

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. The shapes are primarily triangles and polygons, creating a dynamic, layered effect. The text is centered in a clean, sans-serif font.

# The Role of the Occupational Therapist within the Scottish National Brachial Plexus Service

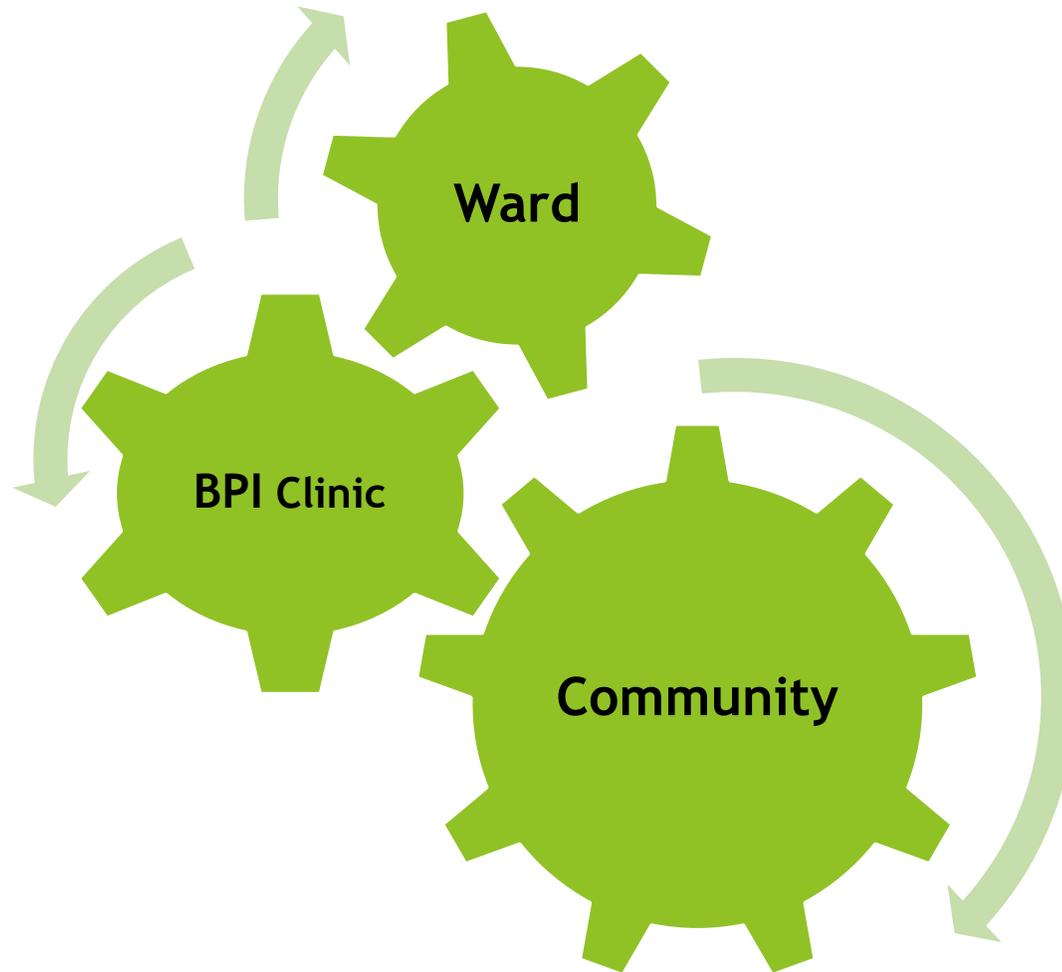
# Background

- ▶ Joined the BPI team in January 2022.
- ▶ 25 years experience in the area of Hand Therapy.
- ▶ Appreciation of the challenging nature of Brachial Plexus Injuries and the functional impact on patients.

# Core Principles of the Brachial Plexus Rehab Team

- ▶ Strengthening knowledge exchange and self-management in the community with the patient at the centre.
- ▶ Accessing support, care planning and care services in the community wherever it's appropriate
- ▶ Optimising e-Health and digital opportunities - use of relevant apps eg. Hand Therapy app/Physio tools app/self-referral services in the Community/resources online (aliss.org-Connecting you to your community-Health and Social Care Alliance Scotland).
- ▶ Reducing widespread variation in secondary care wherever clinically appropriate.

# Occupational Therapy in the patient journey



# Functional Outcome Measures: BrAT

- ▶ Patient reported outcome measure designed for people following traumatic BPI (Hill et al 2018).
- ▶ 31 items on a 4 point scale.
- ▶ Differentiates those patients who stated they could use their affected hand to perform activities and those who could not (this differs from DASH).
- ▶ It is essential to monitor recovery over multiple intervals of time with nerve injury.
- ▶ Testing of muscle strength/ROM- is useful but we want to capture if the patient is able to translate this into useful function of their limb.
- ▶ Evaluation of Functional Outcomes after Brachial Plexus Injury (Quick et al 2020).
- ▶ Outcomes after OT intervention for traumatic BPI (Cole et al 2020)

# What can Occupational Therapist offer:

Treatment with a holistic approach that will address:

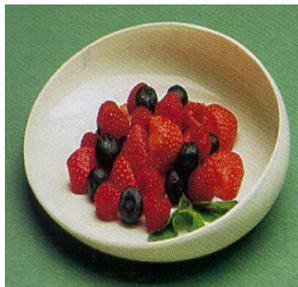
- Regaining Function
- Adapting to Functional Limitations
- Dealing with Cultural and Environmental Issues
- Adopting Appropriate Coping Skills

# Self-Care

Personal care tasks - eating, toileting, dressing.

Functional mobility such as walking/ability to negotiate stairs and bath transfers.

Community management such as grocery shopping, preparing meals, house management and driving.



# Productivity

- ▶ Paid/unpaid work
- ▶ The Role of a Care giver
- ▶ Household management eg: food preparation, general household activities.
- ▶ Education
- ▶ Transitional Work

# Leisure

- ▶ Hobbies/interests
- ▶ Socialising
- ▶ Entertainment
- ▶ Using community resources.



# Psychological / Psychosocial

## “Being a patient the rest of my life”

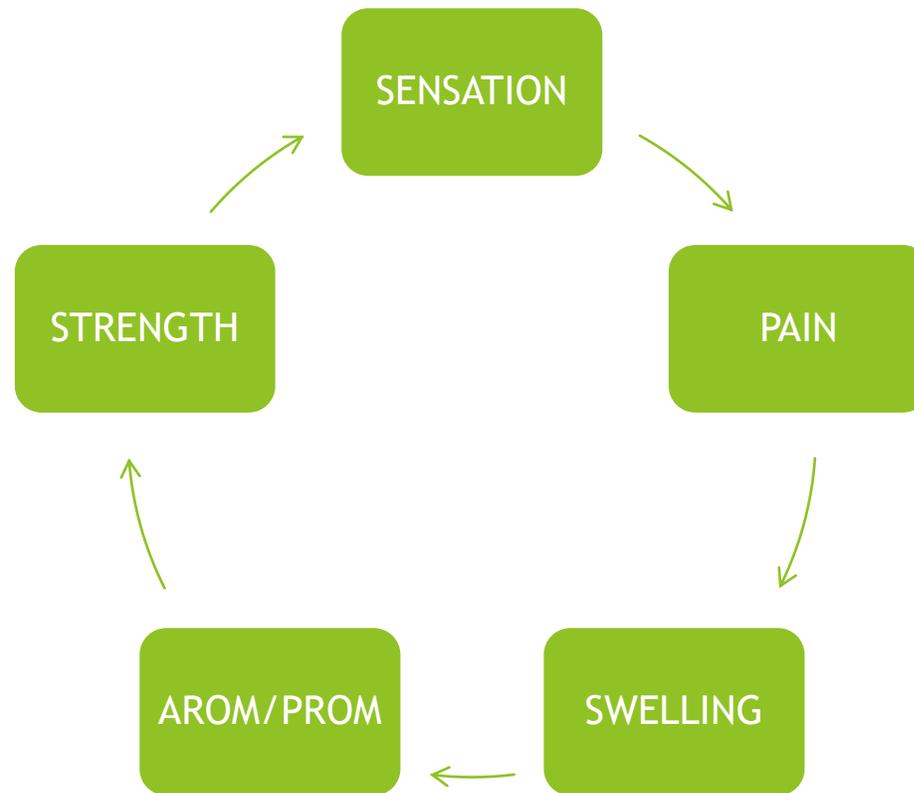
The Influence of Patient Participation during recovery after Brachial Plexus (Dy et al 2021)

- ▶ Study of 121 BPI patients looking at the emotional impact of injury on patients.
- ▶ Patients who felt engaged in decision-making were more likely to cope with adjustment to their new level of function
- ▶ Self-management skills were essential to coping (Dy et al 2021)
- ▶ Strong social circles and activities that give a sense of fulfilment led to improved psychological well-being

# The Hand In Function



# COMPONENTS OF HAND ASSESSMENT - SENSORIMOTOR



# Functional Difficulties Following Nerve Injury-Radial Nerve

- ▶ Loss of wrist/digit/thumb extension
- ▶ Awkward flexed posture of the wrist that does not allow a powerful grip. Restricts interosseous function.
- ▶ Difficulty grasping/releasing objects/clumsiness of the hand



# Ulnar nerve impairment-Functional problems

Innervates FCU/Abd dig min/Flex dig min/oppon dig min/ring finger lumb/small finger lumb/dorsal and palmar interosseous/add poll/deep head of flex poll brevis.

Loss of abduction/adduction of digits

Imbalance between the strong extrinsic muscles and weakened intrinsic muscles leading to claw deformity.

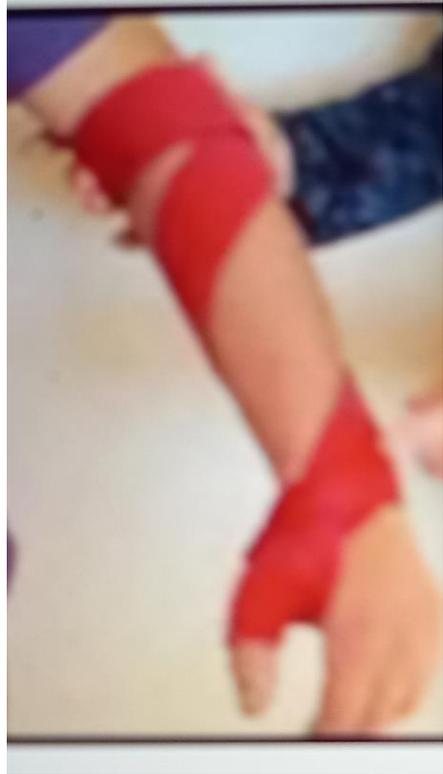
Potential problems-Extension contractures of MCP's and flexion contractures of PIP's can develop.

Loss of thumb adduction leads to difficulty holding with activities such as use of cutlery, pens, turning the page on a book, using a key.

Weakness of gross grip as ulnar digits are very important for grip strength.



# Functional Difficulties with Median nerve impairment

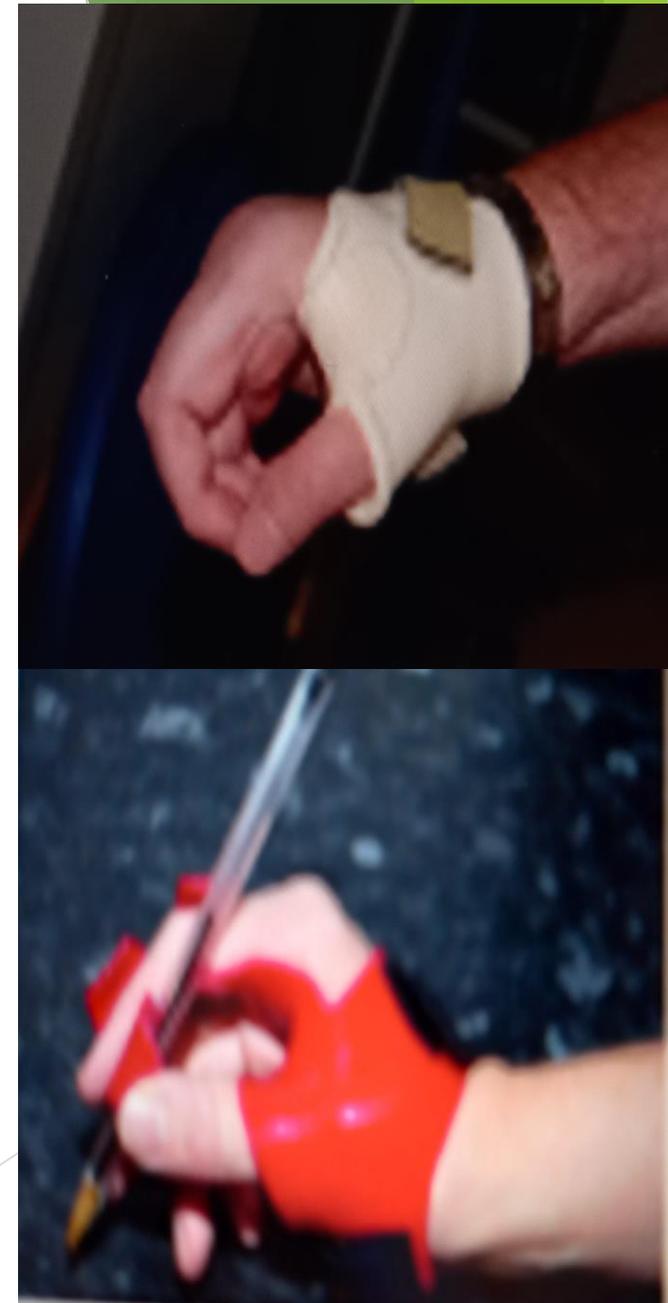


Difficulty flexing the wrist and pronating the forearm

Difficulty with thumb opposition

Difficulty flexing index/middle fingers.

Leads to problems with fine motor tasks eg buttons/zips, turning a key, operating a keyboard (if reduced pronation)

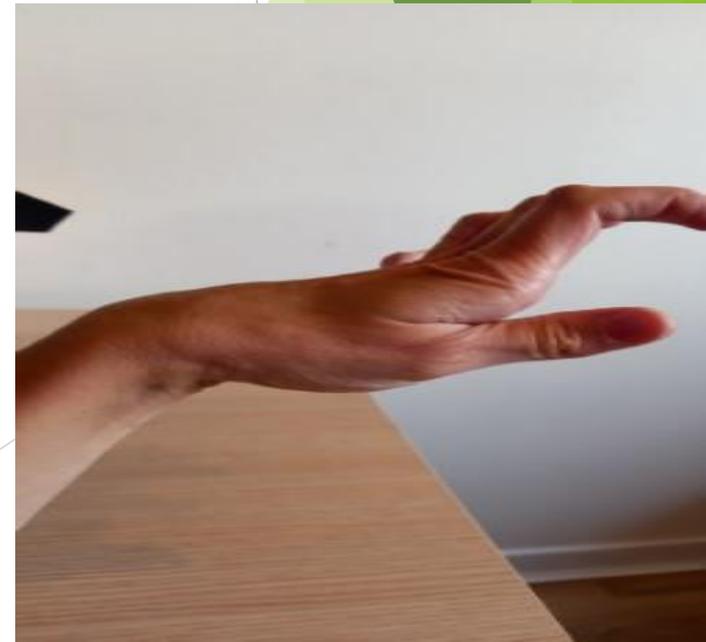


## Splinting for Mixed median and ulnar nerve impairment



## “To someone who has nothing a little is a lot” (Sterling Bunnell)

- As the nerves recover proximally to distally the digits can be the last area to recover
- Loss of PROM of the digits creeps in quickly
- No reanimation techniques can move a stiff joint
- Ext Contractures of the MCP joints
- Flexion contractures of the PIP joints
- Tightness of the thumb web space
- Loss of wrist pronation/supination



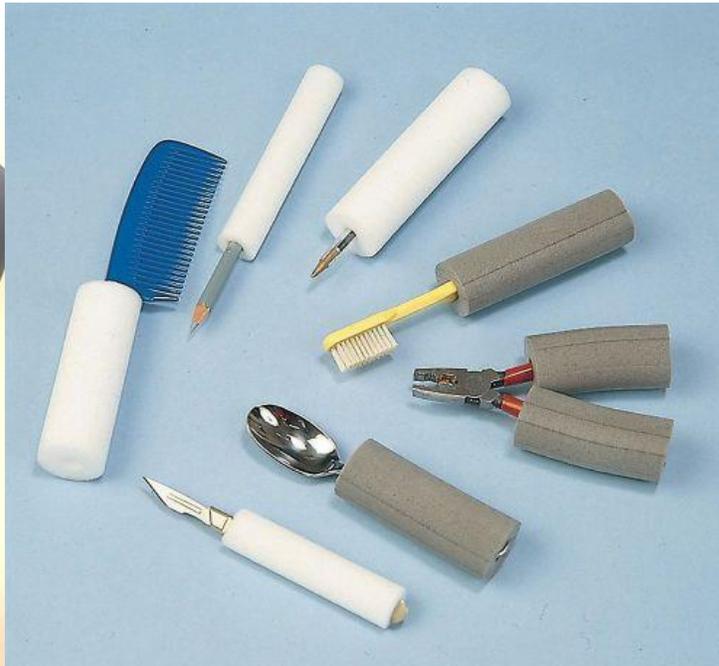
# How to prevent and treat a hand that has developed stiffness

- ▶ Treat swelling of the hand at an early stage
- ▶ Elevation
- ▶ Retrograde massage
- ▶ Compression garments
- ▶ Splint in POSI- remove splint regularly to maintain all movements
- ▶ Contact your local hand therapist or BPI clinic for advice



# How to prevent and treat a hand that has developed stiffness

- Encourage use of the hand in function
- Repetition/practice/use of adaptive devices to facilitate function/splints to facilitate movement
- Bilateral/assistive use of injured limb in activity



# How to prevent and treat a hand that has developed stiffness

- ▶ Reassure patients -Pain  $\neq$  harm
- ▶ Keep connected to the limb-sensory stimulation/desensitisation techniques if required as well as AROM/PROM
- ▶ Warm up first-bathe/massage prior to exercise
- ▶ Practice remedial exercise-cones/E-link/any activities that promote hand activity.
- ▶ Patient-centred (adapt hobbies-art/music/gardening)
- ▶ Flexion gloves



Thank you for listening

# References

Hill et al .**Psychometric Evaluation of the Brachial Assessment Tool Part 1:Reproduceability**, 2018 , Arch of Phys Med and Rehab.PMID:29122580

Hill et al. **Preliminary Psychometric Evaluation of the Brachial Assessment Tool Part 2:Construct Validity and Responsiveness**, Arch of Phy Med and Rehab 2018.PMID:29247625

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Dy et al. **A qualitative study of life satisfaction after surgery for adult traumatic brachial plexus injury**, Bone Jt Open, 2021 ,Jan 3:2 (!), 9-15.

Cole et al. **Outcomes after Occupational Therapy intervention for traumatic brachial plexus injury. A prospective longitudinal cohort.** Journal of Hand Therapy, 2020, Vol 33,issue 4,p528-539..

Quick et al. **Evaluation of Functional Outcomes after Brachial Plexus Injury**  
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