

# SaeboGlove



INSTRUCTION MANUAL



# Introduction

Saebo is pleased to provide you with the latest innovation for hand rehabilitation. The *SaeboGlove* is a low profile functional device that assists neurological and orthopedic clients with finger and thumb extension. The *SaeboGlove* positions the wrist and fingers into extension in preparation for functional activities. The client grasps an object by voluntarily flexing his or her fingers. The extension system connected to the glove assists with re-opening the hand to release the object.

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# Features

- Lightweight, low profile spiral forearm design that secures the wrist in a functional position.
- Finger and thumb extension system made up of IP (interphalangeal) Tensioners provided for each digit and joint.
- Tensioners come in various sizes to accommodate all finger and thumb lengths.
- Comfortable non-slip forearm liner to minimize distal migration.
- Strapping system strategically located to ensure intimate contact with the palm and forearm.
- Non-slip gel located at fingers and thumb for maximum grip during prehensile tasks.
- Includes Lycra material for expandability.
- Palm exposed to increase breathability and ease of donning.
- Glove Liner removable for cleaning.

# Indications For Use

- Neurological conditions including but not limited to stroke, brain injury, spinal cord injury, MS, GBS, ALS and muscular dystrophy.
- Brachial plexus injury
- Radial nerve injury
- Individuals exhibiting wrist drop and/or lacking finger extension

**Note:** The *SaeboGlove* is a low profile splint made from soft fabric, rubber tensioners, and semi-rigid parts. The *SaeboGlove* material does not accommodate neurological clients that exhibit increased tone/spasticity. These clients would be more appropriate for the *SaeboFlex/SaeboReach*.

# Contraindications

- Not for use with clients exhibiting increased tone/spasticity.
- Not for use with severe contractures or joint deformities in the fingers.
- Not for use over open wounds and infected areas.
- Not for use with severe edema.

# Precautions

1. All activities using the *SaeboGlove* should be performed pain-free. If you experience any pain while using the *SaeboGlove*, stop immediately and contact a health care professional before resuming.
2. Do not give the *SaeboGlove* to unsupervised children.
3. If unusual swelling, skin discoloration, skin breakdown, discomfort, or numbness occurs, remove immediately and contact a health care professional before resuming.
4. The *SaeboGlove* should fit snugly and comfortably without interfering with circulation.
5. After removing the *SaeboGlove*, check for strap marks on the skin. If marks are present and they do not dissipate within thirty minutes, discontinue wearing the glove until you consult with a health care professional.

# Parts Included



# Fitting Procedure

## Place Fingers and Thumb into Glove

Position the wrist into flexion while keeping the fingers straight. See Figure 1. Slide each finger into the appropriate sleeve followed by the thumb. See Figure 2. **To maximize performance and fit, there should not be excess material at the tip of the finger and thumb.** If excess material is observed, consider a smaller glove liner.



Fig. 1



Fig. 2

## Apply Wrist Support

Once the fingers and thumb are positioned correctly into the glove, apply the Wrist Splint around the forearm and position as proximal as possible by pulling the Wrist Splint up the arm. See Figure 3. Be sure to keep the head of the ulna free from contact of the Wrist Splint.

**Note:** like all wearable splints, distal migration may occur. The key is to minimize the migration. Be sure to position the Wrist Splint as proximal as possible.

## Apply Forearm Strap

With the Wrist Splint positioned as proximal as possible, attach the Forearm Strap to the Forearm Post. See Figure 4. To minimize distal migration, be sure that the strap is not loose.



Fig. 3



Fig. 4

## Adjust Forearm Strap Length

To adjust the length of the Forearm Strap, separate the hook portion of the strap from the loop and readjust accordingly. See Figure 5.



Fig. 5

## Apply Hand Strap

Once the Forearm Strap is applied correctly, attach the Hand Strap to the Hand Post. See Figure 6. Be sure that the strap is not loose.



Fig. 6

## Adjust Hand Strap Length

To adjust the length of the Hand Strap, separate the hook portion of the Strap from the loop and readjust accordingly. See Figure 7.



Fig. 7

## Attach Tensioners

The purpose of the Tensioners are to assist the finger (DIP, PIP, MCP) and thumb joints (IP, MCP) with digit extension. The extension system is made up of 5 various sized Tensioners. See Figure 8. The variety of sizes allow for maximum adjustability and fit based on the digit length.

**Note:** “A” Tensioner = Smallest;  
“E” Tensioner = Largest.



Fig. 8

Below is a helpful guide when determining which Tensioner to use for various hand sizes. See Figure 9. The fitter will be required to use his or her clinical judgment when selecting the appropriate sized Tensioners.

**Refer to the back side of the Tensioner case included in the box for specific recommended sizing.**

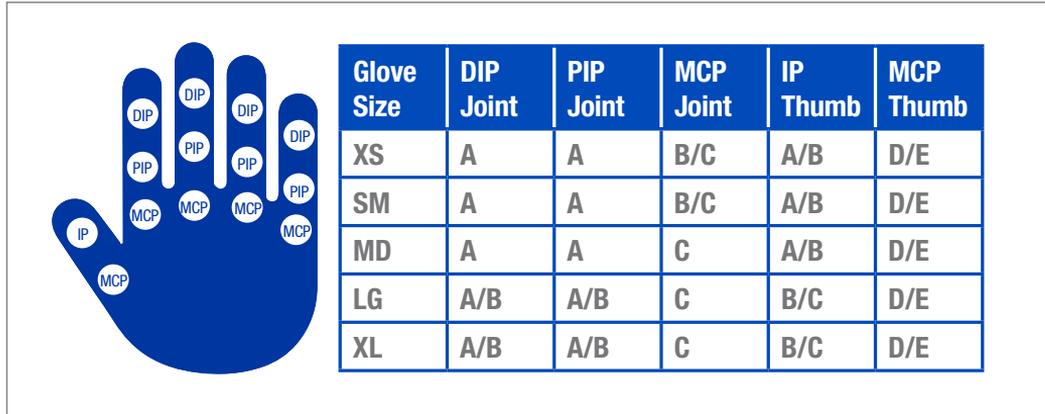


Fig. 9

## How to Connect a Tensioner

When connecting the Tensioners to the Finger Hooks, be sure to apply extra tension. See Figure 10. Make sure it locks securely into the groove of the hook. See Figure 11.

**Note 1:** A proper fitting Tensioner should not exhibit any slack when connected. Consider the next smallest size if this is observed.

**Note 2:** Not all IP Joints may require a Tensioner.



Fig. 10



Fig. 11

Once the *Saeboglove* is positioned on the forearm and located as proximal as possible, apply the appropriate size Tensioners to the fingers starting with the index finger MCP joint. See Figure 12. After the MCP joint of the index finger is positioned in sufficient extension, proceed to the PIP and DIP joints (if needed) of the index finger respectively. See Figure 13. Continue the same process for the remaining fingers (middle, ring, 5th digit). See Figure 14. Finally, apply the appropriate size Tensioner for the Thumb MCP and IP Joint. See Figure 15.



Fig. 12



Fig. 13



Fig. 14



Fig. 15

## Thumb Fitting Tips

Because the thumb allows for multi-planar motion, various strategies may be required in order to position it correctly. Although, most clients will only require 1 Tensioner to be attached to the Thumb Attachment Site, consider the following if needed:



Fig. 16 Apply 1 Tensioner around both Thumb Attachment Sites



Fig. 17 Apply 1 Tensioner each around both Thumb Attachment Sites



Fig. 18 Apply 2 Tensioners around the same Thumb Attachment Site

# Troubleshooting

## 1. Finger Deviation

If a finger is deviating in a radial or ulnar direction, consider attaching the MCP Tensioner to the adjacent attachment site opposite the direction of the deviation. For example, if the index finger is deviating in a radial direction, instead of attaching the Tensioner to the Hand Attachment Site designed for the index finger, attach the Tensioner to the Hand Attachment Site designed for the middle finger. This attachment may correct the deviation radially by pulling the finger in a more ulnar direction.

**Note:** If the finger that is deviating requires more extension assistance at the MCP joint, consider applying 2 MCP Tensioners instead of one. Each Finger Hook was designed to house 2 Tensioners if more assistance is needed. The 2 Tensioners can either share the same Hand Attachment Site or be positioned separately. Using the finger deviation example above, both Tensioners can be attached to the Hand Attachment Site designed for the middle finger or one Tensioner could be attached to the Hand Attachment Site designed for the middle finger and the second Tensioner could be attached to the Hand Attachment Site designed for the index finger.

## 2. Finger(s) Remain Slightly Flexed and Need Additional Extension Assistance

As mentioned in the previous note, 2 Tensioners can be applied to the same hook if more extension is needed. Although a majority of appropriate glove candidates will only require 1 Tensioner per Finger or Thumb Joint, all Finger Hooks (DIP, PIP, MCP) and Thumb Hooks (IP & MCP) are designed to receive up to 2 Tensioners if desired.

Another option for obtaining additional extension is by incorporating triggered electrical stimulation (NMES/FES) to the finger extensors while using the *SaeboGlove*. See Figure 19. For example, when the client attempts to grasp an object, turn the stimulation on to extend the fingers. Once the object is grasped, turn off the stimulation. Then, when the client attempts to release the object, trigger the stimulation once again to facilitate additional extension. Perform this repeatedly until the client can achieve sufficient extension without the stimulation.



Fig. 19

**Note:** The ideal NMES/FES unit when using the glove is a portable 2 channel unit with a trigger button. Please contact Saebo to learn more about our affordable home units for patients.

### 3. Distal Migration

Shifting or migration may occur from time to time. Assuming that the client is provided a properly sized device, consider the below to help with distal migration.

- Reposition the Wrist Splint as proximal as possible and tighten the Forearm and Hand Straps. It is important that the straps are not too loose. As a reminder, the liner consists of a non-slip silicone gel. If the straps are loose, then the gel liner will not be as effective.
- Apply shelf liner or Dycem (as an extra layer of non-slip material) around the forearm before donning the *Saeboglove*.

## 4. Unable to Actively Flex Digits (Weak Grasp)

If the client exhibits minimal to no active finger flexion, consider combining electrical stimulation (NMES/FES) while using the *SaeboGlove*. For example, with respect to grasping, flaccid clients may lack active movement in the extrinsic and intrinsic muscles. Therefore, consider the following:

- Apply 1 channel of electrical stimulation to the long finger flexors.
- Apply 1 channel of stimulation to the thenar/hypothenar muscle groups.



Fig. 20



Fig. 21

With both channels being stimulated, the client will be able to perform sufficient grasping to complete the task. When the stimulation is off, the Tensioners will re-extend the fingers and thumb back to the neutral position so the next grasping attempt can occur. If the client demonstrates some active finger flexion but it is extremely weak, consider removing one or more of the Tensioners at the respective joints to make it easier for the client to grasp/flex fingers.

# Removing the *SaeboGlove*



Fig. 22 Detach DIP Tensioner



Fig. 23. Detach MCP Tensioner



Fig. 24 Detach Thumb MCP & IP Tensioner



Fig. 25 Detach Forearm & Hand Straps



Fig. 26 Remove the *SaeboGlove*

**Note 1:** By detaching the DIP & MCP Tensioners, the *SaeboGlove* can be reapplied with greater ease.

**Note 2:** You do not need to completely remove the Tensioner from both sides.

## Re-applying the *SaeboGlove*



Fig. 27 Position the *SaeboGlove* in front of the affected hand



Fig. 28 Slide fingers and thumb into the appropriate sleeves



Fig. 29. Apply the wrist splint up the forearm as high as possible



Fig. 30 Attach forearm & hand straps



Fig. 31 Reattach MCP Tensioner for all fingers



Fig. 32 Reattach DIP Tensioner for all fingers

# Re-applying the *SaeboGlove* (cont'd)



Fig. 33 Attach Thumb MCP Tensioner



Fig. 34 Attach Thumb IP Tensioner

## Care and Cleaning

The *SaeboGlove* liner should be cleaned periodically. In order to clean the *SaeboGlove*, remove the liner and wash with lukewarm water and a mild detergent. After washing, rinse the liner thoroughly with cool water, wring out, and allow it to air dry. If the liner is lightly soiled, disinfectant solution can be lightly sprayed directly on the liner and wiped clean with a cloth.

## Warning

The *SaeboGlove* was manufactured to meet Saebo's superior standards. However, regardless of how carefully you use, or how well you care for your glove, it will eventually begin to show age and wear. Saebo's warranty covers manufacture defects for 1 year, but it does not cover damage caused by accident, improper care, negligence, normal wear and tear, or natural breakdown of colors and materials over extended time and use. To extend the life of your *SaeboGlove*, do not grasp objects that may rip, tear, or damage the Glove Liner.









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