LEADING | TEACHING | CARING

Stroke Rehabilitation Patient Education Manual

An additional guide for Stroke Rehabilitation

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Welcome to UNC Hospitals Stroke Rehabilitation Program! Our mission is to offer care that will help you recover from stroke, improve function and overall quality of life.

Our team of qualified and experienced professionals will work together to help you during your stroke recovery. Our approach allows us to meet the special needs of each patient. All team members will work with you to provide the best possible treatment program.

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The UNC Rehabilitation Center Team

Physiatrist: A physiatrist is a doctor who practices physical medicine and rehabilitation. In the Stroke Rehabilitation program, the physiatrist is involved with the evaluation and treatment of patients who have had a stroke. At the start of treatment, they work with each patient and his or her family to identify the patient's medical needs and determine treatment goals. Based on these needs and goals, the team then develops and carries out a treatment plan to help you achieve the best possible outcome

Rehabilitation Nursing: Rehabilitation nursing consists of registered nurses and certified nursing assistants that provide care 24 hours a day and help you be able to be independent with activities of daily living, manage your medicines, and take care of your safety and wound care.

Physical Therapist (PT): The physical therapist will help you move, reduce pain, restore function, and prevent further disability. Your treatment plan may include helping you to be mobile through gait training (walking) or the use of a wheelchair. You will also take part in transfer and balance training and an exercise program to help you get better.

Occupational Therapist (OT): The occupational therapist will help you regain Independence with Activities of Daily Living (ADLs). These are the things you do every day to take care of yourself -- bathing, grooming, dressing, feeding and preparing meals. Your OT will guide you through exercises to improve your ADLs after stroke. They may also suggest equipment, changes to your home or work spaces, and ways to be safe in your home or community. Your OT will also address upper body function, cognition (thinking skills), and visual processing.

Speech Language Pathologist (ST): The speech language pathologist (also known as a Speech Therapist) will help you improve speech, language (talking, understanding, reading, and writing), cognition (thinking skills) and swallowing skills. The Speech Therapist evaluates and treats these disorders. The ST will also train you and your family on strategies to improve these skills in your home, work, and community.

Recreational Therapist (RT): The recreational therapist will work with you and your family to become more independent in your life and leisure activities. Your RT's treatment plan may include helping you manage pain, anxiety, and stress while being in the hospital. The RT will also help you practice your social skills with activities to help ease the transition back into the community. The recreational therapist will work with other therapies to improve your physical abilities through exercise and practice with these skills.

Rehabilitation Psychology: The Rehabilitation Psychology staff on the unit are available to patients and family for support during your time on the rehabilitation unit. These staff will help you and your family deal with the typical emotions of depression, anger, and frustration associated with stroke and disability. They will provide treatment to help you re-enter and adjust to your work and family life. Also, they may help you check and improve your thinking skills during your time in the hospital, and/or provide counseling or support in your community after you are discharged.

Care Manager: Your care manager will assist you and your family to find any barriers and community resources needed for after your hospital stay. He or she will become involved with your care from the beginning of your stay and work with other agencies to coordinate your care. They will also set up training with your family.

Orientation to the Stroke Rehabilitation Program

Your rehabilitation program will include therapy sessions at least 5 days a week, for 3 or more hours of treatment each day. This may include Physical Therapy, Occupational Therapy, Speech Therapy and Recreational Therapy. The combination of these therapies will be determined by your needs. You may also participate in various group sessions to address your physical, cognitive, communication and social needs. Our nursing staff will also help you during your stay to provide care, and may be joined by our dietitians and psychology team.

Restorative Dining Program: Eating and drinking is a part of our daily lives. The Restorative Dining Program is designed for patients who may need help with their meals.

Patient and Caregiver Training and Care Conferences: Our Stroke Rehabilitation Team will work together to ensure that you and your family/ caregivers are properly educated and trained on techniques to provide a smooth transition to your discharge destination. During your stay, your care manager will schedule formal training sessions. These trainings will be followed by a meeting to discuss your progress and plans for discharge.

Family Involvement: Your family is encouraged to join in your treatment sessions to help you ease back into your home community. Ask your therapist about ways for your family to be involved, keeping in mind that you will be receiving care while on the unit and will take part in at least three hours of therapy per day.

What is a "Stroke"?

A stroke, otherwise known as a CVA (**c**erebro**v**ascular **a**ccident), means crisis or trauma to the brain.

There are 2 main types of stroke:

- Ischemic stroke (which also includes transient ischemic attacks (TIAs), embolism, thrombosis)
- Hemorrhagic stroke (which includes intra-cerebral hemorrhage and subarachnoid hemorrhage).

Ischemic Stroke:

- Ischemic strokes occur when a blood vessel that feeds blood to your brain gets blocked.
- In some cases, fat can build up in the walls of blood vessels. This condition is called **atherosclerosis**.
    - If a blood clot is formed in the clogged vessel, it is called a **Cerebral Thrombosis**.
- If a blood clot is formed in another area of your body (like your heart or neck), breaks off and travels to the area where the fat has built up, it is called a **Cerebral Embolism**.
    - An untreated irregular heartbeat, called **Atrial Fibrillation**, is one cause of a Cerebral Embolism.

Transient Ischemic Attack:

- Transient Ischemic Attack (TIA) is also called a 'mini stroke'
- TIA is caused by a clot that blocks blood flow to your brain for a short period of time. In TIA, this blockage is temporary. There is no permanent damage to your brain.
    - The signs and symptoms you feel with a TIA usually resolve within a few minutes.
- TIA is a warning sign that should be taken very seriously. About 30% of patients who have a TIA will go on to have a stroke.
    - You can reduce your risk of this by making some simple lifestyle changes.

Hemorrhagic Stroke:

- Hemorrhagic strokes occur when a blood vessel breaks and blood leaks into the brain. The most common causes of hemorrhagic strokes are hypertension (high blood pressure) and aneurysms.
    - An **aneurysm** is a weak part of your vessel that is filled with blood. A stroke may be caused if this weak part bursts.
    - **Arteriovenous Malformation (AVM):** An AVM is a cluster of abnormally formed blood vessels. If these blood vessels burst, it may cause a hemorrhagic stroke.

There are two types of Hemorrhagic Stroke: **Intracerebral Hemorrhage** and **Subarachnoid Hemorrhage**.

- **Intracerebral Hemorrhages (ICH):** An ICH occurs when a blood vessel bleeds or bursts into the tissue deep within the brain
- **Subarachnoid Hemorrhages (SAH):** An SAH occurs when a blood vessel on or near the surface of the brain ruptures and bleeds into the space between the brain and the skull. Most often, the cause of an SAH is an aneurysm.

Common Signs and Symptoms of a Stroke

• Weakness	• Sudden action without thought
• Loss of feeling	• Trouble communicating
• Memory loss	• Trouble understanding what other people are saying
• Loss of balance	• Loss of vision
• Difficulty walking	• Loss of coordination
• Difficulty with swallowing	• Difficulty with hearing
• Dizziness	• Nausea and vomiting

The Brain and Stroke

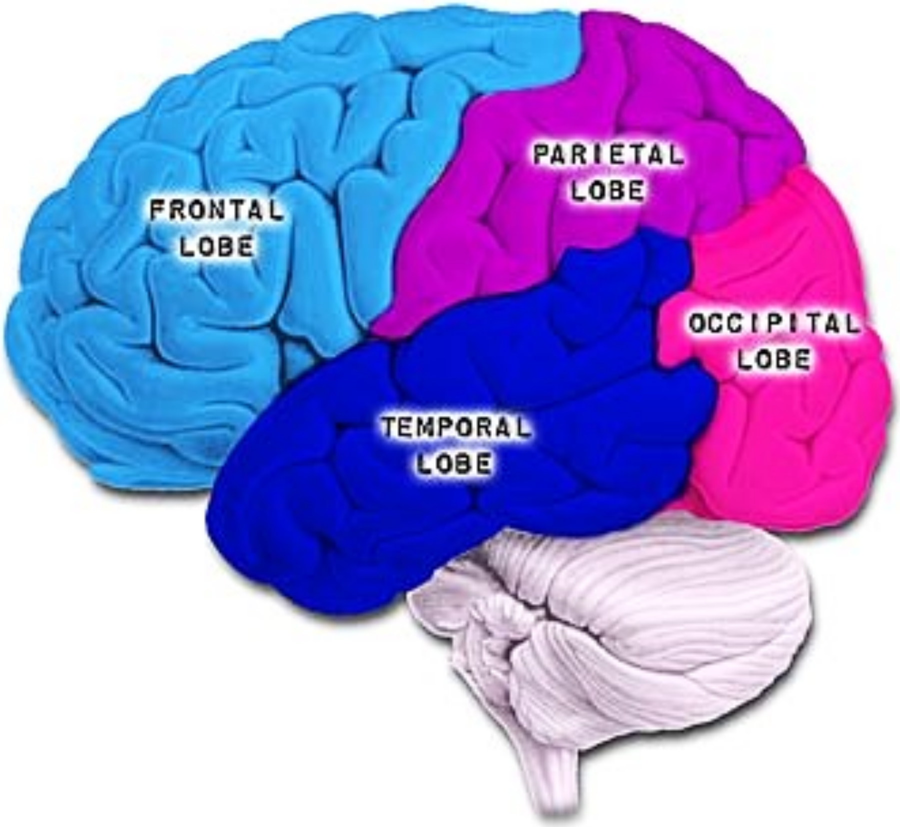
- The brain is the control center for all of your body functions.
    - The brain is divided into two halves, called hemispheres.
        - The right side of the brain controls the left side of your body.
        - The left side of the brain controls the right side of your body.
- The effects of a stroke depend on where in the brain the stroke occurs.

Left Brain Stroke might cause:	***Right Brain Stroke*** might cause:
• Right arm, leg and face weakness decreased movement, decreased feeling, or a combination of these effects.	• Left arm, leg and face weakness, decreased movement, decreased feeling, or a combination of these effects.
• Communication problems where you may have difficulty speaking or understanding.	• Perception (your ability to process and understand what you are seeing and what is going on around you) problems may occur.
• Trouble with using common everyday objects correctly	• Trouble with planning
	• Moving too quickly without thinking
	• Poor judgment
	• Easily distracted

My Stroke

I had a type of stroke called: ____________________

____



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My stroke can cause the following deficits: ______________

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Risk Factors for a Stroke

There are some factors that you cannot control, but some that you can help change.

Risk factors that you cannot control:

- Your age
- Gender
- Race/ethnicity
- Family medical history

Risk Factors that you can change:

- Hypertension (high blood pressure)
- Smoking
- High cholesterol
- Diabetes
- Your weight
- Conditions that increase risk of your blood clotting more than usual.
- Your physical activity level
- Exercise

How to Reduce Your Risk of a Stroke

Once your doctors and nurses have worked to find out the cause of your stroke, they will work with you to lower your risk of having another TIA or stroke. You can do a lot to lower your risk by making a few small changes in your lifestyle.

Don't Smoke: If you smoke, make a decision to quit. Ask your doctor or nurse for more information, on programs and medications that may help. UNC HealthCare offers a Smoking Counselor who can help you quit smoking. Ask your family and friends to support you. Avoid being around people that smoke. Smoking causes many diseases and can harm you and others around you.

Improve your eating habits: Eat foods that are low in saturated fat, trans-fat, cholesterol, sodium and added sugars. Avoid foods like egg yolks, fatty meats, butter and cream, which are high in cholesterol. Ask your doctor, nurse or dietician for help changing your diet.

Be physically active: Increase your amount of exercise as directed by your doctor. Ask your therapists for safe exercises you can do at home.

Take your medicine as ordered: Talk to your doctor, nurse, or pharmacist if you have questions. Do not stop medication unless directed by your doctor. Always plan ahead for refills.

Control your blood pressure: Get your blood pressure checked regularly. Work with your doctor to manage it if it is too high.

Reach and maintain a healthy weight: Talk to your doctor, nurse or dietician for more information on diet and exercise to get to a weight that is healthy for you.

Decrease your stress level: Talk to your doctor or nurse if you need help. Seek emotional support when needed. Talk to your friends and family about helping keep your stress low.

Have regular checkups by your primary doctor: Your primary doctor will manage all of your health issues once you leave the Rehab Center. If you do not have a primary care doctor, notify your Rehab doctors or nurses before you go home for assistance in getting one.

Control Blood Sugar Levels: If you have diabetes, it is important to work with your doctors and nurses to control your blood sugar. Eat a diet low in carbohydrates and added sugars and take your medication as directed.

Control High Cholesterol: If you have high cholesterol, you may be started on medications to help lower it. Take your medication as directed and improve your eating habits to control your cholesterol levels.

Control an Irregular Heart Beat: If you were diagnosed with an irregular heart beat called atrial-fibrillation (‘a-fib’) or atrial-flutter (a-flutter), you may be placed on medications to help control it. You may also be placed on a medication that will thin your blood. Ask your doctors and nurses for more information on the medication(s) that you will be started on.

Keeping Healthy After a Stroke

Skin Care

After experiencing a stroke, you may be at risk for skin problems due to decreased movement and feeling. Several types of skin problems can occur:

- Sores, blisters, rashes or skin color changes may develop from pressure if you remain sitting or lying in one spot for long periods of time.
- You may not be able to feel if you are touching something sharp or hot, or if you are sitting or lying on a small object.
- Bladder or bowel accidents causes the skin to become irritated when not cleaned up right away.
- As you become older, your skin becomes more fragile and you are even more at risk.

Tips for Healthy Skin

Healthy skin is unbroken, has natural oils and a good blood supply. Skin stays healthy with a balanced diet, good hygiene, regular skin checks and pressure relief. Relieving pressure and checking skin ensures a good blood supply to the skin. Skin problems can often be prevented.

Skin Inspection

- Look at your skin regularly to spot sores when they are just starting.
- Inspect your entire body, especially bony areas, such as your hips, feet, knees, elbows, and shoulders.
- Check at least twice a day - morning and evening. Check more often if you are sitting or lying down for a longer time.
- Check skin every hour when using new equipment, such as a brace.
- Use a long handled mirror to help with hard to see areas. Also ask for help from your family or caregiver.

- Be alert to areas that have been injured in the past. Scar tissue breaks down very easily.
- Look for red areas, blisters, openings in the skin, or rashes. On red areas, use the back of your stronger hand to feel if the area is warmer than surrounding skin.
- Do not forget to check the groin area.

Avoiding Pressure Injuries

- These areas are at risk to pressure injuries: (include picture of body)

  This is how you can prevent injuries from happening

- Keep skin clean and dry. Skin that remains wet with urine, sweat, or stool will have more problems.
- Change body position often - Use the "**Rule of 2s**" ….
  - When in the wheelchair, shift weight every 20 minutes. Follow your therapists' instructions on how to reposition
  - When in the bed, turn every 2 hours
- If you use a wheelchair, periodically check your cushion to make sure it is providing adequate support. If not, please talk to your doctor or therapist.
- Avoid clothes that are tight or have heavy seams.
- Make sure elastic stockings (TED hose) are put on evenly without wrinkles. The wrinkles cause extra pressure which can result in pressure injuries.

Hygiene

- Keep skin clean and dry. Urine, sweat or stool can cause skin breakdown. Bathing every day in a tub or shower may also wash away natural oils that give your skin moisture. A daily sponge bath is good for removing dry skin and overall skin heath.
- Dry well after bathing, but avoid hard rubbing with a towel - it can hurt the skin.
- Back rubs can be very relaxing, but should be done with lotion or oil. Avoid alcohol based products which can dry out the skin.
- Trim nails regularly and avoid sharp edges or hang nails.
- People with diabetes should check their feet regularly and see a podiatrist (foot doctor)

Respiratory Problems

- The muscles that help you breathe can often get weak after a stroke. These muscles include the abdominal (stomach), rib, and diaphragm muscles.
- The most common breathing problems after a stroke are trouble coughing, pneumonia, and pulmonary embolus, which is a blood clot in the lung.

Pneumonia

- Pneumonia is a disease of the lung that is caused by infection.
- Aspiration pneumonia is a lung infection caused by saliva, food or drink going down into the lung(s). Sometimes coughing and choking on food is a sign of aspiration.

Signs of Pneumonia:

Very fast or very slow breathing	Shortness of breath
Shallow breaths	Chest pains
Confusion or behavior changes	Problems swallowing
Chills or fever	Vomiting
Coughing or wheezing	

    - What to do if you are concerned about pneumonia:
        - Call your doctor or 911
        - Lift the head of your bed or use pillows to help you breathe easier
        - Do your breathing exercises ordered by your doctor or therapist
        - Take deep breaths

Pulmonary Embolism

- Pulmonary embolism (PE) is a blood clot in the lungs.

Signs of Pulmonary embolism (PE):

- Coughing or wheezing
- Shortness of breath
- Chest pain
- Blue color around the mouth
- Dizziness

What to do if you are concerned about Pulmonary embolism (PE) :

Call 911 and go to the hospital right away.

Prevention of Pulmonary embolism (PE):

- Stay as active as possible
- Take all medicines as ordered by your doctor. Blood thinners are often ordered to prevent clots
- If recommended by your doctor, wear elastic stockings (compression hose) when you sit up to prevent swelling in your legs and feet

Cardiac Problems

Hypertension (High Blood Pressure)

- Hypertension, otherwise known as high blood pressure, is when the blood pressure in the arteries of the body are increased.
- Normal Blood pressure is equal to or less than 120/80
- Hypertension is divided into different classes based on how high the blood pressure measurements are.
- Blood pressure can be measured by a healthcare professional or oneself. Machines to measure blood pressure are often available in the community, such as at a pharmacy or health fair
- Hypertension is one of the risk factors for stroke

Signs and symptoms of hypertension:

- Headaches
- Altered vision
- Lightheadedness
- Nausea/vomiting
- Chest pain
- Shortness of breath

Treatment of Hypertension:

- Medications given by your doctor should be taken as prescribed. Examples of medications are Hydrochlorothiazide, Amlodipine, Lisinopril, and Metoprolol
- Talk with your doctor about which blood pressure medications are right for you.
  - The following lifestyle changes will help in the prevention and treatment of hypertension:
    - Healthy diet, like low sodium diet
    - Exercise
    - Quit smoking
    - Maintain a healthy weight
    - Decreased stress level

Heart Disease

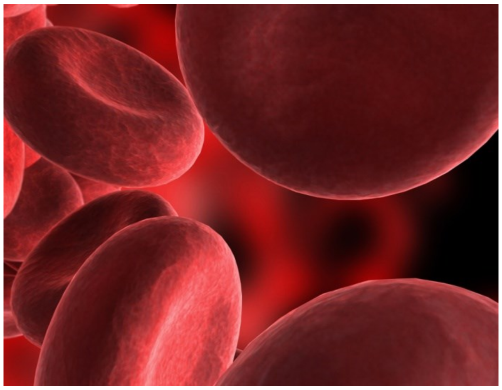
Heart disease occurs when the structure, function, or overall performance of the heart is not working right. It can cause heart failure.

- <u>Signs:</u>
  - Chest pain
  - Sweating
  - Nausea or vomiting
  - Shortness of breath
  - Jaw, neck, shoulder or arm pain
  - Dizziness and falls
  - Feeling very tired or fatigue
  - Sudden weight gain, such as 2 or 3 lbs. in 24 hours
  - Swelling in the legs and feet
  - Frequent coughing or peeing at night

- <u>What to do</u>
  - Call 911 in an emergency
  - Take prescribed medicine and follow your recommended diet
  - Lift the head of your bed to make breathing easier

Deep Vein Thrombosis/Thrombophlebitis

- <u>Deep Vein Thrombosis (DVT)</u>– is a blood clot in a vein, usually in the calf or thigh.
- Thrombophlebitis-- is swelling of a vein with a blood clot, usually in the calf or thigh.
    - <u>Signs:</u>
        - Redness, swelling, or warmth in one limb when compared to the other.
    - <u>What to do:</u>
        - Check for fever and call your doctor or home health nurse if you notice any of these signs. If unable to reach them, go to the hospital right away.
    - <u>To prevent:</u>
        - Stay active
        - Do your range of motion exercises
        - Wear compression stockings as prescribed



Anticoagulants and Antiplatelet Agents

- Anticoagulants and antiplatelets are medicines that interfere with the blood's ability to clot in an artery, vein or the heart. They are used to prevent strokes caused by blood clot.
- Anticoagulants or "blood thinners" are medicines that delay the bloods ability to clot.
  - Examples: Coumadin/Warfarin, Pradaxa or Heparin
  - Treatment should be supervised; follow your doctor's instructions
  - Have regular blood tests, so your doctor can tell how the medicine is working
  - You must tell other healthcare providers that you're taking Anticoagulants
  - Let your doctor know if you have been started on any new medications
  - Tell your doctor if:
    - Your urine turns pink or red
    - Stools turn red, dark brown or black
    - You bleed more than normal when you have your period

    - Your gums bleed
    - You have a very bad headache and stomach pain that doesn't go away
    - You get sick, feel weak or dizzy
    - You think you are pregnant
    - You often find bruises or blood blisters
    - You have an accident of any kind

- Antiplatelet medicines keep blood clots from forming by preventing blood platelets from sticking together.
  - They're used as part of a treatment for patients with atherosclerosis or clotting tendencies. Atherosclerosis is deposits of cholesterol that form along the inner walls of the blood vessels, creating a condition for blood clots.
  - They are generally prescribed to prevent clots when atherosclerosis is present.
  - Examples: Aspirin,Ticlopidine, Clopidogrel, and Dipyridamole

Recovery, Retraining, and Adaptation

Recovery or "Natural Healing" takes place in the early stages of rehabilitation. Natural healing occurs when the body naturally recovers from the effects of the stroke. Some swelling in the brain is reduced and some movement in the arm or leg may begin. It is important for you to keep a balance of:

- Rest
- Exercise and therapies
- Getting together with people

Retraining takes place in the middle stages of rehabilitation. Some natural healing continues. Retraining involves learning to do activities again and usually starts in therapy sessions. The therapist will use cues to help with retraining. For example, during a wheelchair transfer the therapist may point to the brakes to cue you to apply the brakes. Repetition will help you remember the cues and eventually do the activity without being reminded. Setting small, realistic goals during this period of retraining is important.

Adaptation takes place in the late stage of rehabilitation. It occurs when you and your caregiver begin adapting to the long term or permanent effects of the stroke:

- Coping with change
- Get back to leisure activities
- Developing new interests

Each small success is a milestone in the rehabilitation process!

TRANSFERS

- The term transfer refers to the process of safely moving from one surface to another. This includes your movement from a bed to a wheelchair, from a wheelchair to a toilet, from a wheelchair to a car, standing up, or up from the floor (fall recovery)
- Equipment may be used early on in rehab for transfers including a transfer belt, slideboard, walker, cane, toilet and shower rails/chairs, or mechanical lift for safety
- Communication between yourself, the therapist, and your caregiver is very important before and during transfers.
- **Do not get up by yourself unless the nurses and therapists have given you permission to do so!**

POSITIONING

Stroke rehabilitation is a 24 hour job...not just when you are with the therapists. Sleep and resting position makes a difference in quality of recovery.

Room Arrangement

- In the early stages of your rehab, you may have limited sense of parts of your body, including hearing, feeling or seeing on the affected side. It's important to position your bed and your chair to help you move easier between them.

Patients may also have neglect, which causes the patient to ignore half of their body.

- Your therapist can help review some techniques to help the patient improve the use of the affected side.

Bed Positioning

- Positioning is important for prevent pressure injuries or to relieve pain of existing injuries, and to prevent muscle contractures.
- Use pillows, towels, or blankets when positioning in order to support and maintain a particular position
- It is important to change position often

Wheelchair Positioning

- It is important to transfer you into a wheelchair as soon as possible following stroke because:
  - Can achieve better positioning and upright sitting posture
- Your therapist will choose the best wheelchair and cushion to prevent pressure injuries.

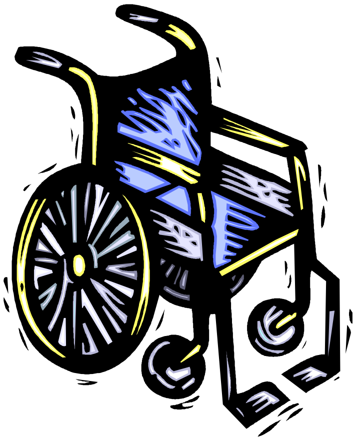
  - Supporting the affected arm with a lap tray.
  - Adjusting the height of the footrests to help prevent pressure injuries under leg area.

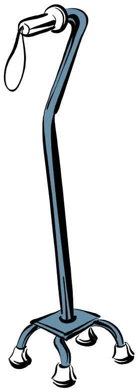
MOBILITY

- Bed mobility
  - Rolling
  - Laying down and sitting up
- You may practice being mobile in a wheelchair or walking, depending on your strength and balance.

EQUIPMENT

- Your therapists will help you choose and practice with any mobility equipment you might need. This might include:
  - A wheelchair
  - Different types of canes (e.g. single point and “quad” or 4 pronged canes)
  - Walkers and half (or “hemi”) walkers
  - A brace or “orthotic” to help leg or foot weakness
  - A sliding board to help you get in and out of a wheelchair and car
- You are in acute rehab to get stronger, so just because you **start** with a piece of equipment does not mean you will **always** need it





WALKING ("AMBULATION")

- The rehab staff wants to get you as mobile and independent as possible- part of that is getting back on your feet!
- Therapists will help you progress from sitting and transferring to standing and walking in the safest way possible
- You may start with a wheelchair or a piece of equipment like a cane or walker. Your therapist will help you pick the right equipment and teach you how to use it
- **Do not get up by yourself unless the nurses and therapists have given you permission to do so!**

SAFETY AND FALLS

- **<u>Always</u>** wear non-slip footwear. If you have a brace or an ankle-foot-orthosis (AFO), you must wear your shoes with the AFO.
- Do not wear shoes without backs – includes sandals and slippers. They can easily fall off!
- Keep floors and walkways clear to prevent tripping
- Surfaces should be dry and non-slippery
- Tape down or remove throw rugs
- Do not sit in chairs that can easily move – chairs with wheels, stools, etc.
- Do not carry anything hot – coffee, tea, items from the oven
- Control pets that may get under foot and cause a loss of balance/falls
- Carefully check water temperature for bathing
- Place chairs around the home for rest breaks while walking
- Keep a light on at night in case you need to get up
- Be mindful of changes in floor surfaces – carpet to tile, etc.

- Carry a charged cell phone or cordless phone for safety
- Your therapists will teach what to do if a fall does occur (“fall recovery”) and how to protect you and your caregiver

DAILY LIVING TASKS

After a stroke, you may struggle to participate in daily living activities. Daily living activities are:

- Activities of Daily Living (ADLs): Feeding, grooming, dressing, bathing, toileting, sexual activity, and sleep/rest.
- Instrumental Activities of Daily Living (IADLs): Caring for other members of your family, preparing a meal, managing finances and medication, shopping, and engaging in other activities in the community.

Dressing:

Getting dressed can be difficult following a stroke. There can be mental and physical challenges to overcome.

Improving Upper and Lower Body Dressing

- Dress the affected side first
- Wear large, comfortable garments with elastic waistbands
- Use of adaptive equipment may improve independence and safety with dressing. Ask your occupational therapist for more information

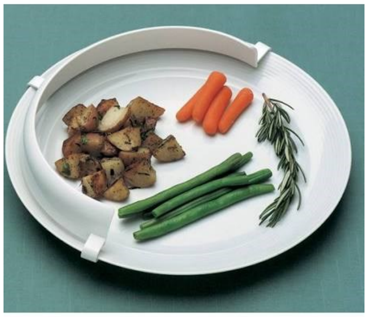
You may also learn energy saving techniques to use during dressing activities, such as putting on all clothing items from a seated position.

Feeding:

Physical and cognitive changes following a stroke can affect your ability to feed yourself during meals. Equipment may be used to help you adapt and improve your feeding skills, which will include drinking from a cup, cutting and preparing food, using a fork, knife and spoon, and opening containers.

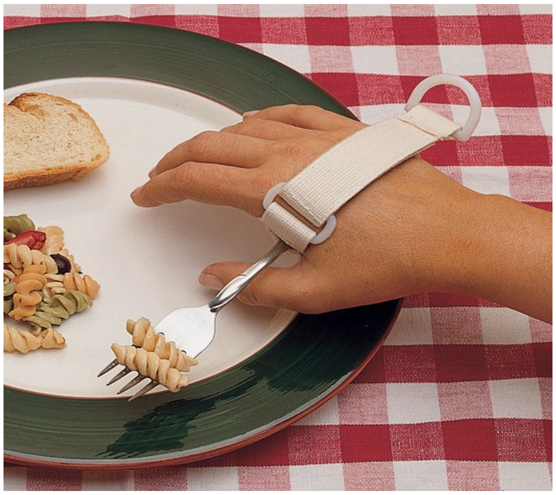
- One may use adaptive equipment to improve feeding skills

Plate Guard



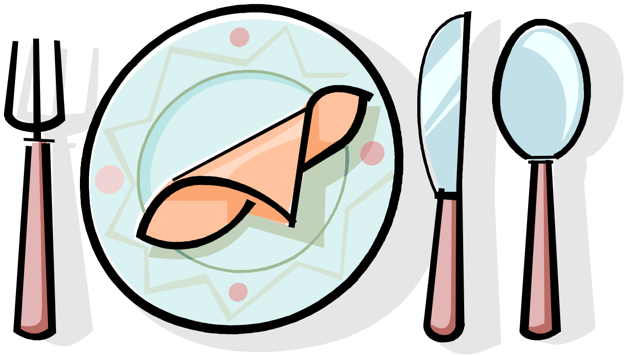
Large Grip Utensils

Universal Cuff



Improve posture to ensure safe swallowing and to reduce spilled food.

  - Recommend eating sitting upright and in the center of the chair vs. in bed
  - Environmental adaptations, such as wheelchair supports, foot stools, and changing the height of the table or chair.



Grooming:

Grooming tasks, such as shaving, brushing/combing hair, brushing teeth, applying makeup or even washing your hands can be difficult to do following a stroke.

Your therapist can help you with a plan to increase your ability to groom yourself, such as using equipment to help you adapt or siting instead of standing.

Bathing:

Taking a shower or a bath in a slippery, wet bathroom can be a big risk to your safety following a stroke.

Improving one’s safety and performance while bathing

- Durable medical equipment (DME)
  - Shower chair (used for walk-in showers)
  - Tub transfer bench (used for getting in and out of a bathtub)

- Making Changes to Your Home
    - Grab bars
    - Handheld shower spray
    - Remove throw rugs
    - Use nonskid mats inside and outside of the shower

Toileting:

Sitting down and standing up from a standard toilet can be difficult following a stroke. Your therapist can help you with plans or equipment for safe toileting including:

- Bedside commode (BSC)
- Raised toilet seat
- Grab bars

Bowel and bladder:

After you have a stroke, you may have some changes in your ability to control your bladder and/or bowel movements. Some people will develop a condition called incontinence, which means you are unable to control the release of urine or stool and may have accidents. This may be treated by timed toileting where you go to the bathroom at regular times whether you feel the urge to go or not. This can help to retrain your bladder and/or bowel and can also help prevent accidents.

Another condition some people experience is urinary retention, which means that you are not able to fully empty your bladder. If you experience this, your doctor may prescribe medications to help, or you may require a catheter to empty your bladder. If you do experience any problems with using the bathroom, your care team will work with you to determine the best plan of care to address your needs.

Sexuality:

Following a stroke, you and your partner may be concerned with issues related to intimacy and sexual intercourse. Your rehabilitation team will provide education and strategies to help you and your loved one work through problems that can affect sexuality and other related activities. You may learn specific sexual positions that may allow for safe and enjoyable sexual interactions. Issues related to bowel/bladder, sexual dysfunction, and body image may need to be further addressed in therapy. Referrals to physicians and psychologists can be recommended for the exploration of medications and counseling.

Spasticity (increased muscle tone):

- Movements should be performed slowly
- Incorporate rotation into the movement
- Slow rocking
- Slow stroking or massaging
- Heat or cold may be used

Flaccidity (low muscle tone)

- Physical supports (pillows, bolsters)
- Sexual positions that support the involved joint

Pain

- Engage in sexual activity when pain is minimal or after taking pain medications
- Masturbation may be used as a substitute for sexual intercourse when levels of pain are high

Endurance

- Engage in sexual activity when well rested
- Use sexual positions that are easy and not demanding.

Loss of sensation

- The use of lubrication
- Unaffected areas may feel more pleasurable and should be used for arousal

Home Management/Meal Preparations:

Maintaining a home and cooking meals can be an important activity in your life. Your rehabilitation team will work with you following a stroke to get you back to participating in these activities once it is safe.

Energy saving strategies

- Sit while preparing food, washing dishes, folding laundry
- Store kitchen/home items that are often used in easy-to-reach places
- Use a cart or walker basket to transport items in the house
- Hire cleaning help if you can afford it.
- Use meal services, such as Meals on Wheels or home delivery trucks

- Break chores down into activities that can be completed throughout the week. Don't start an activity that can't be stopped and continued at a later time.
- Take rest breaks throughout the day

Some activities may need to be changed or stopped until later in the rehabilitation process. **<u>Hot meal preparation, such as using a stove or an oven, is often a big safety concern when returning home from the hospital. Please avoid this activity unless you have assistance or cleared by your therapist.</u>** Your therapist might recommend that you only use a microwave or prepare cold meal items (cereal, sandwiches) until it is determined to be safe. You may also need outside help for Ironing, yard work, and other hard tasks until it is safe for you to do so.

Upper Extremity (Arm and Shoulder) Dysfunction:

There is a high risk of your arm and shoulder not working properly following a stroke. Your therapist will help you regain function and will teach you ways to protect your arm and to prevent pain, such as skin care, range of motion exercises, devices to help support and positioning.

Your rehabilitation team may also work with you to determine if the need for a splint or other supportive device if necessary.

EATING, CHEWING, SWALLOWING

Dysphagia is a term that means difficulty with chewing and swallowing food. This can occur after a stroke and can make eating and drinking difficult and unsafe. Dysphagia can affect your swallowing in many different ways.

General Signs and Symptoms of Dysphagia are:

- food or liquid spilling out from the mouth
- food remaining in the mouth following a swallow (e.g., pocketing or holding)
- extra effort or time needed to chew or swallow
- the feeling that food or liquid is “going down the wrong pipe”
- coughing, throat clearing, wet or gurgly sounding voice during and/or after eating or drinking
- recurring pneumonia or chest congestion after eating
- weight loss or dehydration from not being able to eat or drink enough

Your Rehabilitation team can help you with these issues by teaching strategies to improve the quality of chewing and swallowing to prevent aspiration (i.e., food/liquid enters the airway/lungs). They may also make changes to the consistency of the foods (e.g., puree, ground, soft solids) and liquids (e.g., honey-thick, nectar-thick) to ensure safe swallowing and minimize your risk for aspiration. If you have difficulty with eating and drinking, a speech-language pathologist (SLP) will work with you to improve your ability to safely eat and swallow foods and drinks.

Here are a few guidelines to follow to ensure safe swallowing:

- Sit upright in your chair or bed
- Eat only while awake and alert
- Take small bites and sips
- Eat/drink at a slow pace
- Check your mouth for food that may be stuck in your cheeks or on the tongue
- Take turns taking a bit of food, then a drink throughout your meal.

NUTRITION

Healthy eating is good for you and is a key factor to recovery after stroke. By eating the right foods, you can manage major risk factors of stroke: obesity, high blood pressure, diabetes, etc.

Your Rehab Doctors can arrange a visit with a licensed Dietician to teach you how to plan meals and snacks to improve your health and reduce the risk of stroke. Here are a few tips:

- **Eat a variety of foods each day**

  Including a variety of foods as suggested by the MyPlate Food Guide is a great way to get started.

- **Choose 5 or more servings of fruits and vegetables each day**

The best way to get the most out of a healthy diet is to increase the amounts of fruits and vegetables you eat. Be sure to eat a minimum of 5 servings each day.

One serving of vegetable is equal to:	One serving of fruit is equal to:
1 cup raw or leafy vegetable	1 medium sized (tennis ball size) piece of fruit
½ cup cooked vegetables	1 4-inch banana
6 ounces vegetable juice	½ cup fruit cocktail, in own juice
	½ grapefruit
	1 cup diced melon or berries
	2 Tbsp dried fruit

- **Reading food labels**

Reading food labels is a good way to learn more about the foods you are eating. Once you get used to reading food labels, you'll become a healthier shopper and eater. When selecting foods for reducing your risk of having another stroke, focus on the following information on the food label for each serving:

Calories	Cholesterol
Total fat	Sodium
Saturated fat	Dietary fiber
Trans fat	

- **Limit saturated and trans-fat and cholesterol**

  Reduce or replace saturated fats with healthier fats.

  - Cook with olive, canola, or soy oils.
  - Dip bread in olive oil and black pepper vs. spreading with margarine or butter.
  - Dress salads with olive oil and balsamic vinegar.
  - Flavor vegetables with olive or canola oil sprays or drizzle on top.

- **Eat less salt**

  Salt makes the body retain fluid, which can increase your blood pressure. Try to limit or remove salt from your diet, such as canned foods or soy sauce.

- **Eat smaller portions**

  Eating more than the body needs will result in extra calories and weight.

SPEECH/LANGUAGE/COGNITION

Following your stroke, you may have changes in your speech, language comprehension/expression, and cognition or thinking skills. A speech-language pathologist (SLP) will help you plan ways to address changes in your speech, language, and thinking skills.

Speech/Language:

Dysarthria: Speech can be hard after a stroke, due to the changes to the muscles you use for speech, including the lips, tongue, etc.

Apraxia of Speech: Speech difficulty that results from impaired coordination of the muscles needed for speech production due to damage to parts of the brain that control speech. Unlike dysarthria (see above), apraxia is not due to muscle weakness. These muscles often need to be "retrained" to produce sounds correctly and sequence sounds into words.

Aphasia: A loss of language that results from damage to the parts of the brain that contain language centers (typically in the left side of the brain). Aphasia may cause difficulties in speaking, listening, reading, and writing/spelling but does not affect intelligence.

Cognitive Communication:

You may experience changes in cognition following a stroke, which can affect attention/ concentration, memory (short-term and long-term), problem solving, reasoning, thinking, judgment, and social interaction.

ADJUSTMENT TO STROKE

Emotional Adjustment after Stroke

Dealing with a stroke can be stressful and emotional. These emotions can change with time, vary from person to person, and may interfere with your ability to recover. Feeling overwhelmed and emotional is normal. There are some things you can do to adjust on your own, but if it becomes too difficult and you see signs of depression or severe anxiety, it is important to seek professional help.

Causes for Emotional Difficulties

Some emotional changes may be related to the location where your stroke occurred. It can also be the result of chemical changes in your brain after your stroke. Sometimes, feelings of fear, sadness, anger or frustration are a normal response to the stress of the diagnosis or adjusting to new ways of doing things.

Depression

Stroke after-effects can include feelings of sadness, hopelessness or helplessness, irritability, and changes in eating or sleeping. If you have these symptoms, it is important to discuss them with your medical team.

Anxiety

Anxiety is a sense of worry or fear. Anxiety symptoms include: ongoing worrying, fear, restlessness and irritability, low energy, poor concentration, muscle tension, feeling panicky and out of breath, rapid heartbeat, shaking, headache, and feeling sick to your stomach. Feeling anxious can be common among stroke survivors, and can occur along with depression. Since anxiety can affect rehab progress, daily living, relationships and quality of life, be sure to seek help right away. Treatment may include counseling, medication, or a combination of the two.

Dealing with Emotional Difficulties:

- Join a support group. Talking to other stroke survivors can help your recovery
- Exercise regularly as directed by your doctor
- Do activities that you enjoy
- Celebrate your progress
- Allow yourself to make mistakes
- Ask your medical team for help. Ask for a referral to a mental health professional and/or medication if you need it
- Ask your doctor about emotions and symptoms early on
- Ask your family to help you regain your interest in social activities
- Get information from national and local stroke associations
- Speak openly and honestly to your caregivers about your emotional changes
- Make the most of rehab; the more you recover, the better you will feel
- Spend time with family and friends
- Sometimes lack of sleep can make emotional changes worse. Allow yourself to rest.

If you are thinking about harming yourself, or know someone who is, tell someone who can help immediately:

- Call your doctor.
- Call 911 or go to a hospital emergency room to get immediate help, or ask a friend or family member to help you do these things.
- Call the toll-free, 24-hour hotline of the National Suicide Prevention Lifeline at 1-800-273-TALK (1-800-273-8255); TTY: 1-800-799-4TTY (4889) to talk to a trained counselor.

CAREGIVERS

What are Caregivers?

Caregivers are people who provide help and support. Everyone involved in helping a stroke survivor is a caregiver. Caregivers can include a spouse, family members, or friends. It is common for multiple people to play a caregiver role for a survivor, with one person (the primary caregiver) providing most of the care. If you are reading this, you are likely one of the main caregivers for your loved one.

Role of the Caregiver

Caregivers are a very important part of the recovery process. This role can be very rewarding, but also very challenging. Once your loved one leaves the hospital, the main responsibility for his or her everyday care switches from healthcare professionals to you.

Some roles of a caregiver throughout the recovery process can include:

- Medical, legal, and financial decision making and planning
- Coordinating healthcare appointments and medication use
- Assisting with walking and transportation
- Helping with “activities of daily living” such as making meals, bathing and toileting
- Monitoring the survivor’s mental and physical health, including pain, diet, and emotional state
- Providing encouragement and support
- Supporting survivor independence

Providing Care for your loved ones

Experienced caregivers (who have “been there and done that”) often identify the following goals as being the most important:

- Organize your loved one’s healthcare needs
  - Ask questions of healthcare providers
  - Help manage medications/refills
  - Coordinate appointments with healthcare professionals
  - Be aware of stroke risk factors
- Provide emotional support to your loved one
  - Talk about feelings. Listen. Care.
  - Help them find support groups
- Promote independence
  - …even when it is difficult to see your loved one struggle
  - Set goals
  - Help them communicate
  - Help them stay active
- Provide chance to be with other people for yourself and your survivor
  - Help find support groups
  - Continue to see friends/family and participate in activities

Caregiver Health

The role of caregiver is a lot of responsibility and may create feelings of anger, frustration, sadness or guilt. Caregivers report more stress than the general population, are twice as likely to become depressed, and often do not get as much sleep as they need. On top of this, caregivers are less likely to seek treatment for these conditions. It is important to keep in mind that depression, sleep deprivation, and feeling stressed can affect the care you give. Caring for caregivers is extremely important, but often overlooked.

Tips for caregivers: How to cope

- Accept that you cannot do this alone
- Educate yourself
- Allow yourself time to grieve, then allow yourself to dream new dreams
- Learn to relax
- Eat well
- Seek support from other caregivers
- Reward yourself with breaks often
- Watch out for signs of depression
- Accept offers for help
- Educate yourself about your loved one’s condition
- Be open to ideas that promote your loved one’s independence
- Be good to your back, since caregivers often do a lot of lifting, pushing, and pulling
- Stand up for your rights

Return to the Community

Support Groups

The North Carolina Stroke Association aims to reduce the impact of strokes in North Carolina through prevention, education, and advocacy post-stroke. Information regarding support groups for life after a stroke can be found on the foundation's website: www.ncstroke.org

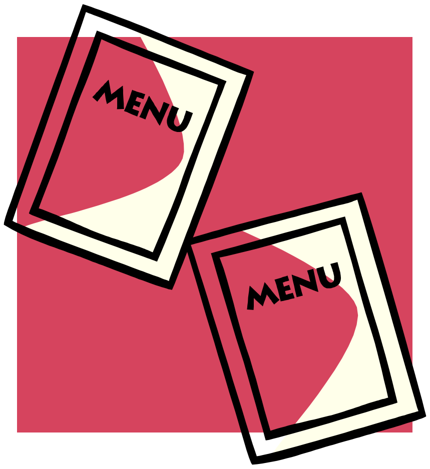
You may also contact your local hospital for additional support groups in your hometown/county.

Americans with Disabilities Act (ADA)

- This law states that physical or mental disabilities in no way reduces a person's right to fully participate in all aspects of society, particularly in employment, housing, access to public areas, education, transportation, communication, recreation, institutionalization, health services, voting, and access to public services.
- This law also states that no one with a disability can be discriminated against in any part of the community.
- More information can be found at both the national and state level of government:
    - United States Access Board
    - Access North Carolina

Returning to the Community

- Community Re-entry outings provide the opportunity for appropriate patients to apply learned skills into your community setting. During your admission to UNC Rehab, you can participate in outing to the pool for aquatic therapy, grocery store, restaurants, community centers---the possibilities are endless!
- Community outings are focused on applying skills learned in therapies to complete tasks that you often in your home and community.
- Outings allow you to overcome barriers that you might face before leaving the hospital.



Community Resources

There are many local resources, as well as state-wide programs, designed to help you with new and existing needs. Areas in which you may need help:

- Finances
- Mental Health Services
- Food/Meal Preparation
- Medication
- Home Accessibility
- Transportation
- Assistive Devices
- Leisure Interests/Adaptive Sports
- Vocational Rehabilitation/Employment

Contact your local Chamber of Commerce/Town Hall for services available in your community.

Driving

Do not drive until your doctor clears you to do so. Stroke can affect driving in the following ways:

- Problems turning the steering wheel
- Easily becoming frustrated or confused
- Drifting across lane markings
- Problems with directions
- Visual Problems
- Poor Reaction Time

After your stroke, consider:

- Riding with family or friends
- Taking a Taxi cab
- Shuttle buses or vans
- Public buses, trains or subways
- Walking (if safe)
- Driving rehab

DMV/Handicapped Parking Stickers

If your health care provider clears you to begin driving again, there are options in your community and in outpatient therapies to evaluate your driving skills.

The North Carolina Department of Transportation: Division of Motor Vehicles is responsible for processing and providing requests for parking stickers for individuals with disabilities.

Three types of handicap licensing:

- Five-year handicap parking placard
- Temporary (up to six months) handicap parking placard
- Handicap driver registration plate/tag

A doctor must determine if you qualify for a parking sticker. Applications may be found at a North Carolina License Plate Agency. If out of state, contact your local DMV.

GLOSSARY

Term	**Definition**
Adaptation:	A later part of recovery where you and your caregiver begin adjusting to the long term or permanent effects of the stroke.
Adaptive devices:	Help a patient safely and more easily perform everyday tasks
ADL:	Activities of daily living (bathing, grooming, etc.).
Advocacy:	The act of supporting someone.
Affected side:	The side of the body most impaired by the stroke.
Americans with Disabilities Act (ADA):	Federal law that assists and prevents discrimination against people with disabilities.
Aphasia:	A speech and language impairment caused by a stroke.
Arteriovenous malformation (AVM):	A cluster of differently formed blood vessels. If these blood vessels burst, it may cause a hemorrhagic stroke.
Aspiration pneumonia:	An infection caused by saliva, food or drink going down into the lung(s).
Aspiration:	Food or drink going down the windpipe; may result in coughing or choking.
Atrial fibrillation:	Irregular heartbeat
Base of support:	The area under and around you where most of your weight is centered.
Body mechanics:	Performing daily activities using correct body form, positioning, and movement.
Bowel incontinence:	Not being able to control when you have a bowel movement.
Catheter:	Thin tube inserted into your bladder to help you urinate.
Cerebral embolism:	A blood clot that travels from your body to clog a vessel in the brain.
Cerebral thrombosis:	A blood clot formed in a clogged vessel that feeds blood to your brain.

Cognition/cognitive:	A group of mental processes that includes attention, memory, reasoning, problem solving, language, learning, and decision making.
Compression garments:	Elastic garments to help prevent swelling and increase circulation in the arms and legs.
Constipation:	Problems having bowel movements.
Contracture:	The permanent tightening of muscles, skin, and soft tissue at a joint.
Controlled environment:	A safe place with no unexpected obstacles where a patient can learn new skills.
Debility:	Overall weakness.
Deep vein thrombosis (DVT):	A blood clot in a vein, usually in the calf or thigh.
Disability:	Limitations of physical, emotional, or cognitive abilities.
Dycem ™:	Non-slip material – often used to aid a person’s grip.
Dysphagia:	Difficulty with swallowing.
Edema:	Swelling in tissue due to build up of fluid.
Enema:	Inserting fluid in the rectum to make it easier to have a bowel movement.
Esophagus:	Passage connecting the mouth and stomach.
Fall recovery:	Therapist led training to help a patient regain their safety after a fall.
Gait belt:	Also called a safety belt, it is placed around a patient to help both them and their caregiver remain safe while moving.
Hemiplegic:	A loss or decrease in movement on one side of the body.
Hypertension:	High blood pressure
Instrumental activities of daily living (IADLs):	Activities that let people live independently in a community (driving, cooking, etc.).

Intracerebral hemorrhage (ICH):	A type of hemorrhagic stroke where a blood vessel bleeds or bursts into the tissue deep within the brain.
Kegel exercises:	Exercises done to strengthen the muscles that help control your bladder.
Midline:	Center
Modified Barium Swallow Study (MBSS or “swallow study”):	A test to diagnose dysphagia.
Natural Recovery:	“Natural healing”- the part of healing where the body naturally recovers from the effects of the stroke.
Neglect:	A lack of awareness of one side of the body or space surrounding it.
Orientation:	Being aware of person, place, time, and situation.
Orthotics:	Braces or splints to help a patient with a stroke move better.
Pharynx:	Passage connecting the mouth and nose with the esophagus.
Pressure sore:	Breakdown of the skin caused by pressure on a certain spot or area for a long time.
Prone:	Lying on your stomach.
Pulmonary embolism:	A blood clot in the lungs.
Retraining:	The part of healing where therapists help you relearn activities and movement.
Seizure:	Abnormal electrical activity of the brain that causes odd behavior or shaking movements.
Sensory:	Involving the sense organs (eyes, ears, nose, mouth, skin) and the nerves that relay messages.
Spasticity:	Stiff and rigid muscles.
Subarachnoid hemorrhage (SAH):	A type of hemorrhagic stroke where a blood vessel on or near the surface of the brain ruptures and bleeds into the space between the brain and the skull.
Supine:	Lying on your back.

Suppository:	Medicine inserted in the rectum to help produce a bowel movement.
Tactile stimulation:	Providing input to the body through touch.
Tone:	Slight, continuous muscle contraction. Normal tone helps control your posture, while too much tone can limit movement.
Tracheostomy / tracheostomy tube (trach):	An opening into the windpipe that helps breathing. A tracheostomy tube is placed into this opening.
Transfer:	The process of moving from one surface to another.
Urinary incontinence:	Not being able to control when you urinate.
Urinary retention:	Not being able to fully empty your bladder when you urinate.
Visual field deficit:	Occurs when the person can only see out of a part of each eye, instead of the whole eye.