

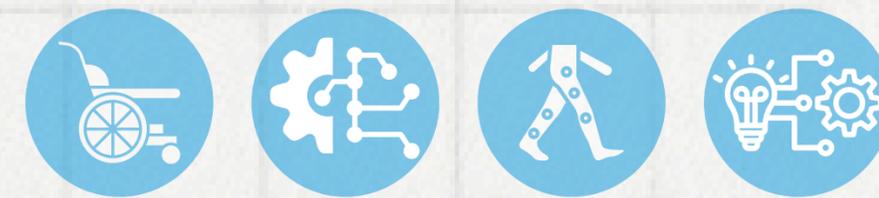
# Rehabilitation Engineering at the SMART Centre

**Beth Dias-Scoon**

Lead Clinical Scientist

SMPSETS Open Day 10/02/2025

# SMART Centre

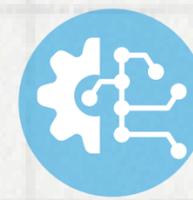


**S**outheast Scotland **M**obility  
**A**nd **R**ehabilitation **T**echnology

- WestMARC - Glasgow
- TORT Centre - Dundee
- MARS - Aberdeen
- Clinical Technology Service - Inverness



# Healthcare Scientists



Physical Sciences

Life Sciences

Clinical Physiology

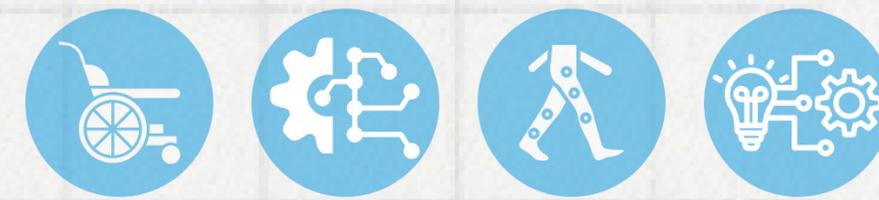
Bioinformatics

Medical Physics and Clinical Engineering

Rehabilitation Engineering

- Consultant Clinical Scientist
- Clinical Scientist
- Healthcare Science Practitioner
- Clinical Technologist

# SMART Services

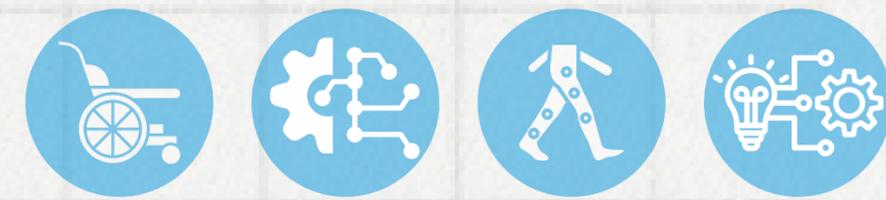


## ASSISTIVE TECHNOLOGY

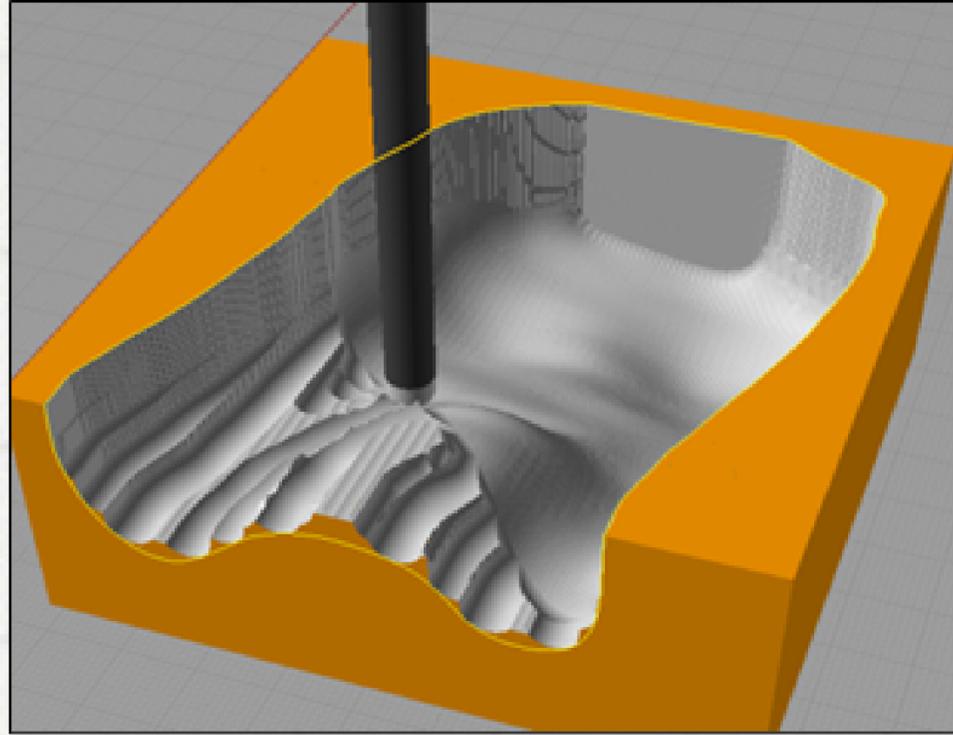
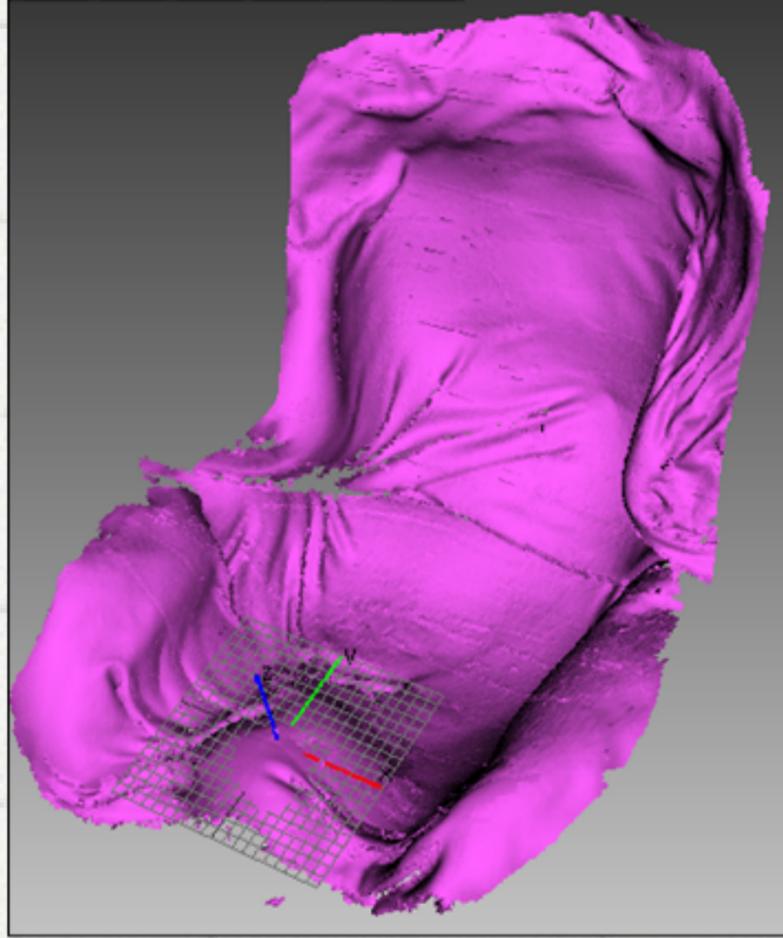
- **Wheelchair and Seating Service**
- **Environmental Control Service**
- **Clinical Gait Analysis Service**
- **Custom Design Service**
  
- *Prosthetics, Orthotics, Podiatry*
- *Disabled Living Centre*
- *Driving Assessment, Blue Badge*



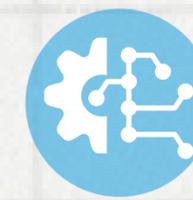
# Wheelchair and Seating Service



- Provides to 20,000 adults and 2,000 children across Lothian, Borders and Fife
- Special wheelchair **seating** required to manage posture
- 'Good' posture = maximize **function**, minimum **energy expenditure**, **without causing damage** to the body
- Accommodate, correct, both?
- Designing and building the seating the easy bit – the interaction between the service user/seating unit with the service user's social, functional and environmental needs brings about the challenge

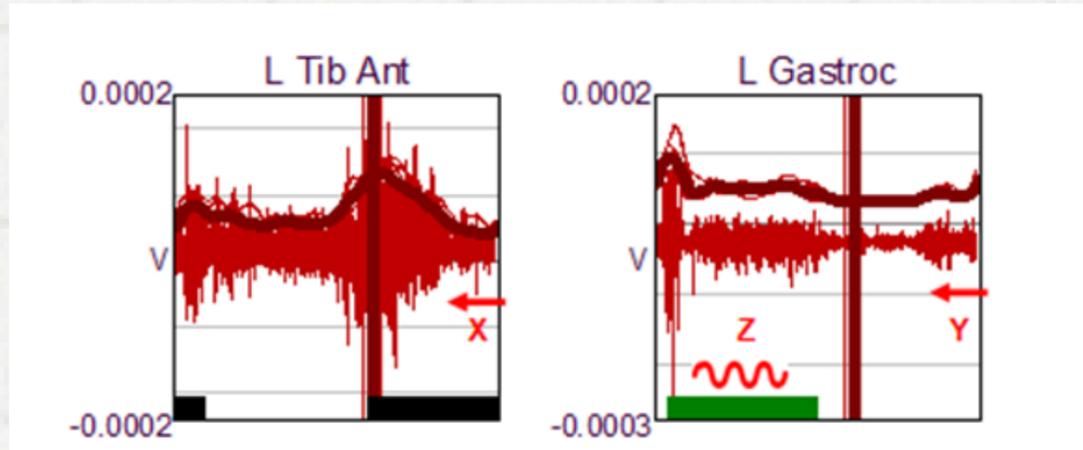
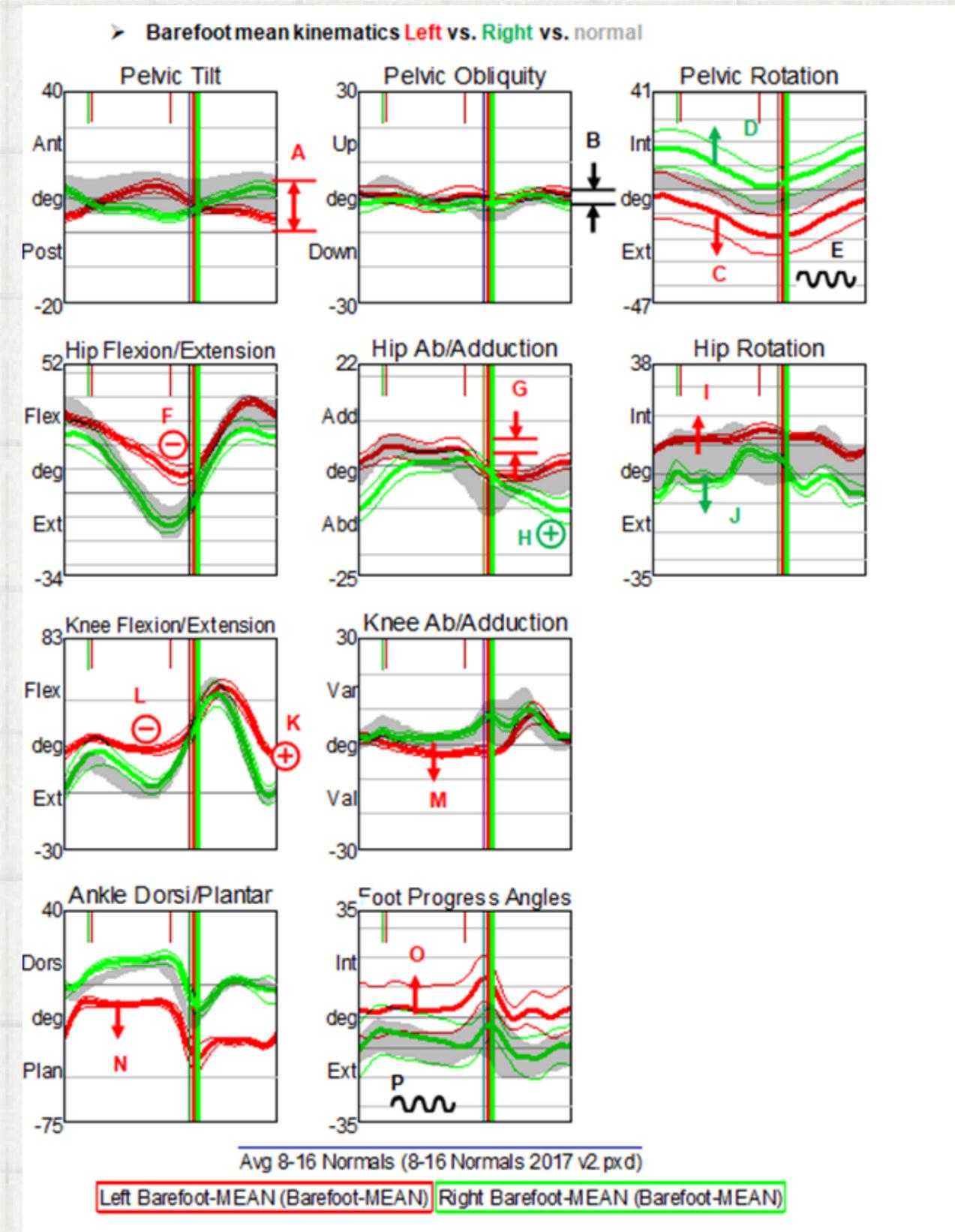
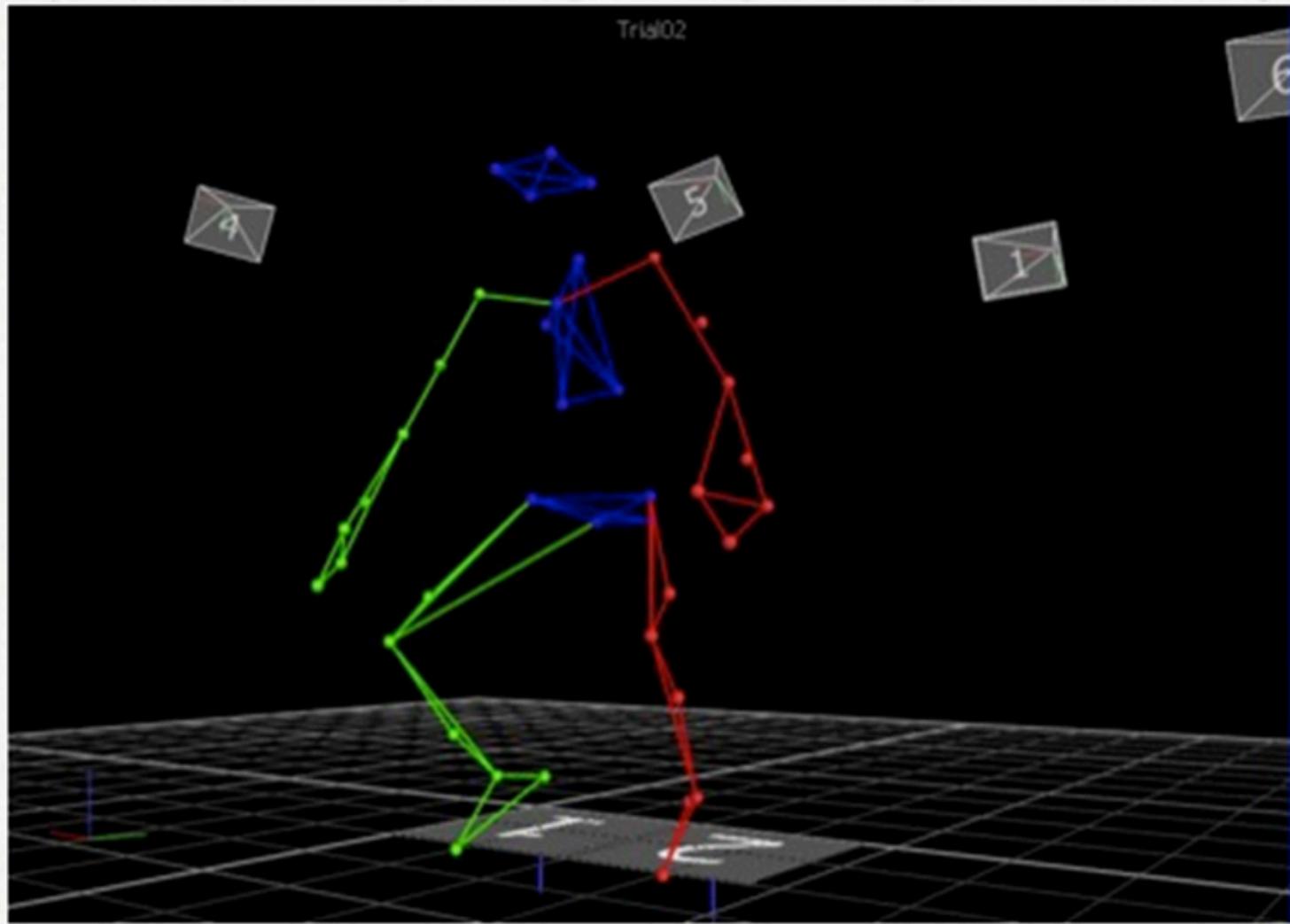


# Clinical Gait Analysis Service

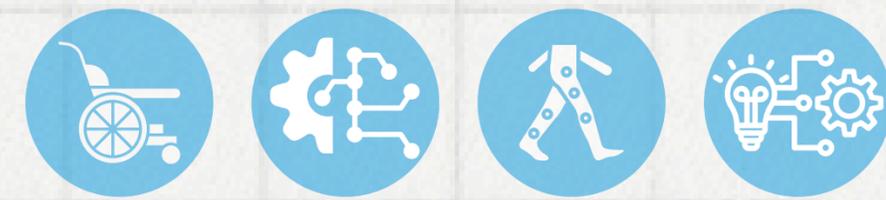


- 3D motion capture
- 2D video
- Wireless electromyography (EMG)
- Force plate data
- Physical assessment data (range of motion, muscle strength, and tone)





# Environmental Control Service



“A system, which provides a means for people with disabilities to remotely control and operate electronic and electrical equipment that are part of the system within the living environment and is intended to enable users to function as independently as possible regardless of disability and environment.”

Technical aids for disabled persons – environmental control systems for daily living EN ISO 16201:2006

## Access/input method

Part of the system person physically activates e.g. switch



## Controller

Receiving unit – handles information from input and sends output to target device



## Target Devices

Safety – community alarm, pager, telephone

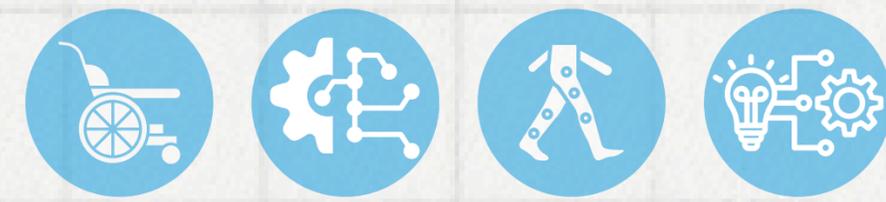
Security – intercom, door lock, door opener

Comfort – fan, lamp, heater, electrically tilting bed/armchair

Entertainment – smart TV, set-top box, apps, computer/tablet



# Custom Design Service

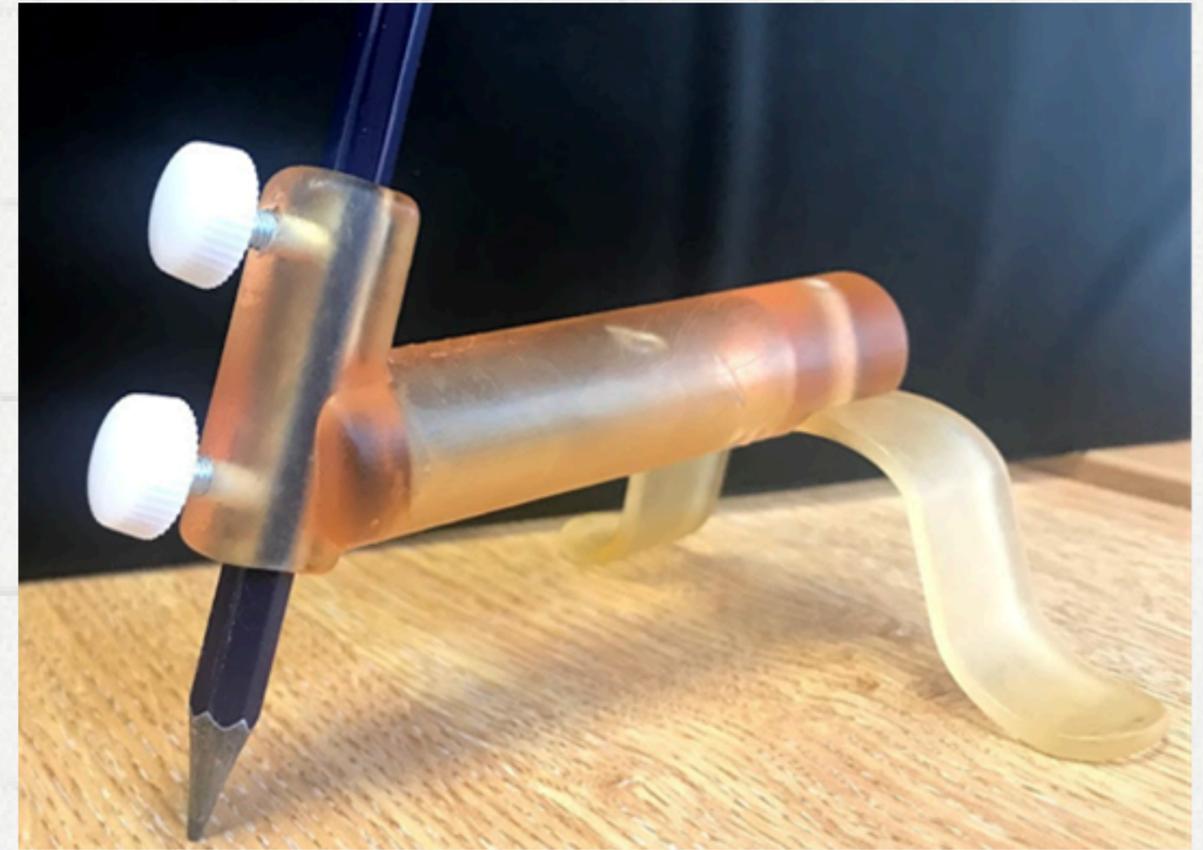


**Custom** or **modified** equipment where commercially available equipment is not available.

Assist people in meeting their rehabilitation aims within **home** and **workplace** or to facilitate established **leisure** interests.

Mainly involved with the following categories of equipment:

- **Aids for daily living** e.g. equipment for eating, drinking and care.
- **Mobility aids** e.g. walkers.
- **Therapeutic equipment** e.g. sleeping support, armchair supports.

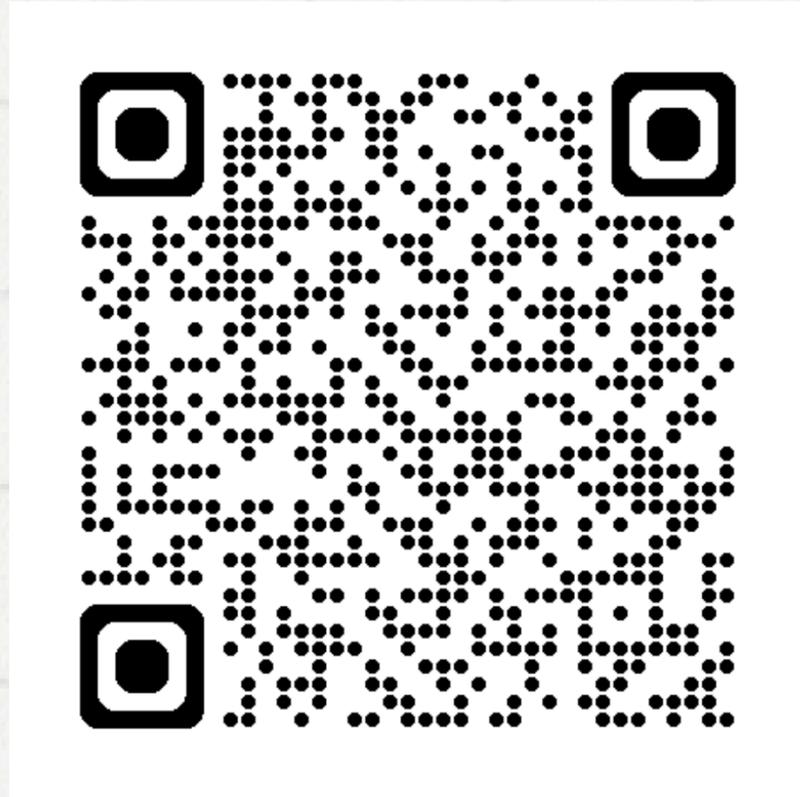
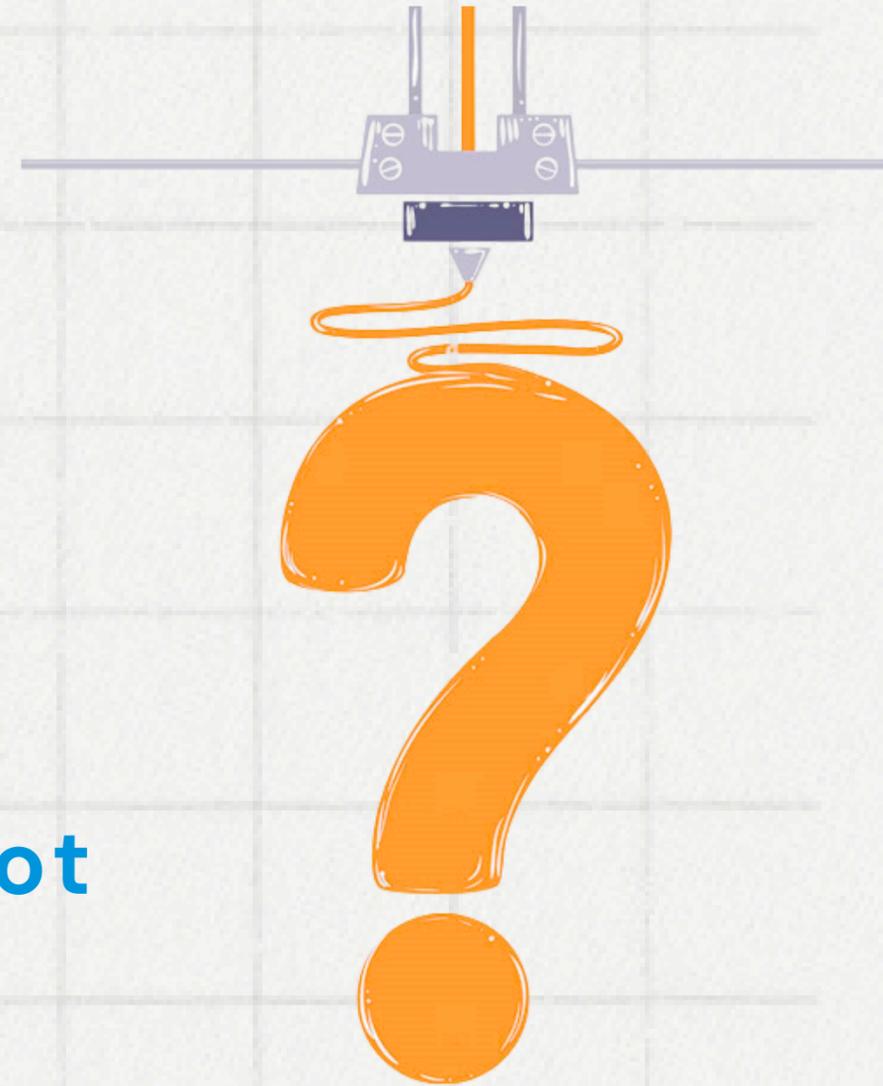
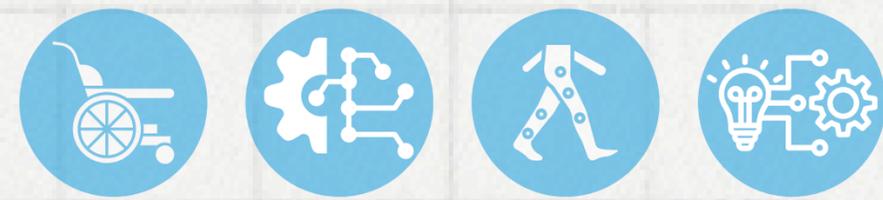


# In-house manufacturing



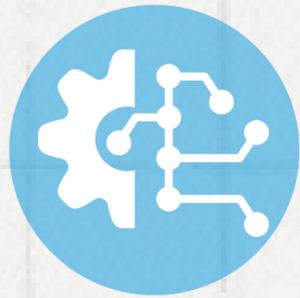
# Thank you!

# Any questions?



[www.smart.scot.nhs.uk](http://www.smart.scot.nhs.uk)

[beth.dias-scoon@nhs.scot](mailto:beth.dias-scoon@nhs.scot)



# Rehabilitation Engineering SMART Open Day

- 
- Try out equipment
  - Tour our facilities
  - Speak to staff

**May 2025**

**More details coming soon!**