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EINSTEIN HEALTHCARE NETWORK

RELEAS, generation II Fitting Guide

RELEAS generation II Fitting Instructions.

Introduction to the next generation of Einstein's Low-profile Extension Assit Splint.

Thank you for purchasing the RELEAS™ generation II. Once the RELEAS is sized for your patient you can begin training the patient to use the splint as a rehabilitation option to promote the integration of the heimparetic upper extremity. During the fitting and training process it is important to remember that the RELEAS™ is designed to be used as an all day functional tool that allows pre-grasp, a modified hold and release of objects while the splint is donned on the affected hand. It is not intended to be used as a way improve hand function once it is removed from the affected extremity.

If you are familiar with the first generation RELEAS you will find this second generation splint has several advantages.

First, the glove is made from a lighter weight and more breathable fabric. This allows better comfort and less perspiration than the first splint.

Introduction, continuted

Second, the new splint has a removable outrigger that uses tension springs. This allows the tension to be easily upgraded, and downgraded without needing to purchase different tension outriggers as with the original RELEAS.

Third, the finger support is made from a thermoplastic material called Orficast and can be easily heated if a more contoured fit to the digits is required.

The finger supports are now made in different sizes for easy fitting. However, since everyone's hands have individual differences, the finger supports can be cut down as needed to meet more individual variations in the digit sizes.

And finally, the new RELEAS is easier to don than the previous design. The patient, or a care giver needs only to slide the glove over the affected hand and slide the digits onto the finger supports.

Materials Required

To size the RELEAS™ you will need the following materials:

1) The Container with the RELEAS splint and components.
2) A pair of sharp scissors.
3) A wire cutter.
4) A way to warm the finger supports. Options include:
    A) a splinting pan set at approximately 149 degrees Fahrenheit.
    B) a splint hot gun.
    C) a hairdryer

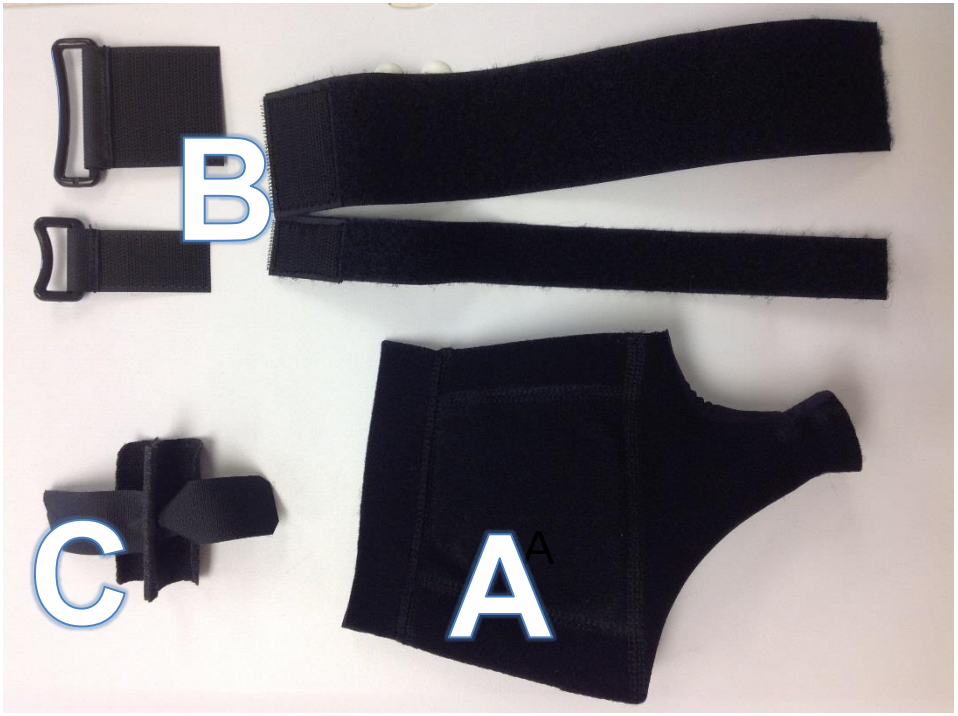
5) An option to protect the therapist hand from injury while warming the finger supports when needed. Options include:
    A) needle nose pliers
    B) oven mitt

Open the RELEASE Case and locate the following items:

A) Thumb spica splint

B) Velcro strapping

C) Finger support

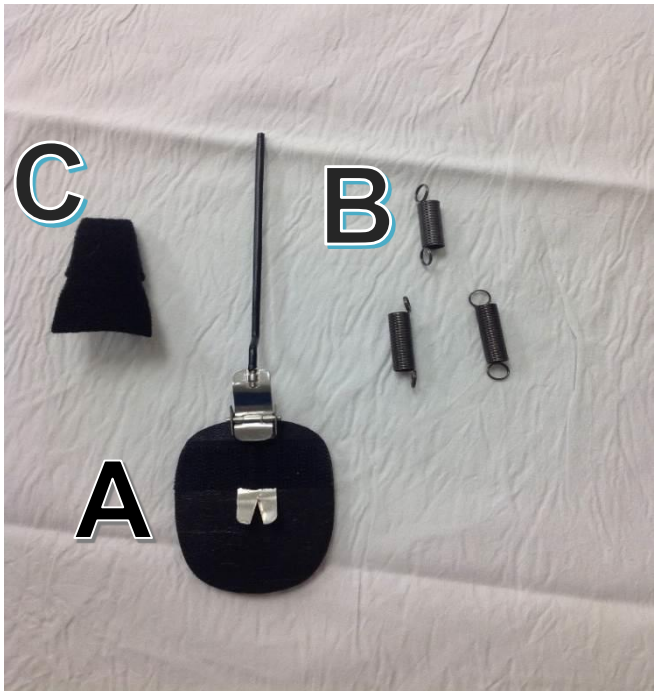


The outrigger components of the generation two RELEAS:

A) The out rigger,

B) Three springs.

C) The Velcro sleeve.



Sizing the thumb Spica

- Notice that the RELEAS Spica splint has an inner pocket. The pocket will be used to slide the outrigger into later in the fitting process.
- When donning the RELEAS the pocket is placed on the dorsum of the affected hand.

Sizing the Spica Splint, continued

1. Slide the patient's affected thumb through the thumb post of the spica splint.
2. Drape the dorsal flap over the back of the affected hand.

Sizing, continued

Use a marker to place a dot just proximal to the knuckle of the index finger.

Make a dot just proximal to the knuckle of the small finger.

Sizing continued

- Draw a line connecting the dot from the small finger to the dot of the index finger.

Sizing continued

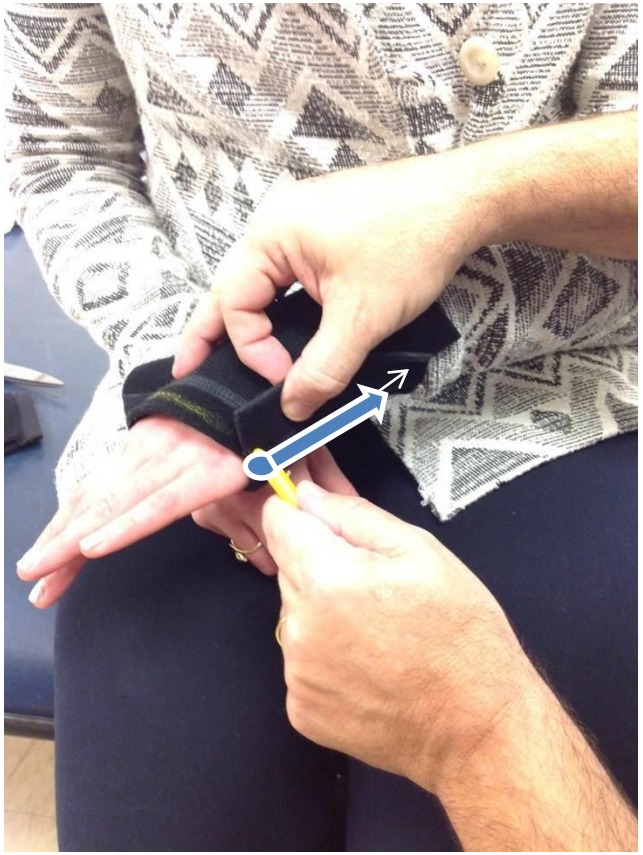
- Draw a line along the distal palmar crease from the index to the small finger.

Sizing continued

- Draw a line around the circumference of the thumb just proximal to the IP joint.

Sizing continued

- Pull the lateral ends of the dorsal and palmar flaps together.
- Draw a line to cut down any excess material so the two flaps will be flush once wrapped around the hand.



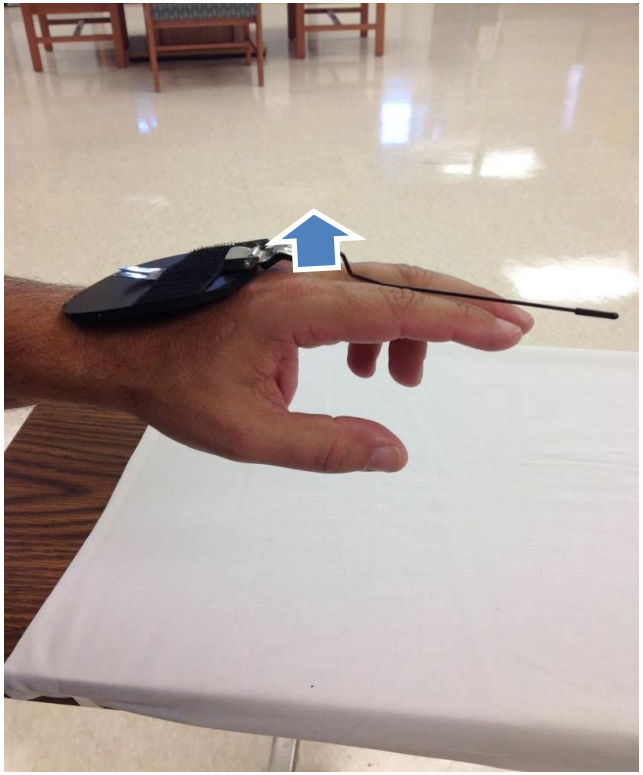
Sizing the spica, continued.

Remove the splint.

Use scissors cut the splint along all the drawn lines.

Sizing the outrigger

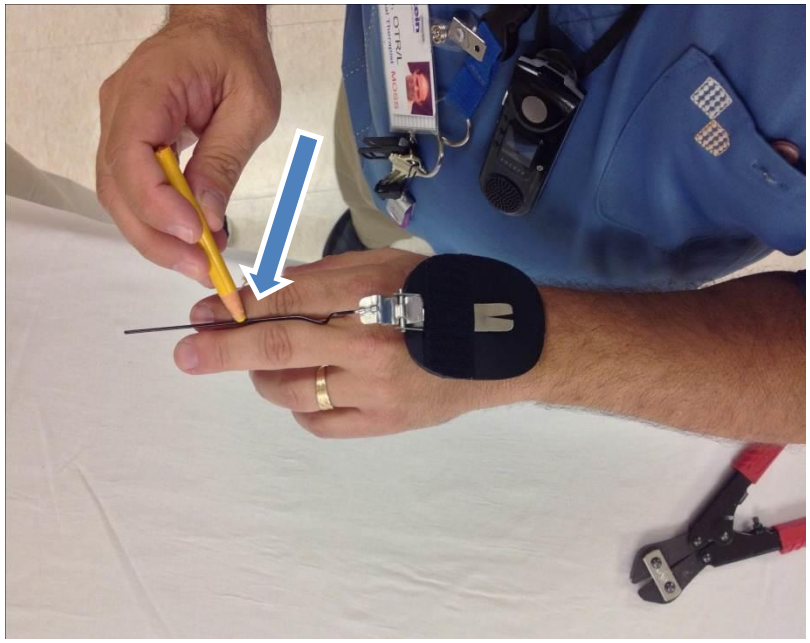
Place the outrigger on the dorsum of the hand. The “U” curve should be over the web space between index and long fingers.



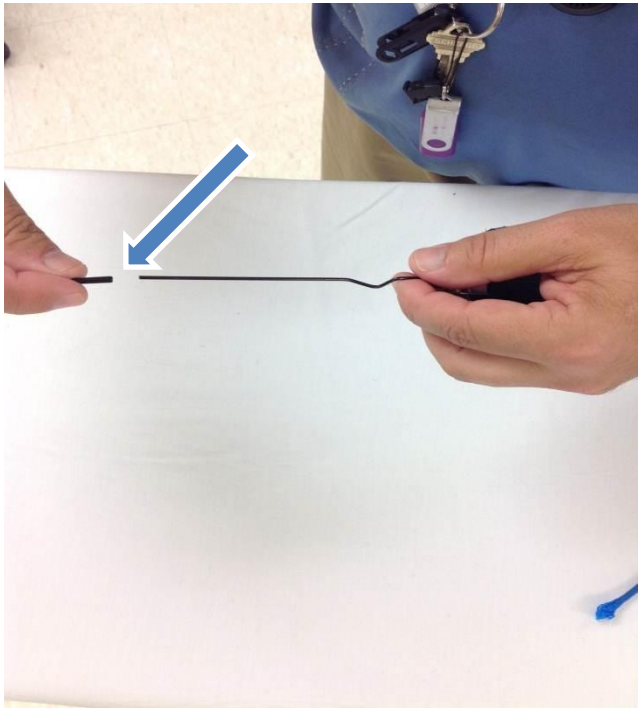
Placement of the “U” curve between the web space will minimize contact pressure from the lever arm onto the skin when the patient closes the hand.

Sizing the outriggers, continued

Make a mark on the outrigger at the area distal to the PIP and proximal to the DIP.

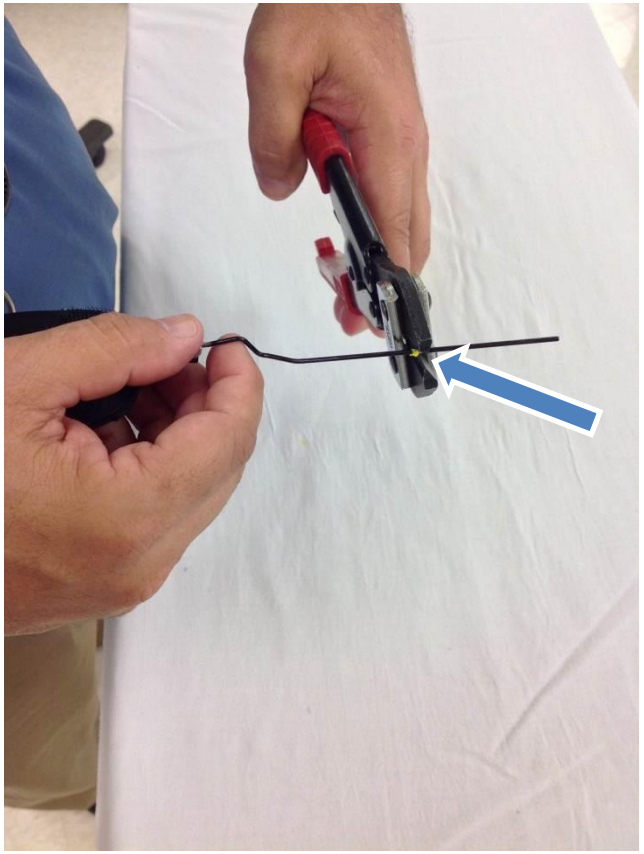


Remove the end-cap from the outrigger and set it aside for reattachment later.



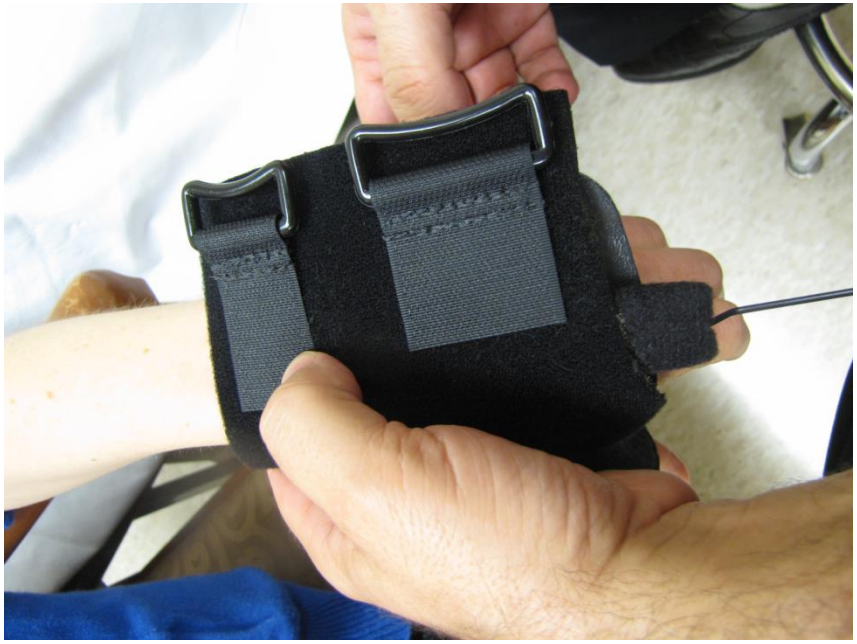
Sizing the outrigger, continued

- Use your wire cutters to cut down the outrigger lever arm at the mark you made.



Placement of the “D-Rings”

Determine the size D-ring you would like to use for the proximal strap. Secure it so that the D-ring is at the proximal ulna corner of the spica splint



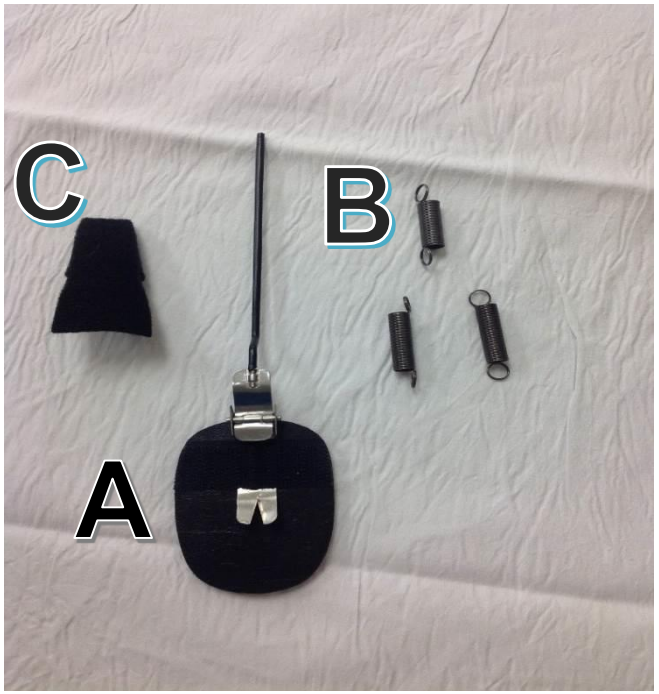
Place the appropriate width velcro loop at corresponding positions on the palmer surfaces of the spica splint. The loop should face upward.

The outrigger components of the generation two RELEAS includes:

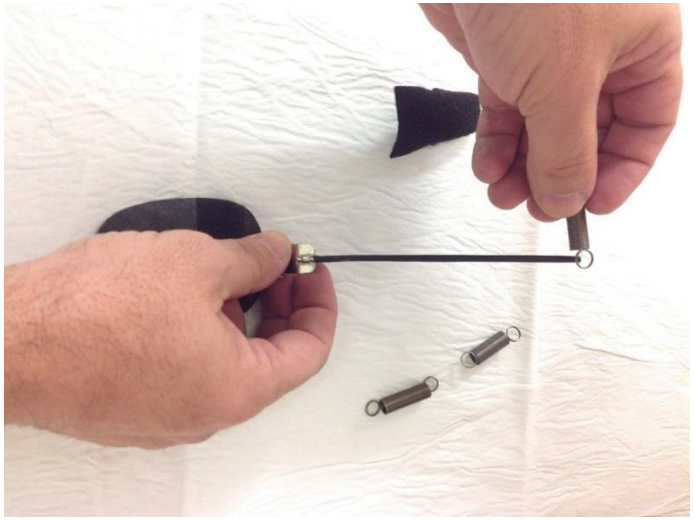
A) The out rigger,

B) Three springs.

C) The Velcro sleeve.



Remove the endcap from the outrigger. Tread the outrigger lever arm through one of the eye holes of the spring. Slide the eyehole to the base of the outrigger lever arm.



Secure the opposite eye hole of the spring to the hook on the base plate.

To increase the tension add another spring to the outrigger.

Press the two springs together to overlap the coils. Overlapping the coils helps to minimize the bulky appearance of the springs sticking out above the base plate that can occur if they are not pressed together.

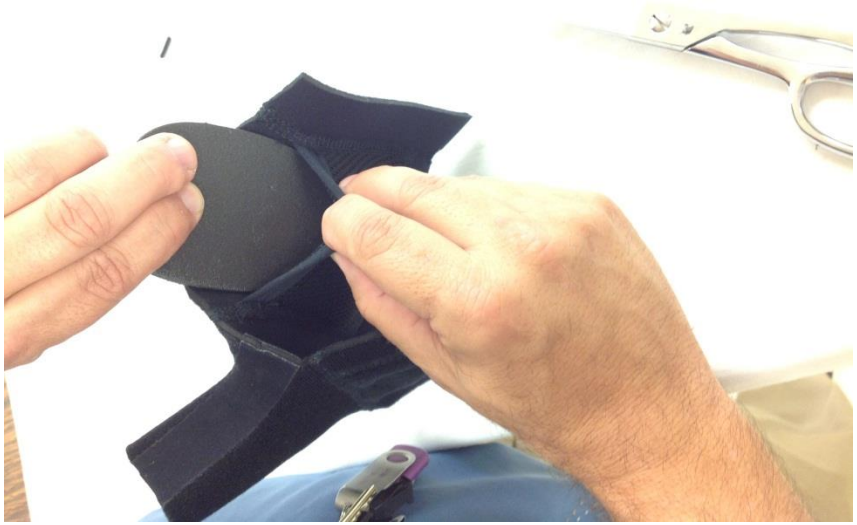
- Continue to add, or remove springs based on what you determine to be the most functional tension to open your patients hand for a functional range. Be careful not to add so much tension that the patient cannot close the supported digits against the opening forces.

Slide the Velcro sleeve over the lever arm to cover the hinge. Secure the proximal end of the Velcro to the hook on the baseplate.

Placing the outrigger into the spica

Open the pocket on the inner dorsal flap of the thumb spica.

Slide the outrigger base plate into the pocket. The foam padding on the base plate should be positioned so that it will press onto the dorsum of the hand. The Velcro hook on the top of the base plate should be secured to Velcro loop on the roof of the pocket



Fitting the finger supports

- Slide the finger supports over the index and long fingers of the affected hand.
- The tunnel in the center fold of the finger support should be between the fingers at the dorsum of the digits.

Fitting the finger supports, continued

Use your wax pencil to mark the finger support horizontally just superior to the middle of the lateral surface of the index finger.

Fitting the finger supports, continued

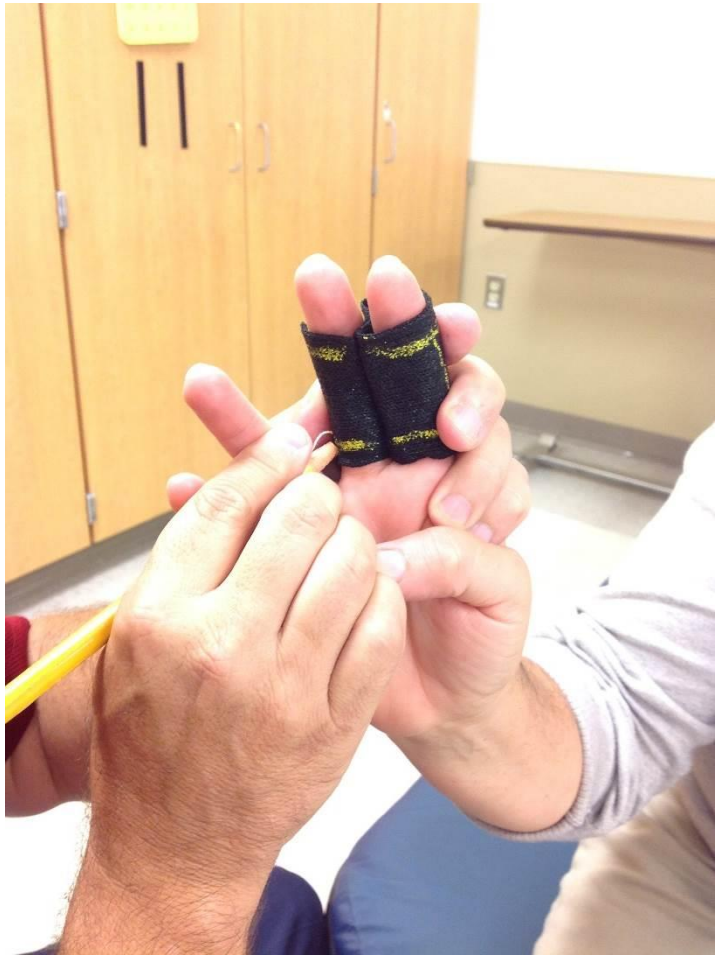
Make a similar line for the lateral flap of the finger support for the long finger.

Fitting the finger supports, continued

Use your wax pencil to make a mark just proximal to the crease of the DIP of the index and the long fingers. This will allow contact between the skin of the supported two finger tips and the thumb when closing the hand.

Fitting the finger supports, continued

Make a mark between the MCP and the PIP. This will allow clearance between the proximal ends of the finger supports and the MCPs minimizing the chance that the finger saddles will be pushed out of position by the MCPs when closing the hand.



Fitting the finger supports, continued

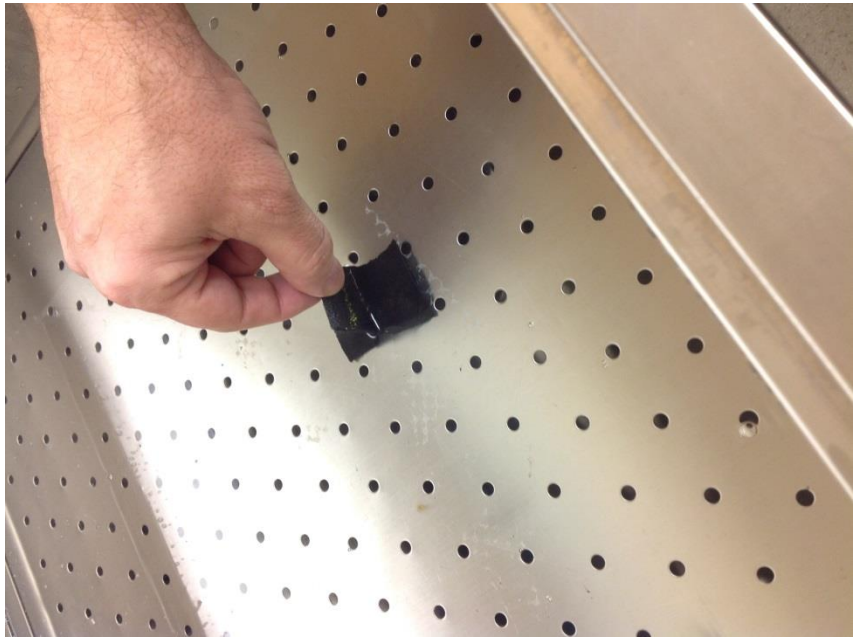
Cut the finger supports at all the markings using your scissors.

Check for space between the support flaps and the digits.

- Often, the finger supports fit snugly onto the fingers without space between the flap and the skin.
- However, there are times when there is a space between the flaps of the finger supports. This space can compromise the stability of the support and allows the digits to slide off of the supports and out of position when closing the hand.
- An example of a finger support with too much space is shown on the left. This is easily corrected and will be discussed in the next few slides.

Correcting the space between the finger supports and the digits.

1) **<u>Hold the finger support at the center fold, out the way of any heat.</u>** If the center fold gets heated it will lose the shape of the tunnel and not be able to be placed onto the outrigger lever arm of the splint.
2) Place the flaps of the support into a splint pan set at approx. 149 degrees Fahrenheit for approximately 20 seconds.



(**<u>If a splint pan is not available:</u>**

You can also use a splint hot gun, or a hair dryer. If using a hot gun, or hair dryer, be careful to gently heat the material without burning yourself by using needle nose plyers. Again be careful not to heat the centerfold. Be careful to allow the material to be pliable, but not hot enough to burn your patient.)

Correcting the space between the finger supports and the digits, continued

3)Remove the splint from the water and place the splint onto the index and long fingers of the affected hand.

4) Press the flaps of the finger supports firmly onto the digits to form a contour with the finger while being careful not to apply too much pressure and injure the patient.

5) Allow the finger support to cool and harden.

Correcting the space between the finger supports and the digits, continued

- Once cooled, the finger support should have a good contour with the digits without significant gapping between the flaps and the fingers.

Place the finger support onto the outrigger

Slide the outrigger lever arm through the tunnel in the center of the finger support.

Determining Opening Tension of the Outrigger

- Once the RELEAS is donned on the affected hand ask the patient to stand and actively close the splinted hand attempting to bring the thumb index finger and long fingers into either a 3 jaw pinch, or a lateral pinch.

Determining Opening Tension of the Outrigger continued

- If the patient is able to close the hand, ask the patient to relax his proximal upper limb as well as the hand.
- Allow up to 2 minutes for the hand to relax. The ability to relax and allow the splint to open the hand should become faster with practice.
- The digits do not need to move to full extension. Even if the digits only open enough to leave a 1 inch space between the thumb and index finger that is adequate for training using thin objects, such as holding an envelope, tooth brush, or wallet .

Determining opening Tension of the Outrigger, continued

- If the patient is able to close the hand against the opening forces of the RELEAS and is unable to open after two minutes the tension on the outrigger may need to be increased.
- Remove the RELEAS from the patients hand.
- Slide the outrigger out of the sleeve
- To increase the tension you can add springs to the current spring as needed.
- Place the splint back onto the affected hand and repeat the process of closing and relaxing the hand until the hand can open at least 1 inch within two minutes, or faster. Once this is accomplished begin with the first module in the training guide.

Determining Use of the elastic thumb strap.

- If at the highest opening tension the patient cannot open the hand add the elastic strap to the thumb at the web space. The elastic strap has Velcro hook on both ends of the strap. The Velcro can be secured to the palmer and dorsal flaps of the splint and pulled tighter, or loosened to adjust the tension.

Determining use of the elastic thumb strap, continued

- With strapping in place repeat the procedure of closing and relaxing the hand allowing up to for up to 2 minutes as outlined above.
- Pull the strapping to the desired tightness until the patient is able to relax the hand within 2 minutes.
- Remember the patient only needs a 1 inch separation to begin training.

Determining opening tension, continued

- If the patient is still unable to relax the hand the splint can still be used for training using paper thin objects, or by teaching the patient to wedge objects into the web space. However, you will need to spend time working on relaxing the hand so that the patient can learn to allow the RELEAS to open the supported digits. If the RELEAS is unable to open the hand for two or more sessions please re-evaluate to determine if the Modified Ashworth is greater than a 2.
- If the Modified Ashworth is greater than a 2 consider therapeutic interventions, such as EMG biofeedback, or inhibitory techniques to decrease over activity of the hand flexors. Medical intervention such as chemo- denervation with Botox may be required. If botox is used begin training after the patient has a brief hold, usually two weeks, for the medication to take full affect. The physician will need to consider using a dosage that does not weaken the muscles so much that the patient can no longer close the hand.

Determining opening tension, continued

- If you would like to try a stronger spring tension to open the hand **wider** or for a **quicker pre-grasp and release,** remove the outrigger and add springs to increase the tension. Be sure to consider that if spasticity is present that the stronger tension is more likely cause the over active flexors to fight the extension force. This could actually limit the hand from opening.

Determining Tension if the hand flexors are weak.

- If patient is unable to close the thumb, index and long fingers at the lowest tension hold the wrist stable at various degrees of extension. Ask the patient to close the hand.
- If patient is able to close the splinted hand with the wrist stabilized in extension, fabricate a wrist extension splint to stabilize the hand at extension that allows the best grip and release
- As a suggestion it has been found the stabilizing the wrist at neutral to 20 degrees extension improves grip force with minimal compromise to release.

Conclusion

- After the above steps are followed be sure to check the patients hand for any signs of pressure, constriction to circulation and discomfort. Adjust the splint as needed to resolve any problems.
- The RELEAS should be cleaned daily using a gentle hand soap and warm water. Allow the splint to air-dry overnight.
- The intention of the RELEAS is to be worn during the day time while the patient is awake to allow functional integration of the hand during relevant activities of daily living that they were trained in. It should not be worn when sleeping as this could cause injury to the patient, or damage the RELEAS.
- A copy of the RELEAS wearing instructions is included in your handouts. Please feel free to copy the instructions and review them with your patient.

Conclusions, continued

- Use the training guide at this time to provide suggested activities to begin teaching the patient to use the RELEAS. Since every patient is different, do not use the guide as a strict protocol.
- If you have questions about the RELEAS including ways to fit or train the patient please feel free to contact Joseph R. Padova, OTR/L. at Jpadova@Einstein.edu. He is the inventor of the RELEAS and experience in its use.
- If you have questions on ordering, or replacing components of the RELEAS please contact Tiburon Medical Enterprises, or the vendor who you ordered the splint from.