Questions for professional.

What is the limiting factor on the duration of a physical therapy session?

Tolerance of patient, from limb fatigue and cognitive fatuige perspective. Concentration fatuege.

What are the current physical therapy methods for treating patients with UL impairment following stroke or other pathologies such as multiple sclerosis and cerebral palsy?

Wide range. Growing all the time. First element looking at safety, issues with shoulder lots of issues with unstable shoulder in early stages. Alignment and positioning. Varies on if affected arm is dominant. Look at basic everyday tasks. Done by physical and occupational therapists. Physical look at a specific joint, occupational links that into daily life like taking a drink and cooking. Looking to develop independence so they can go home and do the bulk of the therapy at home.

Constraint induced movement therapy. Good arm constrained forces the use of the effected hand. Wii commercially available example of off the shelf game systems that can be adapted for use in a rehab setting or in their own home.

Neuroball is a device that has come out recently for this. People will continue to have physical and occupational therapy at home. Task focused rehab. Developing certain movements and patterns to enable different functions. We do lots of things with both our hands together. Thinking about different functional tasks. GRASP programme. Booklet designed for people with stroke. Bilateral activities, stretching. Good evidence base. Particularly over pandemic this was something that lots of people were doing independently at home.

Normally focus on the impaired limb. Sometimes use both or incorporate both over time.

What are the most important/beneficial movements for the patient to perform in the therapy?

Hard to say. From a functional perspective, wrist extension as there are a lot of tasks that we do with an extended wrist. Shoulder flexion and lateral rotation as that brings the arm into a more functional position. Those movements are prerequisites to start these therapies. Need to have some voluntary movement of these things.

Is arm moving essential can we do just wrist and hands.

Depends on the individual, More options with having the whole arm. Movement in 3 major joints in the arm. Often in rehab we may break it down. Do tasks which focus on the wrist or shoulder or elbow etc… progression.

Based on assessment person to person. Instability should be assessed first at shoulder and move down. We do shoulder as we want stability to start.

Do you know of treatments which gamify the therapy?

Many treatments out there that are constantly coming out. Involved in study with treadmill and looking at virtual reality and gaming for training peoples walking. More focus put on upper limb as its traditionally an area that is neglected. People in hospital want to get walking first to get home. Then the upper limb therapy comes next.

Big scope of therapies.

Is there ways I would be able to test the efficacy of a gamified therapy application?

What tests available.

Looking at functional tasks and measurements. Therapy outcome measures. Ask patient to perform series of activity and score them. Standardised validated measures. Quantify movement based on actions.

Do you know of any therapy’s which involve multiplayer or multiple people participating in some way in the therapy?

No New ground. Only seen it used on a 1 to 1 basis. Therapist and individual. Considerations about multiplayer to think about may be quite motivational.

Can a therapy which focuses on wrist movement and finger movement such as squeezing be as effective as a therapy which focuses on arm movement?

Competing and suppouritng would be good. Building on something somebody else is contributing to.

Marianne Hensman

Feedback to me well done. Good questions.

Help on scope from Xi.

Category of exercises we can target. Help to further narrow down which major category we could focus and is beneficial. Different focuses on different programmes. Will be able to share programs will allow us to look at how a programme is structured and how different tasks are put together.

Sample case study.

What are some benefits there will be of using this technology.

About providing variety and options for different exercises and methods. A lot of time and repetitions needed to see functional gains for a person. A lot of functional tasks like picking up cups and combing hair get boring quickly. A way of keeping people motivated is changing the tasks and changing the demands of the tasks. Going along with what interests them.

Why were doing project:

It is about provide different type of rehabilitation;

Functional task can be boring tasks—adding interest and variety.

Changing tasks easier

Interest…

Functional tasks

Target group normal adults to make game enjoyable.

Functional tasks normally quite boring. But they are essential and have to be done. Done many times repetition. Gaming adds some variety to the rehab and makes doing these tasks easier.

These tasks require different combinations of movements. Do you have a map.

Certain movements beneficial for certain tasks. Multiplayer no one else done really good selling point.

View more as a training tool. These movements can be translated to other parts of life.

Do movements and give scores based on these movements. Is there a need for an accurate tool in this, depends on baseline. Tasks may be different depending on people.

Marianne will hopefully send material over tomorrow.