

SaeboStretch®

(Patented)

Product Manual



*A Dynamic Solution for
a Dynamic Problem®*



No Plateau In Sight®

Introduction

Saebo Inc. is pleased to provide you with the most innovative resting hand splint available. It offers the following revolutionary design changes:

- Patented stretch technology with three interchangeable energy-storing hand plates.
- Comfortable non-slip cover and strapping system to minimize migration.
- Strapping system strategically located to ensure intimate contact with the fingers and hand.
- Straps sewn to cover to maximize proper positioning and ease of donning.
- Adjustable thumb system to allow for radial and palmar adduction/abduction.
- Malleable wrist and thumb section
- Palmar padding for proper arch support.
- Cover features a zipper closure which can easily be removed for cleaning.

This manual contains important information for both the person who will wear the **SaeboStretch** and the clinician/orthotist who will provide and fit the splint.

Please be sure to review all information carefully.

Indications for Use

- To position the hemiparetic hand following a neurological injury (i.e. stroke, traumatic brain injury, cerebral palsy, spinal cord injury).
- For use with patients that have minimum to moderate tone and soft tissue shortening.

Contraindications

- Not for use with severe spasticity.
- Not for use with severe contractures of the wrist and finger joints.
- Not for use if open wounds, sores, or infected areas are present.
- Not for use with moderate or severe edema.

Precautions

- While not required, the **SaeboStretch** should be fitted by a licensed occupational/physical therapist or assistant, a licensed orthotist or certified fitter who can educate the client and/or care provider on the appropriate wearing schedule, skin assessment, correct donning and doffing procedures, as well as the care and cleaning of the splint.
- Discontinue wearing the splint if you notice any of the following: pressure areas, skin breakdown, pain or numbness in the fingers. Do not resume wearing the splint until you have consulted with a health care professional.
- When securing the straps, be very careful not to over-tighten as this may interfere with circulation. The innovative strapping system used on the **SaeboStretch** requires less tension than standard cloth or padded straps in order to maintain proper finger placement.
- After removing the splint, check for strap marks on the skin. If marks are present and they do not dissipate within thirty minutes, discontinue wearing the splint until you consult with a health care professional.

Fitting Procedure

Determine Wrist Angle

It is normal for most chronic neurological patients to have an initial wrist position of neutral or slight flexion. Re-assess your patient's soft tissue periodically so adjustments can be made as appropriate. The ideal position is 35 degrees of extension. If the client requires a lower wrist angle, the goal will be to gradually position the *SaeboStretch* into more extension until you achieve 35 degrees of extension.

How to determine the correct starting wrist position:

1. Passively position the involved wrist in flexion, keeping the MCP, PIP, and DIP joints in composite extension (*see Figure 1*).
2. Slowly bring the wrist into extension until you feel the first indication of resistance (*see Figure 2*). Make note of this wrist angle. This is called R-1 (Resistance 1) and represents the initial wrist position for the *SaeboStretch*.
3. Position the splint over the edge of the table and bend the wrist into the desired position (R-1) (*see Figure 3*).

Note: The wrist angle should not be positioned below -35 degrees of wrist flexion or above 35 degrees of wrist extension. This splint is designed so that at rest, the client's fingers are in composite extension.

Forearm Stabilizers

Bend the Forearm Stabilizers up to make sure the proximal forearm is held securely in position (*see Figures 4-5*).



Figure 1: Start position



Figure 2: End position R-1



Figure 3: Position for bending wrist angle into extension (dorsal side up)



Figure 4: Bending Forearm Stabilizers



Figure 5: Correct position for Forearm Stabilizers

Thumb Position

The **SaeboStretch** includes a very unique thumb system. Adjustments can be made to accommodate radial adduction/abduction and palmar adduction/abduction (*see Figures 6-9*).



Figure 6: Radial Adduction



Figure 7: Radial Abduction



Figure 8: Palmar Adduction



Figure 9: Palmar Abduction

Prior to fitting the thumb, check for soft tissue shortening at the web space. The ideal position puts the thumb web space on stretch (*see Figure 10*). If a patient has a tight web space, you may have to start with the thumb in more radial/palmar adduction and adjust gradually into a greater amount of radial/palmar abduction as the soft tissue shortening is resolved.



Figure 10: Optimal thumb position

Two steps for properly fitting the thumb include **adjusting the hardware** to set radial adduction/abduction angle and **bending the thumb mount** for palmar adduction/abduction angle.

Step 1: Setting Radial Adduction/Abduction Angle

To adjust for radial adduction/abduction, loosen the thumb screws, rotate the thumb component to the desired angle, and then retighten (*see Figures 11-12*).

Note: The metal is universal (can be a left or a right). Identify the side where you see 2 screws.



Figure 11

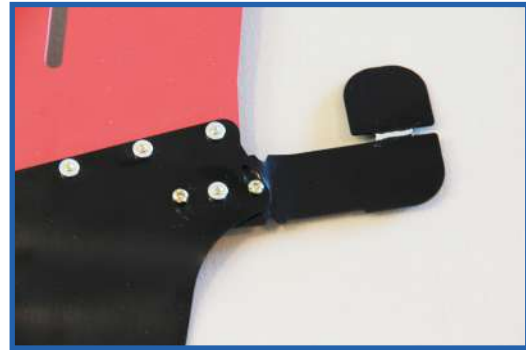


Figure 12

Step 2: Setting Palmar Adduction/Abduction Angle

In order to adjust for palmar adduction/abduction (opposition), the malleable thumb component will require bending.

Place the thumb component of the *SaeboStretch* over the edge of a table and gently push down (*see Figures 13-14*). **Be careful not to position the thumb into too much palmar abduction (opposition)**. The ideal position puts the web space between the thumb and index finger on stretch.



Figure 13: Position for bending thumb component



Figure 14: Thumb in palmar abduction

After the thumb component has been positioned, bend the thumb tab so that it is perpendicular to the thumb support (**90 degree angle**). The thumb tab will act as a stop, reducing any unnecessary migration (*see Figures 15-16*).



Figure 15: Bending thumb tab into position



Figure 16: Optimal thumb tab position

Strap Location and Placement

The **SaeboStretch** straps are sewn to the cover to assist with ease of donning and to ensure correct placement (*see Figure 17*).

- Two forearm straps secure the forearm to the splint. One strap wraps over the forearm just proximal to the wrist while the other wraps around the forearm at the proximal end of the splint.
- One thumb strap secures the proximal phalanx of the thumb to the thumb mount.
- The **SaeboStretch** logo strap secures the hand just proximal to the MCP joints.
- Two finger straps (proximal and distal) stabilize the fingers to the hand plate. The proximal strap secures digits 2-4 and is positioned proximal to the PIP joint. The distal finger strap secures the same digits but is applied just distal to the PIP joint.
- The fifth digit strap secures the fifth digit to the hand plate.



Figure 17: Straps

Important: Do NOT cut the straps. The straps are made from an elastic woven material. Trimming the straps may lead to unraveling.

Energy Storing Hand Plates

There are three different color-coded hand plates that offer various grades of resistance (*see Figure 18*). The *SaeboStretch* is designed to allow the fingers to move through flexion caused by increased tone and then utilizes stretch technology that gradually repositions the fingers into extension. The goal of the dynamic hand plates is to reduce the pressure generated at the IP joints during periods of increased tone/spasticity.

- Yellow = minimal resistance
- Red = moderate resistance
- Blue = maximum resistance



Figure 18: Forearm Section and Three Hand Pieces

When to Change Hand Plates:

- The *SaeboStretch* will be shipped with the red hand plate. After fitting the splint, have your client move, transfer, or ambulate while wearing the *SaeboStretch* to facilitate increased tone or an associated reaction. Reassess the position of the fingers.
- If there is no evidence of finger deviation or flexion of the fingers (fingers pulling up) following the exertive activity, continue to use the red hand plate.
- However, if any of the following occur, change to a yellow hand plate:
 - PIP joints pull out of the strap (i.e., flexion) and DIP joints hyperextend.
 - PIP joints volarly sublux/hyperextend and DIP joints flex
 - Fingers deviate.
- If at any time the above occurs, change to the hand plate that offers less resistance. It is important that the fingers are allowed to move through flexion to protect the IP joints.
- As the client's tone in the long finger flexors improves, consider switching to a more resistive hand plate.

Note 1: Sometimes, switching to the less resistive hand plate does not correct the fingers from flexing or deviating. If this occurs, consider decreasing the wrist angle. This will decrease the amount of tension on the long finger flexors and correct the problem.

Note 2: If the client's wrist angle is positioned above neutral and his/her fingers exhibit flexing or deviation, consider bending the wrist angle toward neutral first before attempting to change hand plates. Conversely, if the client's wrist angle is positioned below neutral and his/her fingers exhibit flexing or deviation, it is recommended to switch hand plates versus bending wrist angle into further flexion.

How to Change Hand Plates

1. Unzip the cover and remove.
2. Loosen the screws (do not remove) using the screwdriver provided (**see Figure 19**).
3. Remove the current hand plate and replace it with the desired hand plate.
4. Re-tighten the screws.

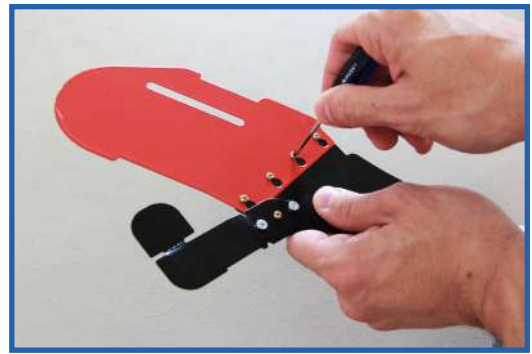


Figure 19: Using the Screwdriver to Change the Hand Piece

Wearing Schedule

It is important to gradually increase the wearing time. When increasing the wearing time, the client should wear the splint during his/her waking hours. Once the client is able to tolerate the splint for 6 to 8 hours with no adverse reactions, then he/she can begin to wear the splint at night. It is important that the wearing schedule be developed and monitored by a healthcare professional.

Trouble Shooting Tips

IP Joint Flexion

If the IP joint for the thumb or fingers remain in a flexed position, contact Saebo and request a digit cap for the specified thumb/finger. The client can wear the digit cap while in the **SaeboStretch**. You will need to gradually increase the wearing time of the digit cap and pad the inside roof when using it for this application (**see Figure 20-21**).



Figure 20



Figure 21

PIP Joint Hyperextension

If the PIP joint(s) for the fingers exhibit hyperextension while wearing the **SaeboStretch** (**see Figure 22**), consider applying padding under the cover directly in line with the PIP joints (**see Figure 23**). This will assist with prepositioning the joint in flexion.



Figure 22



Figure 23

Note: Figure 23 shows the padding on top of the liner for illustrative purposes only.

Care and Cleaning

The *SaeboStretch* cover should be cleaned periodically. In order to clean the *SaeboStretch*, remove the cover.

Once the cover is removed, remove the palmar pad from the cover (*see Figure 24*). Clean both the cover and the palmar pad with **lukewarm water and mild detergent**. Allow to air dry.

To maintain your *SaeboStretch* cover in good condition, wash and dry the affected hand thoroughly before every use.



Figure 24

Reapplying the *SaeboStretch* Cover

When reapplying the *SaeboStretch* cover, start at the top of the splint by inserting the hand plate portion into the cover (*see Figure 25*). Then, wrap the cover around the thumb component and forearm (*see Figure 26*). Once the cover is replaced, zip the liner to secure in position.



Figure 25



Figure 26

Customer: If you experience discomfort or have any concerns about the wearing of the SaeboStretch, please contact the healthcare professional that issued it to you.

Clinician: If you experience any difficulty fitting or adjusting this splint, please contact Saebo Inc. at 1-888-284-5433 for technical assistance.

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