

# Improving functional outcomes following stroke using intensive somatosensory stimulation and retraining

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# Overview

- Background
- Brief description of the research
- What's exciting about the research
- How the impact was realised
- Tips on achieving impact

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# Background

- Stroke affects around 1 per 100,000 adults in the UK each year
- Around 60-70% of those will experience loss of somatosensation
- Skilled upper limb function and balance/independent walking requires intact somatosensation
- Therapy for retraining somatosensation tends to be neglected in favour of retraining motor function post-stroke
- Consequently, functional recovery post-stroke is sub-optimal, particularly in the upper limb, in the majority of stroke survivors

# Problem statement...

Somatosensation is fundamental to skilled use of the hand, and the ability to balance and walk; yet the retraining of somatosensation in routine stroke rehabilitation is frequently neglected post-stroke

Evidence is needed about the effectiveness of somatosensory retraining to improve function post-stroke

If retraining somatosensory function post-stroke improves outcomes for stroke survivors, then current delivery of stroke rehabilitation needs to change to include this as part of routine therapy



## Brief description of the research

- Co-design of therapy intervention to improve proprioception and touch sensation in the hand
  - Mobilization and Tactile Stimulation (MTS) (*Hunter et al., 2006*)
- Exploration of the effects of MTS in sub-acute stroke (*Hunter et al., 2008*)
- Investigation of optimal feasible dose of MTS (*Hunter et al., 2011*)
- Investigation of the effects of MTS in chronic stroke (*Winter et al., 2013*)
- Comparison with Functional Strength Training (FST)
  - FAST-INdiCATE trial (*Hunter et al., 2018*)
- Investigation of use of MTS applied to the foot
  - MoTaStim-Foot trial (*Aries et al., 2018*)



## What's exciting about the research

- Based on real clinical questions involving complex interventions used in current practice
  - real world research
- Potential to make a real change to practice and improve outcomes for stroke survivors
  - Evidence that intensive dose of MTS improves upper limb function after stroke (sub-acute and chronic)
  - Evidence that MTS is well-received by stroke survivors
  - Evidence that MTS 're-awakens' the limb post-stroke
  - Stroke survivors tell us that it has impact on function
- Should be easy to implement...

# Challenges to implementation

- Insufficient time in routine NHS stroke rehabilitation to deliver the evidence-based dose of MTS
- Somatosensory stimulation of the hand and foot is still neglected / omitted from stroke rehabilitation in some parts of the world
- Clinicians may be unaware of MTS and its evidence base (local, regional, national, international)
- Alternative ways of delivering MTS need to be considered in order to achieve the evidence-based intensive dose



# How the impact has been realised

- Pathways to impact
- Outcomes
- Impact
- Plans

# Pathways to impact

- Publication and dissemination of research findings
- Embedding MTS in the undergraduate physiotherapy curriculum
- Teaching MTS to qualified physiotherapists in the UK and New Zealand
- Teaching MTS to physiotherapy assistants, other health professionals, carers and family members
- Recruitment of stroke survivors to research trials
- International collaboration for further research

# Outcomes

- Publications and conference presentations to national and international audiences
- 400 Keele student physiotherapists, 15 local physiotherapists and occupational therapists, and 50 NZ physiotherapists taught how to deliver MTS and made aware of evidence base
- Video resources produced to support teaching of MTS
- Focus groups with stroke survivors, physiotherapists and trained carers to explore different ways of delivering MTS
- 367 stroke survivors recruited to MTS studies
- International (UK and Australasia) survey of practice being developed

# Impact on...

- Clinical practice:
  - Has our teaching of MTS changed therapists' knowledge /capacity / awareness / behavior / attitudes in terms using intensive MTS in routine practice?
  - Number of clinical settings / NHS Trusts that have implemented changes
- Stroke survivors:
  - How many stroke survivors have achieved better health and well-being outcomes as a result of receiving intensive MTS?
- Education, CPD and knowledge of health professionals
  - How many physiotherapists and PT students have been taught about MTS and how to deliver it; how many have changed practice/knowledge/attitudes/awareness as a result of the education

# Plans

- Survey of knowledge and use of MTS in clinical practice (UK & NZ)
  - Identify specific services that now implement MTS in practice
  - Outcomes of introducing MTS into practice:
    - Number of stroke survivors receiving MTS in those services
    - Reported improvements in function, and evaluation of benefit ie number / proportion of those receiving MTS reporting benefits to wellbeing and quality of life
- Evaluate effectiveness of training resources in UK and NZ
- Local implementation project with IAU
  - Community of Practice with local clinicians and commissioners and other stakeholders
  - Alternative community-based provision



“It has made a big difference to my life; I’ve got my hygiene as a human being back”

“I’m back in control of my own body”

“Life changing ; it changed my attitude and gave me more confidence”



**Keele**  
UNIVERSITY

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***But...what proportion of stroke survivors who have received MTS have the same views?***

# Tips on achieving impact

- Understand what impact really means
  - Impact from applied research is not about the researcher
- Plan impact at the start of any research
  - Identify a problem statement and the intended impact
  - Identify the intended beneficiaries
  - Identify the pathways to impact
  - Evaluate at key stages and keep / store the evidence
- Consider reach and significance
- Involve PPI groups and stakeholders in planning



# Acknowledgements

- Professor Krysia Dziedzic
- FMHS REF Impact Case Study Group
- Keele Impact Accelerator Unit
- Keele impact funding

Thank you for listening –  
feedback is welcomed!

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