Notes on GRASP home training

Prerequisites:

Able to shoulder shrug, ability to lift fingers off of the table when palm of stroke affected hand is on the table. Have to be able to partially open the hand or fingers. Some ability to move wrist, able to follow instructions and mimic exercises for an hour, able to communicate any adverse affects such as pain, independently carry out exercises or have caregiver assistance.

Grasp can result in more than 300 hand and arm repetitions per session.

Limitation of grasp system is that progress is monitored by phone calls. Whereas a game could collect data on the performance of the patient whenever they use the therapy and collate this data for the therapist to look at.

Grasp also has to be taught in person which also takes up time

One hour a day, 7 days a week. 2 month program

Grasp has a hospital and home version. generally for the start hospital will be used then after about 2 months post stroke if/when the patient has been discharged home, home grasp can be done.

Home grasp has two levels

Level 2 – Practice of gross motor skills and fine motor skills

A text on a white background

Description automatically generated

Level 3 – Practice of gross motor skills and substantial fine motor skills

A white background with black text

Description automatically generated

Grasp splits exercises up into 5 sections.

1. Range of motion
   1. Loss of joint range commonly develop after stroke and interferes with upper extremity function. Therefore, it is important to maintain extensibility of the muscles to promote subsequent strengthening through full range of motion
2. Strengthening
   1. Muscle strengthening after stroke has not been found to increase spasticity, rather strengthening has been found to be effective in improving upper extremity function after stroke. Upper extremity muscle strengthening can improve bone density and the ability to perform activities of daily living involving the upper extremities
3. Repetitions of the stroke-affected arm and hand
   1. Hundreds if not thousands of challenging upper extremity repetitions can help the brain recover and result in improvements with the arm and hand after stroke. Varying accuracy and speed requirements are integrated within the fine motor and gross motor repetitive tasks.
4. Weight bearing
   1. With a reduction in arm use, there is reduced loading to muscle, bone and sensory receptors. Controlled weight-bearing through the hand is one method to increase muscle activation without weights. In addition, weight-bearing will help to reduce the known bone loss which occurs early after stroke
5. Trunk control
   1. Better trunk control is known to facilitate arm reaching. Thus, exercises to challenge trunk movements are important for upper extremity function
6. Repetitions using both arms
   1. The majority of daily tasks use both arms and hands. Repetitive bilateral arm training has been shown to improve arm and fine motor function. Bilateral tasks are realistic of the many activities of daily living, which require bilateral arm and hand coordination.

Grasp encourages the use of the effected hand

Heres some examples of exercises

A list of exercises with text

Description automatically generated

Worried about the game not being good enough for the fine grain tasks needed in the rehab like picking up objects.

May be better to focus the game on level 2 patients

The therapist and patient work collaboratively to identify goals for increasing upper limb use during daily activities.

To work on fine motor controls you can focus on picking up small things like toothpicks in a limited time. Or pegging pegs to a rim of a glass or picking up coins. For strengthening tasks you can move the arm in different ways with a weight on the wrist, or use grip strengtheners

Useful movements. Sliding something off a table, real world movements like picking something up, squeezing, unscrewing lids, picking up a glass of water and drinking from it. Grabbing a ball from a high angle (fully extend arm and raise to 120 degrees), combing ones hair, fastening buttons, writing, manipulating coins, wrist flexion,

Its very important you log your grasp sessions every day and every week.