



**Neuro Café:  
Upper limb splints & orthotics  
13<sup>th</sup> April 2022**

# Splinting

- an intervention used in the prevention and correction of contracture in adults with a neurological condition (Coppard and Lohman 2008, Edwards and Charlton 2002).
- Splinting is defined as the ‘application of external devices designed to apply, distribute or remove forces to or from the body in a controlled manner, to perform one or both functions of control of body motion and alteration or prevention in the shape of the body tissue
- The rationale underpinning splinting is to provide a prolonged stretch to maintain or promote change in a body structure

## Why do some people require upper limb supports or splints ?

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- Improve alignment
- Prevent shortening of muscles/ tendons becoming tight
- Decrease lengthening -increasing weakness
- Reduce long term deformity
- Decrease pain
- Enhance function
- Reduce contracture
- Give prolonged stretch



# Shoulder subluxation

- Shoulder blade lower post stroke secondary to weakness muscles around shoulder blade muscles
- Tightness in front muscles of chest also further contribute to altered position of shoulder blade
- Without a normal tone, the rotator cuff muscles can no longer maintain the integrity of the shoulder joint – so head of main arm bone – humerus - drops – subluxe
- Little evidence for shoulder supports but for some patients they can make a big difference in terms of reducing pain, improving alignment and importantly improving others handling of subluxe shoulder as brace brings attention to there is an issue in arm





Range of  
Elbow splints



# Resting splints wrist & hand

- Improve alignment of wrist
- Aim not to allow muscles to shorten if wrist always dropped
- Support joints of fingers
- Can be customised / made individually from thermoplastic material and straps added
- Simple fuetura splints can aid wrist alignment and aid stability



# Thumb spica

- When thumbs are weak or tight they can get stuck into palm
- Thumb spica splints can help with positioning of thumb
- Can reduce pain
- Can help with function
- Can aid stretching





Mallet Finger



Trigger Finger

How to wear



Swan Neck

the Original  
**Oval-8**<sup>®</sup>  
Finger Splints



Boutonniere



Fractures



Trigger Thumb



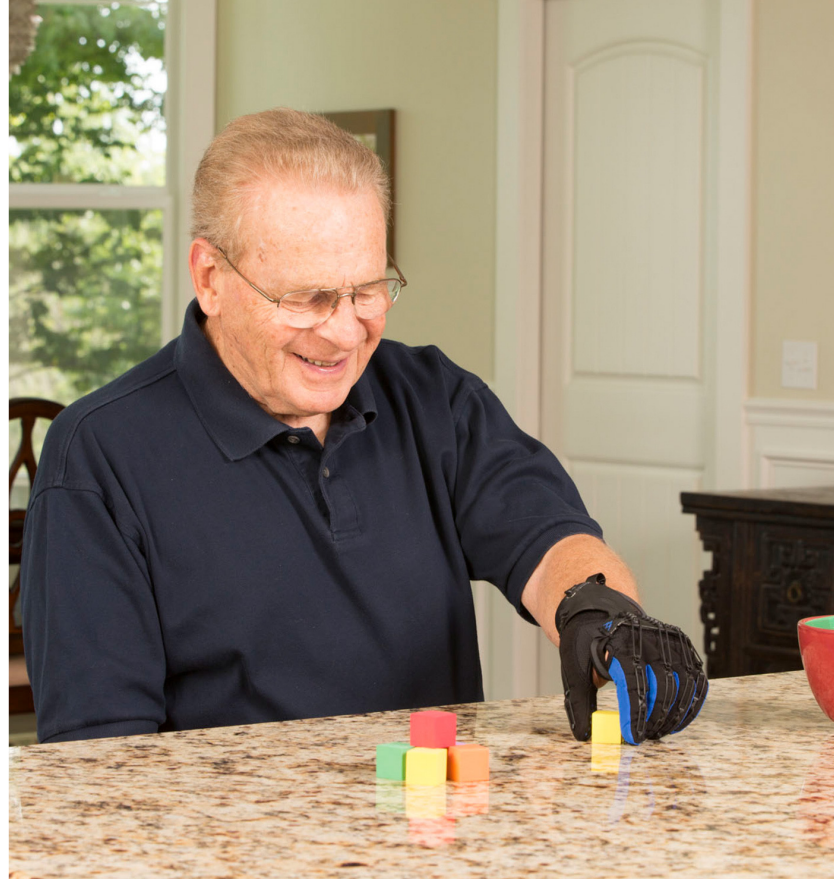
Crooked Finger

## Oval 8 finger splints



### STABILIZE + PROTECT

This highly effective finger splint supports and protects your fingers to help heal injuries and correct problems.



Saebo Glove

A pair of brown leather work gloves is shown against a white background with blue and orange geometric shapes. One glove is positioned to hold a pair of blue-tinted sunglasses. The gloves have a textured surface and blue accents on the palms and fingers.

# **Here's How The SaeboGlove Works**

# Active hands



Excellent device for assisting to maintain grip to enhance function

<https://www.activehands.com>



Active hands  
in action





# READI STEADI<sup>®</sup>

ANTI-TREMOR ORTHOTIC GLOVE SYSTEM

- A fully customized, hand orthotic invented and developed by an occupational therapist for the management of mild to severe hand tremors.
- Weights in glove
- USA only at moment

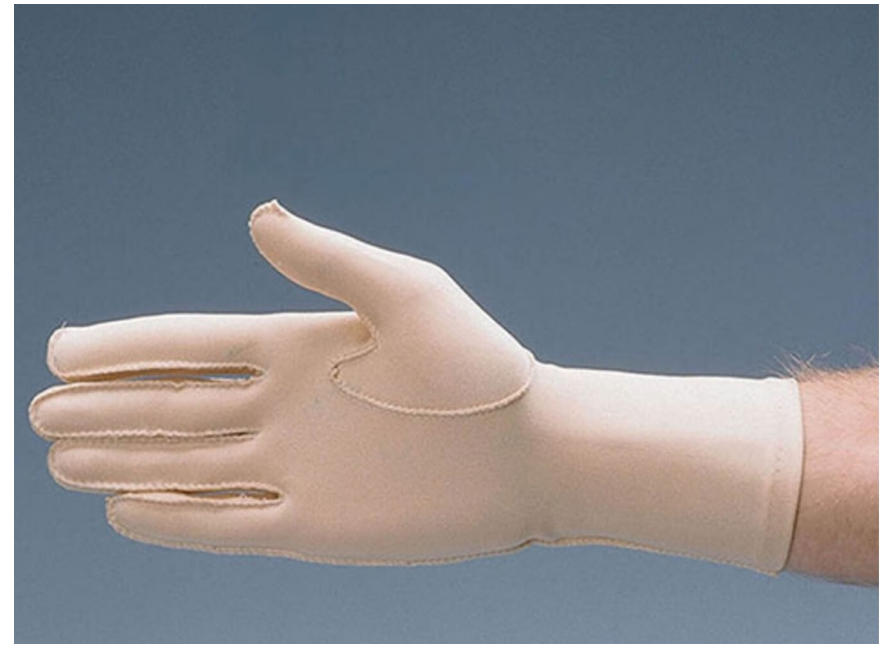


- The GyroGlove™ is a wearable technology currently in development to increase hand stability. Gyroscopes within the glove are used to counteract hand tremors to restore the confidence and ease of daily tasks.
- Research trials opportunities London



# Lycra gloves

- Indications for using a lycra glove:
  - Swelling/oedema
  - High or low muscle tone
  - Hand tremors
  - Hypermobility
  - Altered sensory feedback





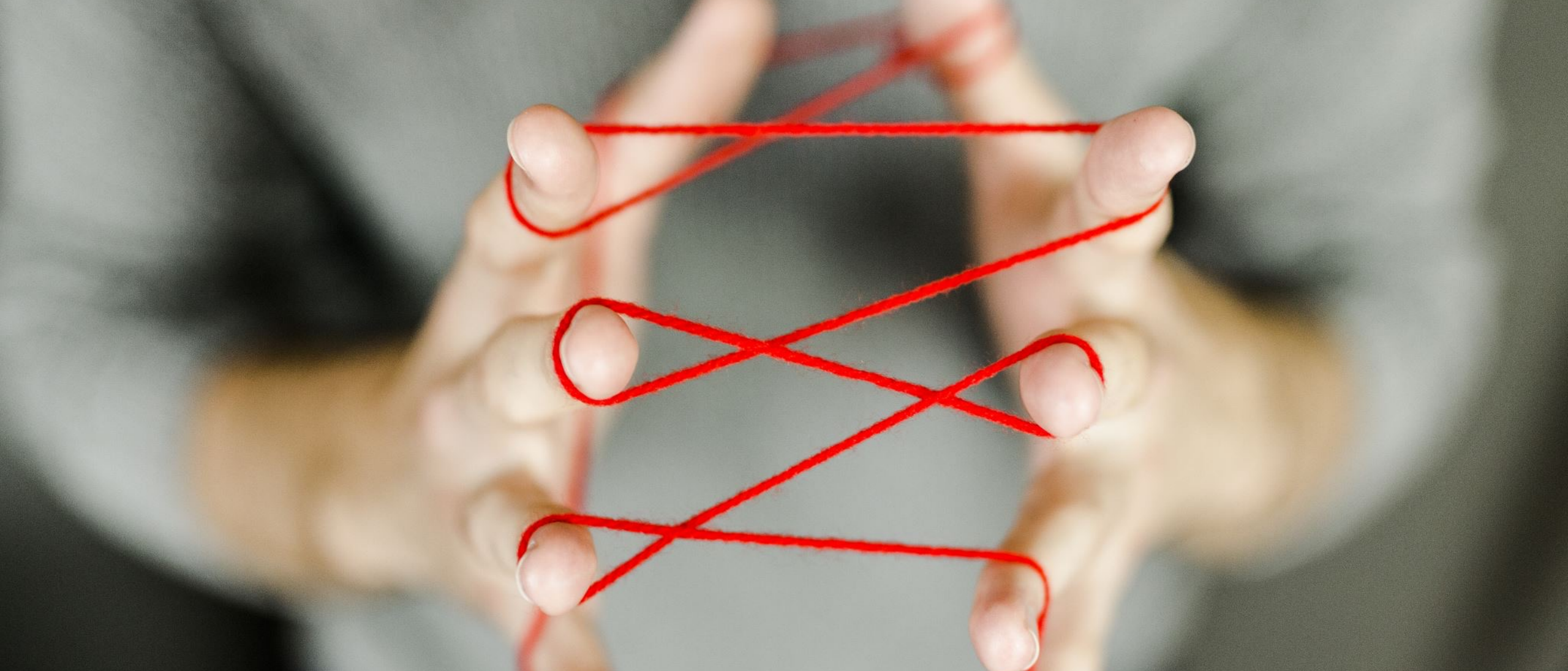
# Benefits of lycra gloves

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- Stabilise and control movement
- Reduce tremor
- Reduce pain
- Increase proprioception / awareness of where joints are in space
- Improved positioning of the hand, wrist and fingers
- Improved extension of the wrist and fingers
- Influence on muscle tone

# Factors to consider when splinting would *not* be advised

- If there is no identified benefit.
- If it causes pain or discomfort.
- If there is no clear plan for application, removal or monitoring of the splint.
- If other treatment strategies are working.
- If there is poor patient compliance.
- If there is a lack of follow-up.
- If the contracture has become established resulting in fixed joint deformity



What is your experience of splints/ orthotics for arm/ hand(s) ?