

Stroke Recovery Tips

Using High Repetitions in Stroke Rehab

A word you hear often in stroke rehabilitation is neuroplasticity. Neuroplasticity in simple terms basically refers to the brain's ability to rewire itself and create new connections. Repetitive practice of a task has been shown to make changes in the human cortex. For example, practicing a task such as playing the piano can increase the finger representation in the motor cortex. On the other hand, lack of movement of a muscle can result in decreases in representation of the muscle in the motor cortex. If parts of the brain are damaged that control certain muscle movements, sometimes neuroplasticity can allow for other areas of the brain to take over. Research has shown that in order to help foster these neuroplastic changes, it is important to have high repetition practice.

Animal studies have shown that 400-600 repetitions of a challenging task are needed per day to make changes in the brain. Therapists at most centers do not have a patient perform anywhere near this number of repetitions of a task. Random performance of a task such as practicing a few hundred reps one or two days a week will not result in very noticeable changes, but practicing a task for high reps daily over several weeks would result in much more noticeable improvement. Unfortunately, patients often only go to therapy a couple of times a week and do not perform a high number of repetitions of a challenging task.

If you want to see better results with an activity, it is recommended to incorporate high reps of the task daily for several weeks. The type of task attempted will be different for each stroke patient depending on their impairment and capabilities. Trying to type may be appropriate for one patient needing to work on fine motor control whereas trying to slide a washcloth across a table may be appropriate for another who lacks fine motor movement. If you pick a task that is easy to perform, then you will not stimulate the brain in the same way as if you pick a more complicated task for yourself. One task may be too easy for one patient and too complicated for another so you have to adjust the task/activity to your abilities. Some ideas for tasks are listed below (tasks can be done with adaptive equipment if needed):

Pushing piano keys
 Typing
 Clapping
 Rolling dice
 Catching
 Throwing
 Moving or sliding an object
 Reach/grasp/release of an object
 Holding an object between both hands and lifting it.
 Rolling, kicking or bouncing a ball

Inside this issue

| | |
|--|-----|
| Using High Repetitions in Stroke Rehab..... | 1-2 |
| Can I Return to Driving After Stroke..... | 3 |
| Stroke Rehab Guidelines..... | 3 |
| Caregiver Corner - Long Distance Caregiving..... | 4 |

Stroke Facts

- Stroke is responsible for more than 6 million deaths a year worldwide
- On average, there is a stroke every two seconds worldwide
- High blood pressure is the leading risk factor for stroke

Above Information from World Stroke Organization

Using High Repetitions in Stroke Rehab cont.

- Turning off a light switch
- Dot to dot activity
- Writing
- Folding a washcloth
- Painting strokes (can attach brush to hand with an assistive device if can't grip)
- Using a tool
- Bringing a utensil to the mouth
- Picking up a cup
- Playing a finger app on the phone (e.g. Cut the Rope, Fruit Ninja)
- Trying to hit a balloon.
- Playing a board game such as Simon.
- Opening a container
- Turning a page in a book or magazine

If you look at the above list of activities and feel like they are too hard because you have severe hemiplegia or paralysis, then try to work what movement you do have. Remember you can also use adaptive equipment to help such as a Grip Aid Glove, a universal cuff, a keyboard aid, etc. if you don't have finger movement. Easier tasks to start with might be placing your paralyzed hand on top of a ball (e.g. a basketball or soccer ball) and try to slightly roll the ball a few inches side to side or trying to use the arm to push a light object on a table.

For training to be most effective, a task should be meaningful and engaging to the patient and be associated with a goal. You should be able to adapt and progress the task as well. For example, if the goal was to shoot a basketball into a hoop, you could start as mentioned above by first just placing the affected hand on a ball and rolling it. You could then progress to holding the ball between two hands and lifting it, then lifting it higher (adapting holds as necessary), throwing the ball down, throwing the ball out, throwing the ball up, and throwing the ball into different hoops of different heights. In my opinion, tasks should be chosen by the patient to increase motivation. For example, I treated a patient who liked to shoot guns and his goal was to be able to hold and pull the trigger of a gun. He was very motivated to relearn this task. We weren't able to use a real gun in our clinic, but we practiced movements with other materials, and he practiced with an unloaded gun at home. I would have never chosen this task as a therapist, however, by talking with the patient, I found something that motivated him and sparked his interest and increased his participation in therapy.

If you have no arm movement, then mirror therapy may be an alternative. In mirror therapy, you watch the reflection of the non-affected limb in a mirror and your brain perceives the reflection as your affected limb. By watching repetitive movement of the working limb in the mirror, it has been shown in some studies that new connections can be made for the paralyzed side because the brain perceives that the paralyzed side is working (even though it is actually only a reflection of the non-affected arm working).

Remember, doing therapy a couple of days a week for a short period is not enough. To get the most out of your rehabilitation, you should be working at home daily. Make sure to choose somewhat challenging tasks that you are motivated to do, and that repetition is key to achieving your goals.





Stroke Rehab Exercises

There are many websites that demonstrate exercises for stroke. Here are a few of those websites:

[GRASP](#)

[HOPE: A Stroke Recovery Guide](#)

[Stroke-rehab.com](#)

[Saebo.com](#)

[Strokewise.info](#)

[Livewellagewell.info](#) (not specifically for stroke but demonstrates some good exercises)

Can I Return to Driving After a Stroke?

One of the most frequent questions I get asked from stroke patients is, “When can I start driving again?.” Driving is a complicated task and returning to driving should not be taken lightly. Before resuming driving, a patient should be thoroughly assessed in several different areas.

First, one should make sure vision is assessed. You cannot assume that your vision is adequate because you may not even be aware of your own visual problems. Visual acuity should be tested as well as visual fields, and visual attention. It is not uncommon for the visual field to be affected by stroke. An impaired visual field can be very dangerous when trying to change lanes or turn as you may not see other cars, people or bicyclists. Patients with visual field deficits often do not know they have a problem. Visual attention is important as well. If someone cannot stay focused on an object and is taking quick glances away from the road, this can lead to missing critical events and result in wrecks.

Not only is vision a factor in driving, but cognition and reading comprehension are important as well. It is important to be able to comprehend what signs are saying. Someone with aphasia or reading difficulty, may not be able to distinguish between road signs or know what they mean so this should be tested. In addition, problem solving and speed of decision making should be adequate. Driving can require quick decision making and assessing the road ahead and behind. For example, if you are driving

at moderate speed, there is a wreck ahead, pedestrians on the sidewalks, and a car close behind, do you have the ability to process all this information and appropriately react to it? Also, are you able to get from place to place without getting confused or lost?

In addition to assessing vision and cognition, movement and coordination abilities should be assessed as well. Do you have adequate reaction time to swerve or put on the brake quickly? Do you have enough strength to turn the steering wheel, shift gears, and push the pedals? Do you have adequate coordination to put on your seatbelt, start the car, and handle the steering wheel and pedals?

Besides assessing capabilities, one also has to consider medical issues. If someone is having problems with seizures after stroke, this can delay returning to driving. One should always check with their physician to see if they are medically stable to return to driving. The decision to return to driving is usually a collaboration between the physician, therapists and patient as many factors need to be considered and assessed. Don't just assume you are able to return to driving. Make sure you have the necessary assessments and recommendations from your healthcare team, and make sure you follow any laws in your area that deal with returning to driving after a stroke or medical event. This could vary from country to country.

Stroke Guidelines

Various agencies have established stroke rehab guidelines. Here is a short list for reference:

[Canadian stroke best practice recommendations: Stroke rehabilitation practice guidelines, update 2015](#)

[Evidenced Based Review of Stroke Rehabilitation](#)

[AHA/ASA Guidelines for Adult Stroke Rehabilitation and Recovery](#) (from USA)

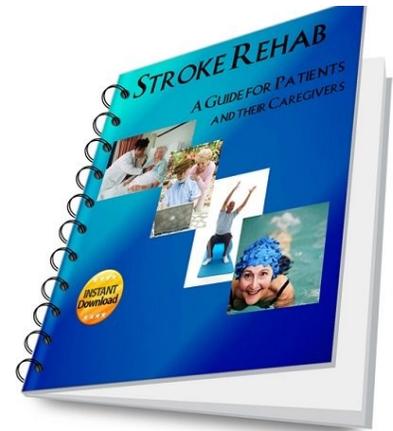
[NICE Stroke rehabilitation in adults](#) (from UK)

[Clinical Guidelines for Stroke Management 2010](#) (from Australia)

Caregiver Corner— Long Distance Caregiving

We often think of stroke patient caregivers as family members that live with the patient or at least live nearby, but the caregiving role is not limited to those who live in close proximity to their loved one. Caregiving roles for those who live further away may include coordinating care for a loved one such as home health or in home care, managing bills, managing outside help such as lawn or cleaning services, providing respite or support for the primary caregiver, communicating with your loved one and their neighbors to ensure safety, and reassessing the situation when visiting your loved one. Here are some tips to help with long distance caregiving:

1. Meet with family members and discuss care needs. This will include your loved one that has had a stroke as well as other family members that will be involved in care. Have a clear plan as to who is in charge of what (e.g. one sibling may be in charge of bills, another may be in charge of setting up home services, another may be in charge of talking to a neighbor on a weekly basis to make sure everything is running smoothly). Make sure family members are frequently communicating.
2. Research your loved one's medical condition. Knowing about stroke and any other medical conditions that your loved one may have will help you care for them and allow you to better understand symptoms (e.g. temperament changes, memory lapses, problems with speech, etc.)
3. Organize records. Make sure you have a list of doctors, appointments, important phone numbers, insurance information, account numbers, passwords, etc. so that you can easily access records and help your loved one when needed.
4. If feasible, involve neighbors. If your loved one has neighbors that can check in and help keep watch of your loved one then incorporate their help. They may be able to identify problems or changes that you need to know about such as your loved one not eating properly or having memory lapses.
5. Stay in touch with your loved one. Plan a time to contact your loved one each day or week so you can check in with them.
6. Plan for emergencies. Make sure you have money set aside if you need to travel to visit your loved one due to an emergency, and make sure you have a designated person that can help that lives close to your loved one. Have your loved one invest in a call alert program if needed especially if the person lives alone and does not have someone nearby to help.
7. Be aware of your loved one's medical condition. Have your loved one sign a waiver so you are able to talk to healthcare providers about your loved one's condition or so that you can access medical records. This is important for making sure medicine regimens and health recommendations are followed.
8. Lastly, reassess your loved one's living situation each time you visit. Physical, emotional, and mental changes can occur which may necessitate the need for change in living circumstances.



Stroke Rehab e-book: A Guide for Patients and their Caregivers

Exercise photos included

Visit

[http://www.stroke-rehab.com/
stroke-rehab-ebook.html](http://www.stroke-rehab.com/stroke-rehab-ebook.html)