stab food independently)



- Set up to play pre-morbid leisure activity of UNO with custom AE
- Adaptive utensil fabricated out of orthoplast and paperclip
- AE used in conjunction with dorsal wrist splint and card holder

### Quality Indicators

- 1= Total A
- 2= MAX A
- 3= MIN-MOD A
- 4= CGA-supervision
- 5= Set Up
- 6= Modified Independent

### Case Study

- Patient is a 26 year old female with no significant past medical history who was involved in a motor vehicle crash resulting in a C5 fracture
- Underwent C4-6 anterior cervical decompression, fusion and corpectomy; s/p trach and PEG placement
- American Spinal Injury Association (ASIA) testing revealed C4 ASIA A
- At initial evaluation, patient required total A with all BADLs
- At time of discharge, with use of adaptive equipment, patient was able to:
  - Feed herself and perform oral care with set up
  - Performed bathing with MAX A
  - Operated her cell phone MOD I
  - Able to participate in pre-morbid leisure activity of UNO with set up
- Patient able to discharge home with family and aid services

### Quality Indicator Scores

