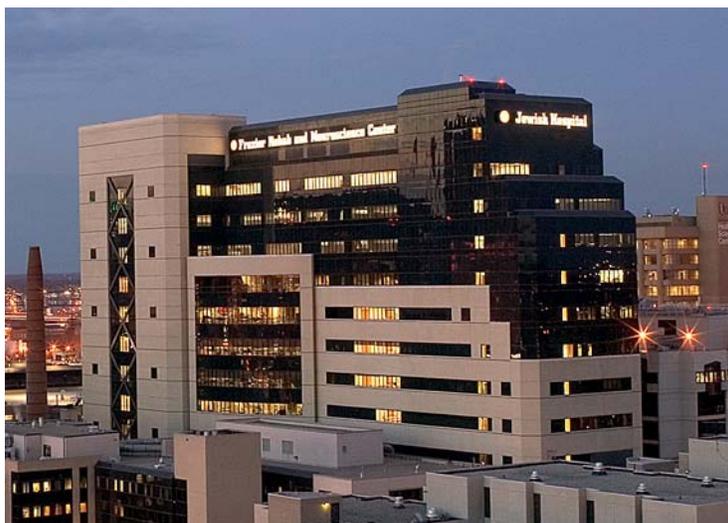


SPINAL CORD MEDICINE

HANDBOOK FOR PATIENT AND FAMILY



HOME MODIFICATIONS



Frazier Rehab Institute

A service of Jewish Hospital & St. Mary's HealthCare

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THE PATIENT AND FAMILY HANDBOOK

This Handbook is designed to give you the information to better understand spinal cord injury and the tools needed to manage your health care needs successfully. Information is intended for you and your family because, those who love you, will often be involved in assisting you with your care needs while in the hospital, and in the home environment. As you read through the Handbook, your rehab team at Frazier is available to address your questions and provide you more information pertinent to your needs.

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A BRIEF NOTE ABOUT THE FOUNDER OF FRAZIER REHAB INSTITUTE

In her early 20's, Amelia Brown of Louisville sustained a spinal injury in a car accident in the 1940's. With no rehabilitation services in Louisville, she traveled to New York for treatment. After returning to Louisville, she married a physician, Dr. Harry Frazier. Believing Louisville needed its own rehabilitation facility, Mrs. Frazier founded the Frazier Institute of Physical Medicine and Rehabilitation in the early 1950s. Her son, Owsley Brown Frazier, served as Chairman of the Fund Raising Committee for Frazier's new building, named the Frazier Rehab and Neuroscience Center, which opened in 2006.

DISCLAIMER

The information contained herein is intended to be used in accordance with the treatment plan prescribed by your physician and with the prior approval of your physician. You should not begin using any of the methods described in this publication until you have consulted your physician. Jewish Hospital & St. Mary's HealthCare, Inc. D.B.A. Frazier Rehab Institute, its affiliates, associates, successors and assigns, as well as its trustees, officers, directors, agents and employees are not liable for any damages resulting from the use of this publication.

NOTE: Words *italicized* in the text below are defined in the Glossary at the end of this Chapter.

HOME MODIFICATIONS

Soon after spinal cord injury, you may find that some changes need to be made at home to make it more accessible for bathing, toileting, transfers and movement into and out of the house using a wheelchair or walker. Most people do make some modifications to their homes, however, some people relocate to a residence better suited to their needs. While each person with a spinal cord injury is unique, there are several basic rules and measurements standard for wheelchair users. Below you will find basic measurements for a standard wheelchair and minimum space requirements for each room of your home based on Americans with Disabilities Act (ADA) Standards for Accessible Design using a standard adult wheelchairs. The measurements on your wheelchair will depend on the style and size and may vary from those of a standard adult wheelchair.

Dimensions for standard adult wheelchair.

- Armrest height: 29-30 inches
- Seat height: 19-20 inches
- Seat depth: 16-18 inches
- Wheelchair width: 25-30 inches
- Wheelchair length: 45-50 inches (allowing for feet)

Maximum height at which objects should be placed for reach from an average adult wheelchair user:

- Overhead reach: 50-60 inches from floor level
- Forward reach: 48 inches from floor level
- Side reach: 54 inches from floor height
- Downward reach: 5-10 inches above floor height

INTERIOR AND EXTERIOR DOORS

- Entry doors should be at least 36 inches wide with at least 32 inches of clear opening for a standard wheelchair to enter.
- Interior doors should have at least 32 inches of clear space when open. When necessary, the bedroom and bathroom doors may be removed and replaced with curtains to create enough space for a wheelchair to pass.
- If the person with spinal cord injury has impaired hand function, horizontal door handles 34-36 inches from floor can be installed to make a door easier to open.
- Avoid thresholds that rise above the level of the floor if possible.
- There should be at least 4 feet of unobstructed space surrounding each closed door to ensure an easy path to maneuver the wheelchair.

WIDTH OF HALLWAYS

- You will need at least 32 inches of clear opening for a standard wheelchair to

pass down a hallway.

- A hallway at least 36 inches wide will allow a wheelchair user in a standard chair to make a 90-degree independent turn into an adjoining room.

KITCHEN COMPONENTS

- Counter tops should be 28-36 inches from the floor.
- Continuous countertops with built in stovetops are ideal. Electric stoves are recommended instead of gas to avoid clothing catching fire. All appliance controls should be located in the front or on the side.
- Allow for as much knee space under the sinks and countertops as possible. Ideally, there should be 27 inches of height, 30 inches of width and 19 inches of depth under the sink for knee clearance. You may consider removing existing cabinets to create this space.
- Sinks should be a maximum of six inches deep to allow the wheelchair user to place palms on the bottom of the sink. Sinks should be installed 32-34 inches from the floor. Keeping the space below the sink open will allow someone at a wheelchair level to pull up under the sink for better access. The piping should be located as far back as possible and insulated to avoid leg burns when the pipes are hot.
- Wall cabinets should have adjustable shelves and be 30-34 inches high by 20 inches wide by 14 inches deep.
- Cabinets should be placed 10-14 inches above countertops.
- Base cabinets should be 32 inches high by 22 inches wide by 24 inches deep. Be sure to leave toe space under the cabinets for footrests which are typically nine to ten inches high by six to eight inches deep.
- Other modifications include: lazy Susan's, heat resistant countertops, pull-out trays and mounted mirrors above the stove to monitor items on the back burner.

ACCESSIBLE BATHROOM

- A sliding pocket door can make for easier entry into the bathroom. If using a standard door, it is often more convenient if the door can swing out.
- Commodes should be 20 inches high and as wide as possible. A *raised toilet seat* or other toilet accessories may be needed to raise toilet height to a safe level for transfers.
- Commodes should have at least 32 inches of clearance on one side to allow for transfers from the wheelchair.
- If space is limited, a *bedside commode* may be used to complete toileting.
- Sinks should be a maximum of 6-inches-deep and allow the wheelchair user to place palms on the bottom. Sinks should be installed 32-34 inches from the
- floor. The piping should be located as far back as possible and insulated to avoid leg burns when the pipes are hot.
- Bathtubs should be 18 inches deep with a single lever faucet. A *hand held shower* is recommended with a hose length of five to six feet and controls on the handle. There should be 36 inches of clearance beside the tub for transfers.

- Roll-in showers should be sloped to allow for proper drainage. Curtains are recommended in place of glass door and thresholds to facilitate safe transfers.
- Grab bars should be placed in the shower/tub area and near the toilet. Be sure to anchor all grab bars securely to wall studs. You may wish to have a professional install grab bars to ensure safety. Your occupational therapist will work with you to determine measurements specific to your situation. **DO NOT USE TOWEL BARS/RACKS AS GRAB BARS, AS THEY ARE NOT DESIGNED TO SUPPORT BODY WEIGHT.**
- A *tub/shower chair* is recommended. There are several unique designs available. Your occupational therapist will practice using different models to assist with selecting the model that is right for you.
- Mirrors should be mounted with the bottom of the mirror no lower than three feet.

DESIGN FOR SAFE RAMPS

Ramps are often needed to allow a person to enter the home level and should be constructed using proper guidelines so entry into the home is safe. A ramp is not needed when there is access to an entryway at ground. Below is a list of general guidelines for proper ramp construction:

- The maximum incline or slope for a ramp is 1:12 meaning for every 1 foot of total height in step(s), 12 feet of ramp length is required. For example, a two step entry with each step seven inches high would require 14 feet of ramp.
- Ramps should be a minimum of 36 inches wide and a maximum of 30 feet long. If the ramp must be longer than 30 feet, a landing should be considered.
- Landings are required at both the top and bottom of the ramp. The landings should be at least as wide as the ramp and have 60 inches of clearance in all directions.
- Handrails should be installed 34-38 inches above the floor of the ramp on both sides if the ramp has a rise of greater than 6 inches.
- Ramps should have non-skid surfaces for safety.

If there is not enough room to build a ramp long enough to meet the above specifications, alternate means of accessing the home will be needed. Your therapist and care coordinator will discuss the various options specific to your situation. Your care coordinator can also provide you information community programs that offer assistance with ramp construction. These program often have waiting lists so it is very important to make application and begin to plan home modifications early in your rehabilitation.

HOME ACCESSIBILITY – GENERAL TOPICS

- To create more space in which to use a wheelchair, remove all unnecessary furniture and rugs.
- Couches, beds and lounge chairs should be as level as possible with the wheelchair to facilitate safe transfers.
- Wall mounted outlets are more accessible if they are no lower than 15 inches above the floor. Light switches, alarm systems, towel racks and thermostats

- mounted 3 to 4 feet from floor level is typically recommended.
- Window locks should be within reach from the wheelchair.
 - Clothing rods placed no higher than 50 inches from the floor are helpful. Some people choose to install adjustable rods in closets to increase storage and accessibility.
 - There are lift devices available that can assist with transferring into the bed or wheelchair for those who need a lot of assistance with moving from one surface to another. Tracking systems can even be installed into the ceiling to allow the lift to move someone from the bed/wheelchair into the bathroom or any other room in the house that is preferred. These lift devices can be controlled by the user of the lift device to increase his/her independence or by the caregiver.

REFERENCES AND RESOURCES

Trombly, C. (1995). Occupational Therapy for Physical Dysfunction (4th Ed.). Baltimore: Williams & Wilkins

<http://www.infinitec.org/manual/index.html> - Home modification

<http://www.ada.gov/adastd94.pdf> - Americans With Disability Act

<http://www.mhfa.state.mn.us/homes/access> - Home modification

GLOSSARY

BEDSIDE COMMODE - Portable commode with armrests that can be used beside the bed or over the toilet.

HAND HELD SHOWER - Showerhead with a hose that allows user to hold shower in his/her hand to direct the spray.

RAISED TOILET SEAT - Attaches to existing toilet to increase the height for easier transfers.

TUB/SHOWER CHAIR - Fits into tub or shower to provide surface for bathing.