

# Care of the shoulder and upper limb

---

LEEANNE YEOMAN

PHYSIOTHERAPIST, BRAIN INJURY REHABILITATION SERVICE, BURWOOD  
HOSPITAL

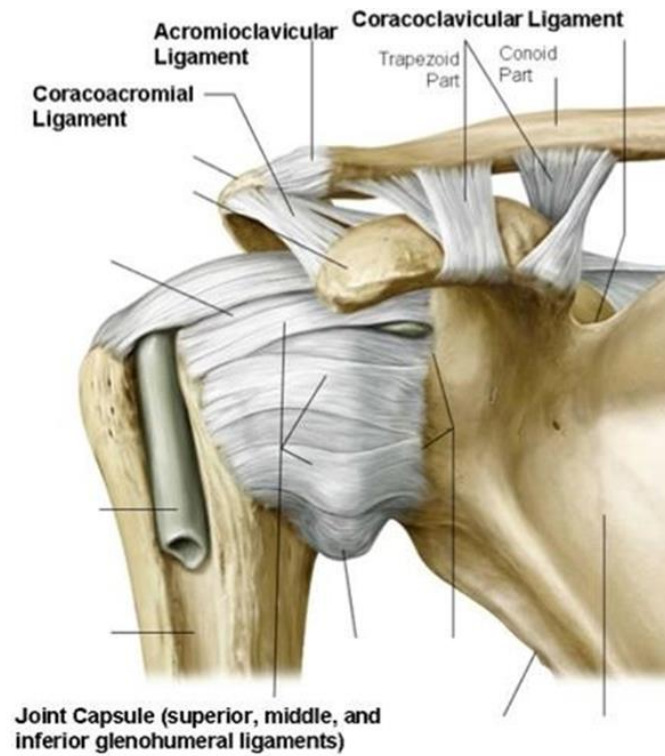
# Objectives

---

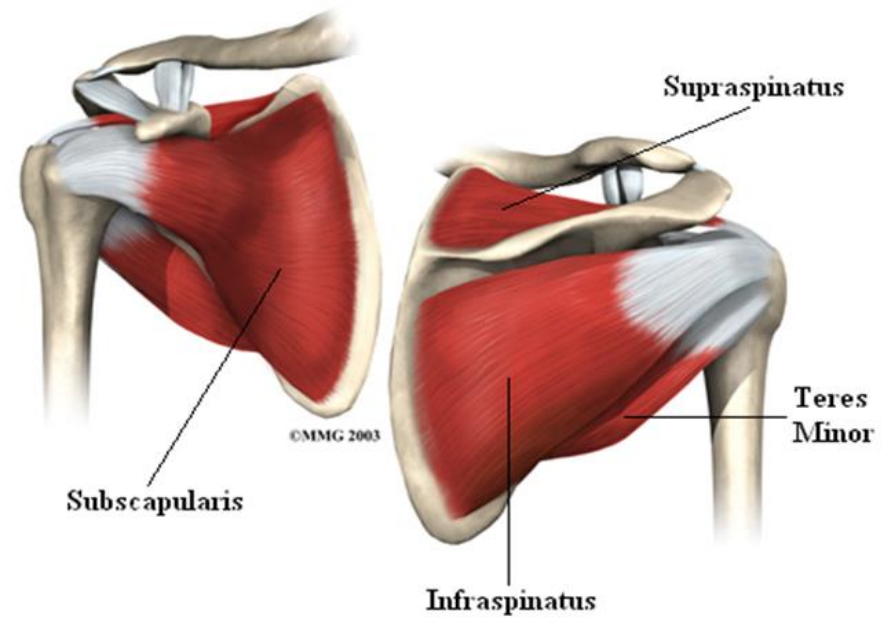
- ❑ Review shoulder function
- ❑ Hemiplegic shoulder pain
- ❑ Management strategies
- ❑ National Stroke Network Upper Limb project group
- ❑ Viatherapy app

# The Shoulder

## STATIC STABILISERS

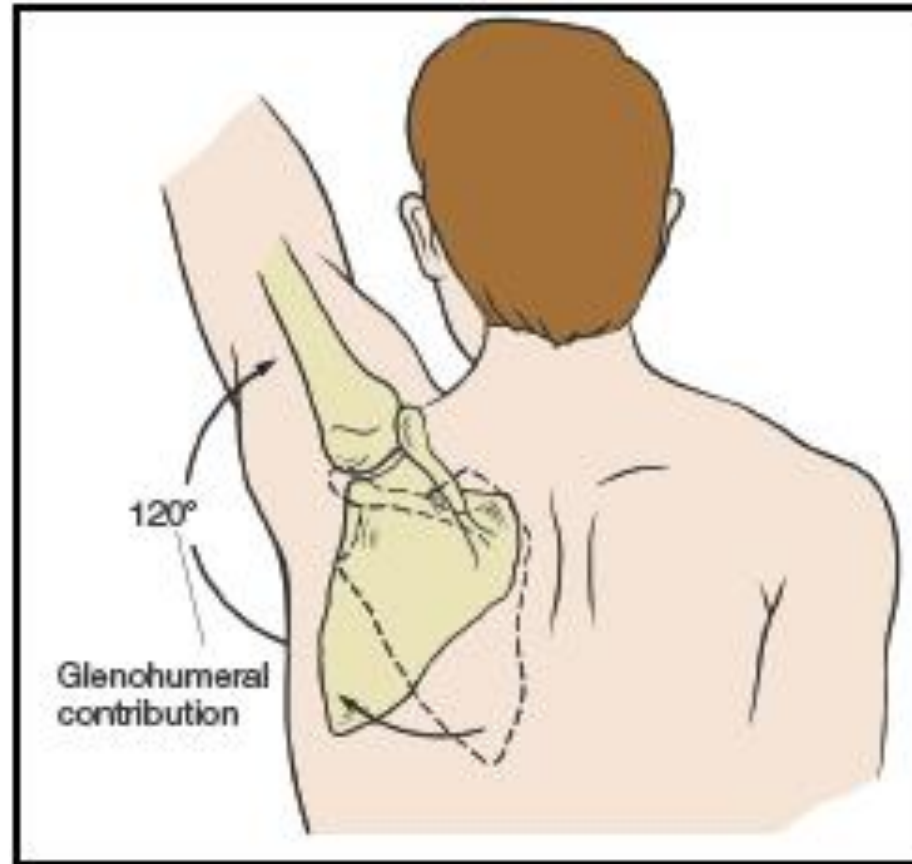


## DYNAMIC STABILISERS

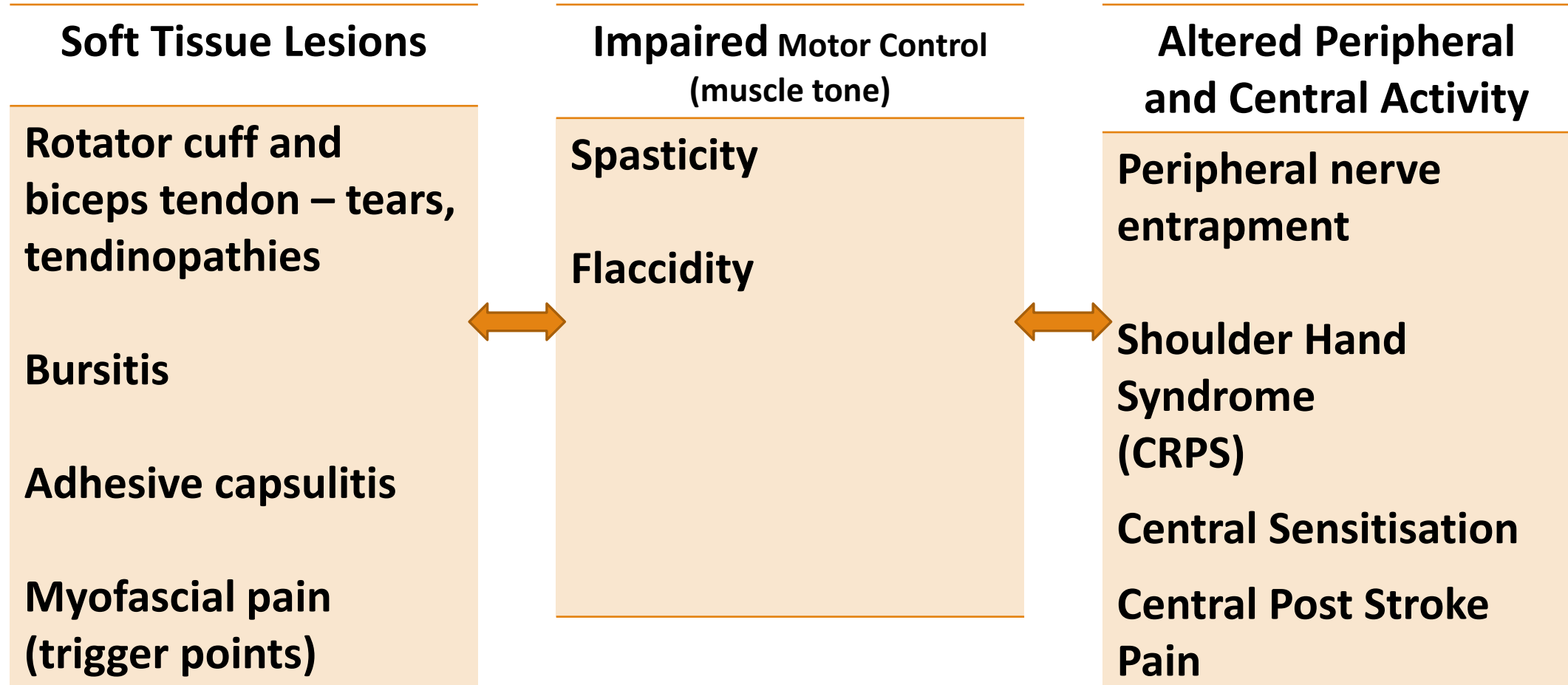


# Scapulohumeral Rhythm

---



# Hemiplegic Shoulder Pain (HSP)



# Factors contributing to HSP

---

- ❑ Older age
- ❑ Pre-existing shoulder pain/degeneration
- ❑ Left hemiplegia
- ❑ Neglect and sensory impairment
- ❑ Poor function
- ❑ Muscle imbalance
- ❑ ? Subluxation
  
- ❑ Iatrogenic – handling, exercises

# Management options

---

## Arm Supports

### Slings

Systematic review (Nadler & Pauls, 2016):

- Subluxation is reduced while orthosis in situ
- Orthoses with only proximal support are less effective
- May improve shoulder pain
- No increase in incidence of contracture, spasticity

### Trays



# Management options

---

## **Positioning:**

- Recommended towards abduction, external rotation, flexion (Bender & McKenna, 2001)
- Shoulder positioning programs do not prevent loss of ROM or improve pain
- Gentle stretching and joint stabilising therapies may improve arm function

## **Strapping:**

- Some evidence that strapping can delay the onset of shoulder pain when used as prophylaxis, however does not decrease it

## **Active therapies:**

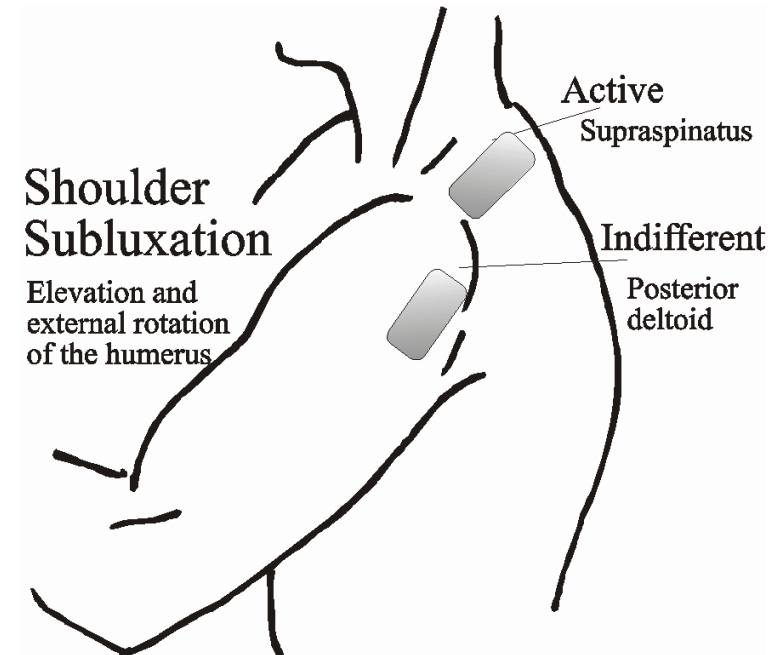
- Aggressive ROM exercises or overhead pulleys result in increased rates of pain



# Managing the hemiplegic shoulder

## Electrical Stimulation

- Supraspinatus and posterior deltoid
- 6 hours/day, 5 days/week, 6 weeks
- Meta-analysis (Gu & Ran, 2016)
  - May prevent/reduce subluxation if used early
  - No evidence for effectiveness for pain, strength, functional use or quality of life



# Management options

---

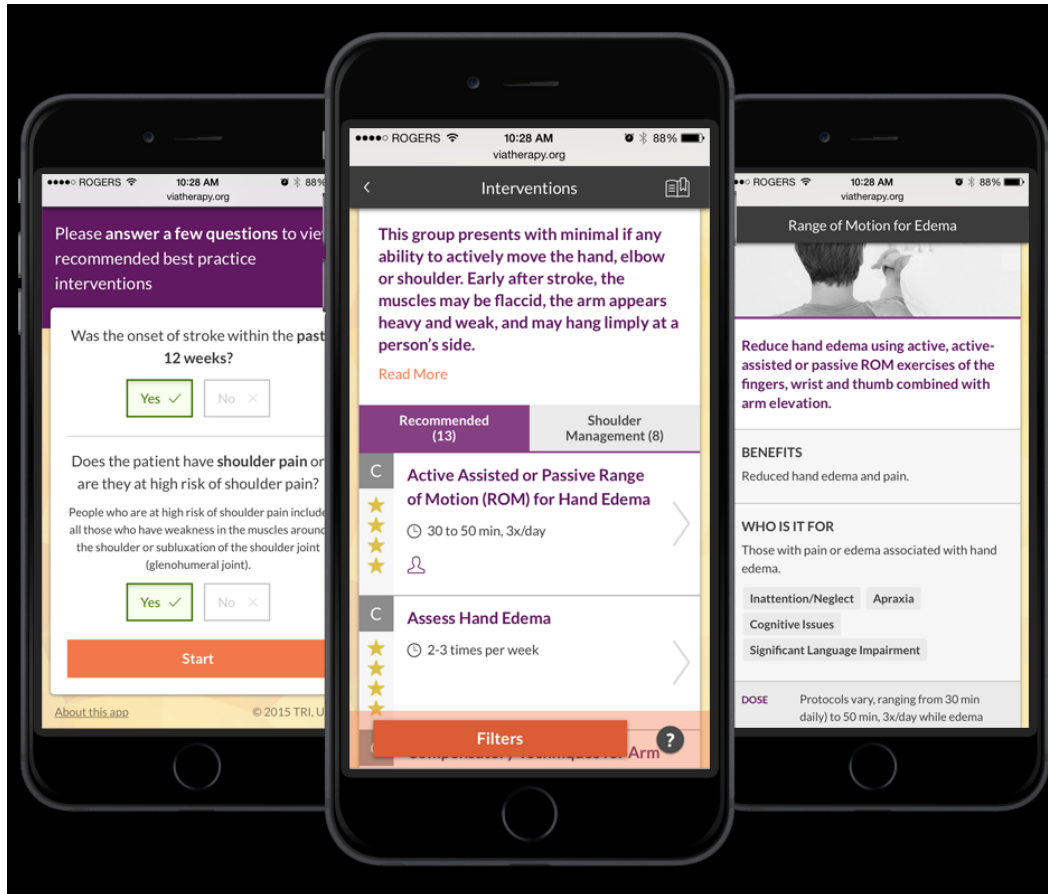
- Massage therapy
- Botulinum Toxin
- Mirror therapy
- Steroid Injections

# Upper Limb Project Group

---

- Nationally consistent evidence-based guidance
- Appropriate for use in a range of NZ settings
- Not writing new guidelines – to sit alongside Stroke Guidelines etc

# VIAttherapy App



- Recommends interventions for upper limb rehabilitation post-stroke
- Algorithmic approach using best-evidence
  - Was the onset of stroke within the last 12 weeks?
  - Does the person have shoulder pain or are they at risk?
  - Can they produce voluntary muscle activity in the affected limb?

# Upper Limb Project Group

---



- Competencies required
- Equipment needed
- Procedure – links, videos
- Inclusion/exclusion criteria
- Precautions
- Evidence
- Information for family/whanau

[strokenetwork.org.nz](http://strokenetwork.org.nz)

# The importance of education

---

## **Patients/Carers**

- Topics
  - Shoulder anatomy/function, causes of pain
  - Positioning
  - Supports – pros/cons, informed choices
  - Handling and exercises
  - Therapy options
- Importance of being provided with individualised information verbally and in writing (Hofsteinsdottir et al, 2011)

## **Health Professionals**

- Evidence based practice – NZ Stroke Guidelines, EBRSR.com, viatherapy app

## How to add VIAtherapy to your smartphone or tablet's home screen

### Apple iPhone, iPad or iPod touch

---

1. With the VIAtherapy web app open in Safari, find and tap the share icon at the bottom of your screen: iOS Share icon

If you don't see the icon, try swiping down to reveal the tool bar.

2. Tap Add to Home Screen and follow the on-screen instructions

3. Now you can open VIAtherapy using the icon added to your home screen:



### Google Android

1. With the VIAtherapy web app open in Chrome, find and tap the more icon at the top of your screen: Android More icon

If you don't see the icon, try swiping down to reveal the tool bar.

2. Tap Add to Home Screen and follow the on-screen instructions

3. Now you can open VIAtherapy using the icon added to your home screen:



leeanne.yeoman@cdhb.health.nz

# References

---

- Ada L. Foongchomcheay A & Canning CG (2009) Supportive devices for preventing and treating subluxation of the shoulder after stroke. *Cochrane Database of Systematic Reviews* Issue 1
- Cotoi A., Viana R., Wilson R., Chae J., Miller T., Foley N. & Teasell R (2016) Painful hemiplegic shoulder. *Evidence Based Review Stroke Rehabilitation EBRSR.com*
- Forster A., Brown L., House A., Knapp P., Wright J. & Young J (2012) Information provision for stroke patients and their carers. *Cochrane Database of Systematic Reviews* Issue 11
- Gu P & Ran J (2016) Electrical stimulation for hemiplegic shoulder function: A systematic review and meta-analysis of 15 randomised controlled trials. *Archives of Physical Medicine and Rehabilitation*. 97: 1588-94
- Hafsteinsdottir T., Vergunst M., Lindeman E. & Shuurmans M. (2011) *Patient Education and Counselling* 25 14-25
- Kalichman L. & ratmansky R. (2011) Underlying pathology and associated factors of hemiplegic shoulder pain. *Am J Phys Med Rehabil*. 90 (9)
- Murie-Fernandez M., Iragul M., Gnanakumar V., Meyer M., Foley N. & Teasell R. (2012) Painful hemiplegic shoulder in stroke patients: causes and management. *Neurologia* 27 (4) 234-244
- Nadler M. & Pauls M. (2016) Shoulder orthosis for the prevention and reduction of hemiplegic shoulder pain and subluxation: Systematic review. *Clinical Rehabilitation* 1-10