Brain Healing After Stroke

Therapy addresses physical rehabilitation after stroke, but this is only one aspect of recovery. Another aspect to consider is how the brain heals. Initially, there may be edema surrounding the brain lesion which can affect other structures nearby. As the edema subsides, these other structures that were being effected by the edema may resume function. The resolution of edema may continue up to eight weeks after stroke, but usually occurs sooner. A second part of brain healing may occur if the ischemic prenumbra resumes function. The ischemic prenumbra is an area with decreased blood flow that surrounds the infarcted stroke region but that may still be able to resume function. If the ischemic prenumbra experiences restored blood flow, neurons may be able to resume function leading to improved recovery.

Another way the brain can adapt after a stroke is through CNS reorganization which can continue on later in the stroke recovery process than the localized changes mentioned above. CNS reorganization can be influenced by rehabilitation. In essence, other parts of the brain try to take over for the area not working. Rehabilitation helps increase brain reorganization, while lack of rehabilitation reduces reorganization. CNS reorganization is not fully understood, but it has been shown to have better results when an individual works on tasks that are meaningful to him or her.

When discussing recovery with your MD, ask if edema has subsided, if the prenumbra shows increased blood flow, and if they have a prognosis regarding your recovery. When dealing with therapists, you want to make sure that you are getting an adequate amount of therapy and that you are participating in activities outside of therapy in order to better help the brain reorganize. The small amount of therapy that most individuals receive is not adequate for CNS reorganization so it is very important for the patient to perform activity at home.

New Stroke Forum

The hosting company for the www.stroke-rehab.com forum has closed down, so a new forum was created with another hosting company. Unfortunately, posts from the old forum were lost, but you can now interact with other stroke patients and caregivers on the new forum. Stroke patients and caregivers are welcome to introduce themselves, ask questions, recommend resources, vent, or help answer other people’s questions. The new forum is located at the same web address as before which is http://forum.stroke-rehab.com/, or you can go to the www.stroke-rehab.com website and click on the forum tab in the left hand column.
Community Reintegration After Stroke

Reintegration back into the community after stroke is a very important aspect of stroke recovery that is often overlooked. Community and social support can have a great impact on quality of life. After a stroke, one’s role in society and in the community is often changed. Stroke recovery often encompasses adapting to a loss of function and taking on new roles that are different than previous roles in the community. Support from others can help with this transition. Higher levels of support are associated with better stroke recovery outcomes.

Navigating the community after stroke can be difficult, but socializing and staying connected to others is important. As one becomes more isolated and less active, stroke recovery is impacted in a negative way. It is important for stroke patients (and caregivers) to have leisure activities they enjoy. Interacting with other stroke patients in support groups may provide an outlet for socialization. Some communities have gyms that are adapted for those with physical disabilities. If a stroke patient was active in community activities before, he or she should continue to try and be active in these activities (e.g. eating out, church functions, clubs, movies, visiting with friends, etc.) Invite friends to come over if you are unable to get out because of mobility issues.

Some people are very active before having a stroke and may have more difficulty adapting to decreased mobility. There are sometimes group classes that can be adapted for stroke patients (e.g. yoga or cycling classes). Aquatic exercises may be an option. Exercising with another individual may help with adhering to an exercise program. Exercises can be adapted to the individual’s level of function. Playing games with children or grandchildren may help increase activity and improve mood.

Volunteering might be an option for patients that are somewhat mobile but not able to return to full time work. Some rehab centers will allow ex-patients to volunteer for them. States often have services that will help people that have suffered disabilities to return to work.

Individuals that are severely impaired will have to rely on caregivers to help them get out into the community. Adult day care or neuro day therapy programs may be appropriate to help prevent the patient from becoming isolated. Caregivers can also invite friends and family to the house (this might also provide the caregiver with the opportunity to run errands while others are present).

Some areas have “stroke clubs” which are more than just a support group. These clubs allow stroke victims and caregivers to participate in community outings with others. Venues for these club outings have included places like theaters, museums, galleries, restaurants, concerts, the seaside, football stadiums, parks, zoos, bars, cafes, swimming pools, cinemas and golf courses. These clubs can be started by caregivers and stroke patients themselves. They do not have to be organized by a health center. These clubs do not have to be catered strictly to stroke patients, but the theme is helping those that have mobility deficits get out and enjoy their lives.

If community reintegration and socialization is problematic due to a patient’s mood or emotional issues, then one can talk to a counselor or neuro-psychologist to address these issues. Sometimes it just takes making the initial effort and forming a habit of getting out of the house to improve socialization.
If you are looking to improve mobility and the ability to walk after stroke, there are several things you can do. Some of the options include task-specific training, therapeutic exercises, orthoses to improve gait, and adaptive equipment to improve mobility.

Task-specific training is actually practicing a specific task. For walking, this can be done in many different ways including walking on your own with no assist, walking with robotic assistance, walking on a treadmill with body weight supported or unsupported, walking with assistance from another person, or walking with the assistance of devices such as canes and walkers. Task-specific training has shown to be effective in improving a patient’s ability to perform that task so if it’s walking you want to improve then you need to incorporate walking in your daily rehab plan if you are able. If you cannot yet walk, then you can practice components of walking (standing, moving one foot forward and back, shifting weight, etc.)

Another way to improve mobility other than practicing walking is therapeutic exercises. Therapeutic exercises will include activities like muscle strengthening, stretching, balance training, and cardiovascular training. It’s best to strengthen all muscles, but it is especially important to strengthen weak muscles and to stretch muscles that are tight. When working with a therapist or personal trainer, ask them which muscles are weak and/or tight and what exercises address those muscles.

Cardiovascular training will help with breathing, endurance, and exercise tolerance. Recumbent stationary bikes are often a popular choice for cardiovascular training with stroke patients. If you have trouble keeping a weaker leg on the bike, you can strap the foot in the pedal if needed.

Balance training will consist of activities to challenge your balance such as standing on one leg, rising from a lower surface, walking or balancing on uneven surfaces, kneeling, bending, maintaining balance with your eyes closed and maintaining balance when challenged by an outside force to name a few.

A therapist or a personal trainer can help with an exercise plan that incorporates the best therapeutic exercises for you. Remember that as you progress, you will need to change the exercise plan to meet your level of ability.

Some people have to use adaptive equipment to improve mobility. This may be in the form of an orthoses to keep the foot from dropping or equipment such as a cane or walker to help with balance and to support your weight. Adaptive equipment may allow someone to walk that may not be able to do so without it, so it is very important to work with a physical therapist to see what adaptive equipment you may need.

The only downfall to adaptive equipment is that you may continue to need a device permanently. Most individuals would prefer to have mobility with an adaptive device than to be immobile, but you may also interfere with regaining normal gait if you choose to rely solely on these devices during rehabilitation. The brain learns movement patterns, and if one only uses an adaptive device when walking, that is the motor pattern the brain will learn. Many times, adaptive devices are needed though for safety and decreasing fall risk. You can continue to work toward walking device-free over time, but remember that safety and preventing falls is key to your health.
Caregiver Corner— Right vs Left Hemisphere Stroke

When taking a look at stroke, there are usually distinct differences between the effects of a stroke to the right side of the brain (right hemisphere) versus the left. I will discuss those differences here, and implications for caregivers.

Effects that are more common to right hemisphere strokes are visual/perceptual disorders and impairment of judgement. These patients are more likely to present with left side neglect, a lack of knowledge or awareness of their disability, impulsivity, emotional lability, and a flat affect (appearance of indifference). This is important for caregivers to know because visual problems can lead to falls or injury to neglected limbs. Impulsivity can also lead to falls and injury due to impaired judgement. In addition, caregivers can be mislead by the ability of the right hemispheric stroke victims because their verbal language is often intact so they may appear more capable than they actually are. Caregivers may be taken aback by the “flat affect” of their loved one thinking that they don’t care or that they are being distant or inattentive when in fact, the stroke has caused the issue.

Individuals whom experience stroke to the left side of the brain (left hemispheric stroke), on the other hand, are more likely to demonstrate problems with language, aphasia, and apraxia which is a disorder with voluntary movement. Aphasia manifests itself in various ways and can include problems with expressing words, understanding words, or both. It also can interfere with reading and writing, and the severity of aphasia can range from mild to severe. The caregiver of an individual with left hemispheric stroke may need to take into consideration that communication skills of their loved one have been altered, and that regular forms of communication may not work. Trying to communicate with someone that has aphasia can be frustrating and requires patience.

Apraxia is a disorder that can also manifest in different forms. Patients with a stroke to the left hemisphere may present with the problem of not knowing what to do with an everyday object. An example would be someone trying to use a comb to brush their teeth instead of their hair or putting lotion on their hair instead of their skin. Another form of apraxia presents itself in the inability to correctly complete a task even though the patient demonstrates adequate movement to do so. An example would be a person trying to answer the phone but not being able to bring it to the ear in the correct position, incorrectly donning clothes, walking with an uncoordinated gait, or not being able to draw an object.

The caregiver of an individual with apraxia may need to do hand over hand training with the patient to see if the patient can relearn a movement or activity through repetition. Safety can be a concern with apraxia because the
Caregiver Corner—Right vs Left Hemisphere Stroke cont.

Patient may use an object in a dangerous matter (e.g. using a razor or scissors inappropriately) or uncoordinated movements could lead to falls.

Knowing the characteristics of a right versus left hemisphere stroke may help a caregiver understand some of the behavior of or risk factors for a stroke patient. This knowledge will allow the caregiver to provide better care. Finding out specifically where a stroke occurred, and delving deeper into brain functions can further help a caregiver understand their loved one’s stroke. You can ask the MD if you are unsure where your loved one’s stroke occurred as it is not uncommon for health professionals to leave out this specific information. You may need to ask what exact structure and area in the brain was affected as only knowing the side of the brain where the stroke occurred only gives you limited information. For detailed knowledge, one can search on the internet to see what specific function each part of the brain performs and the effect stroke will have when that part of the brain is affected. A good resource for this can be found at http://ebrsr.com/sites/default/files/Chapter%201_Clinical%20Consequences.pdf.