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# WheelchairNet

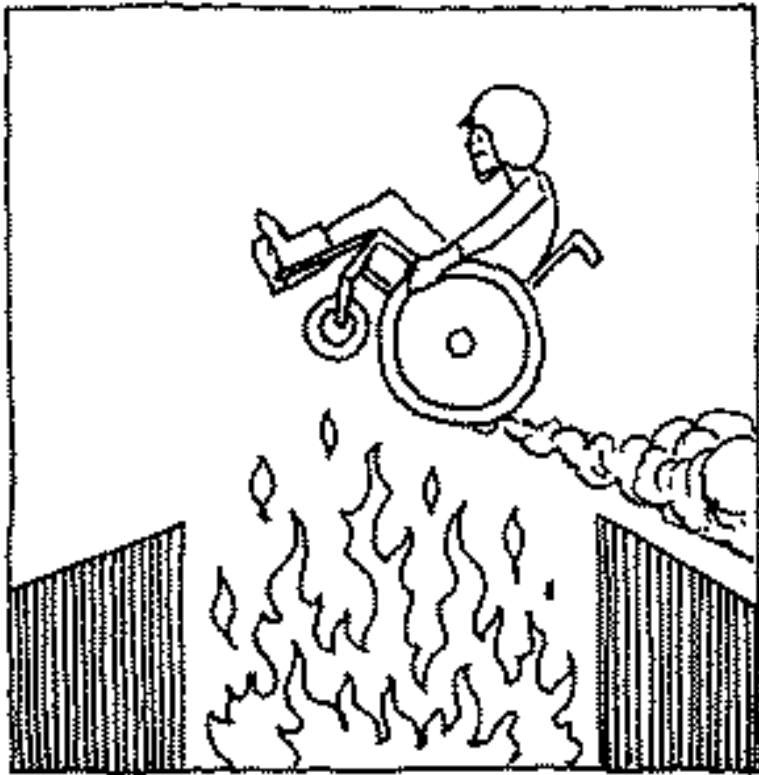
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## The Manual Wheelchair Training Guide

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### Section 2.5

#### Ramps



According to the Americans with Disabilities Act Accessibility Guidelines (ADAAG), a standard ramp should have a grade no steeper than 1:12. This means that for every inch of rise (change in height), there should be 12 inches of run (change in length). This is sometimes referred to as an 8% grade or slope. Using this formula, a ramp going to a door with two 8-inch steps should be 16 feet long.

A standard ramp is gradual enough for many people to climb safely, but each individual's limits are different. Some people may not be able to manage a ramp this steep, while others can handle much steeper ones. Practice on ramps with railings in public places. Remember to lean "uphill" in the direction of the slope to maintain your balance.

With experimentation, you will learn how steep a ramp you can negotiate alone. Always use a spotter when practicing on ramps and when climbing a steep ramp for the first time. Climb increasingly steeper ramps until you find one that causes your front casters to lift off the ground. Experience the loss of stability, and remember the steepness of the slope that caused this to happen. Obtain assistance before climbing slopes this steep or steeper in the future.

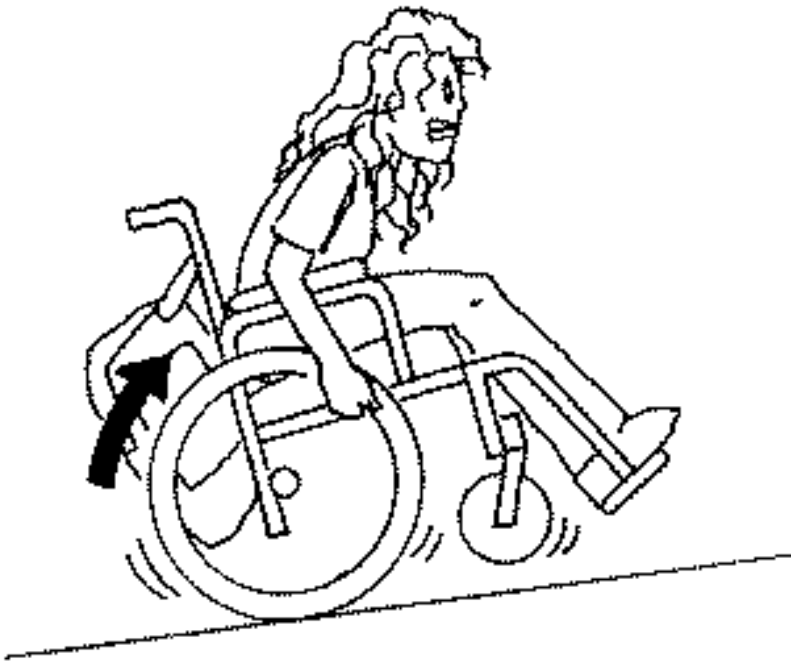
Before learning the skills in this section, you should be able to propel a wheelchair forward and backward, and maintain a seated position when your balance is challenged. You will be able to perform more techniques and negotiate steeper slopes if you can pop a wheelie and move forward and backward in the wheelie position.

### **Going Up a Ramp**

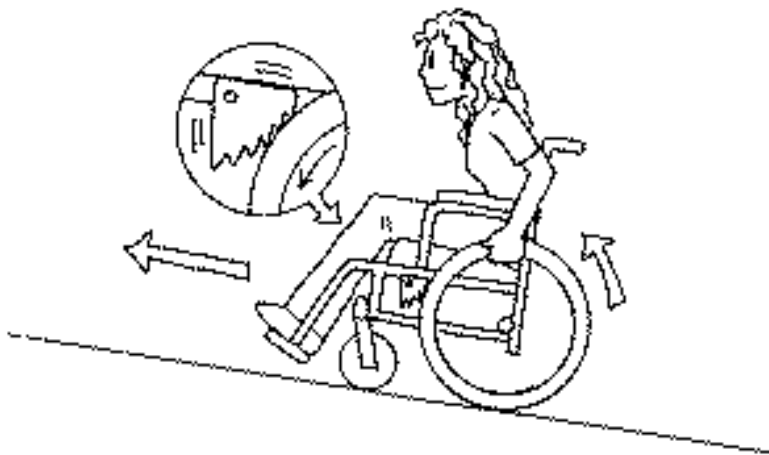
Put your anti-tippers down in a functional position before ascending a ramp, because if the ramp is steep, your wheelchair may tip over backward. Sometimes anti-tippers catch at the beginning of a ramp. If you must disengage the anti-tippers, move slowly and be extra careful.

A backpack or other gear on the back of your wheelchair will cause you to tip backward more easily. Devices called hill-climbers will prevent the wheelchair wheels from rolling backward between pushes as

you travel up grades.



*A backpack will cause your wheelchair to tip backward more easily.*

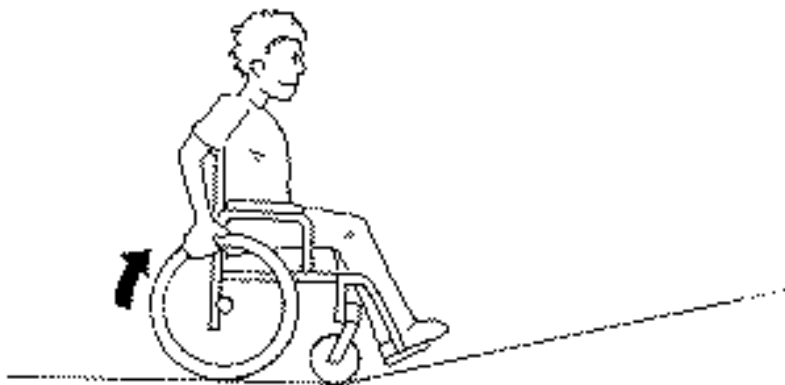


*Hill-climbers can help you ascend ramps.*

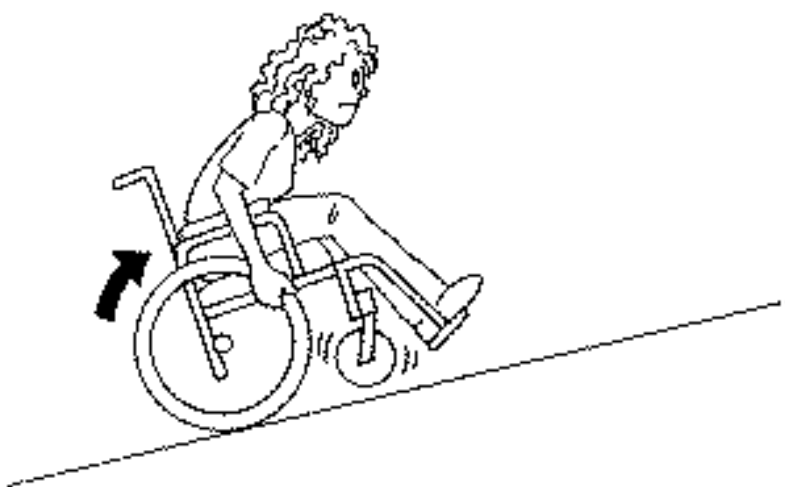
## **Going Up Forward**

### **Basic technique**

- Propel forward onto the ramp.
- Lean forward to counteract the tendency of your wheelchair to tip backward.
- Some people prefer propelling up the ramp with long strokes originating far back on the pushrims. Other people can obtain more momentum and power with short, quick propulsion strokes. Experiment with both to see which technique works best for you.
- If you start slowing down, try alternating hands on the pushrims. (See Section 1.8 for more information about this propulsion technique.)



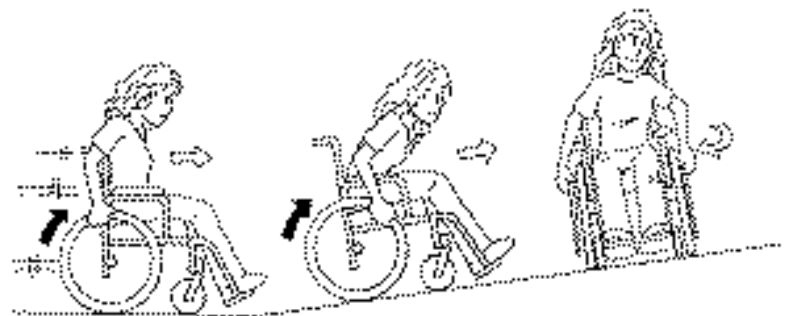
*Reach far back on your pushrims to get enough power to ascend the ramp.*



*Lean forward going up a ramp. If your casters start to lift off the ramp surface, the ramp is too steep for you to negotiate alone.*

### **Using momentum**

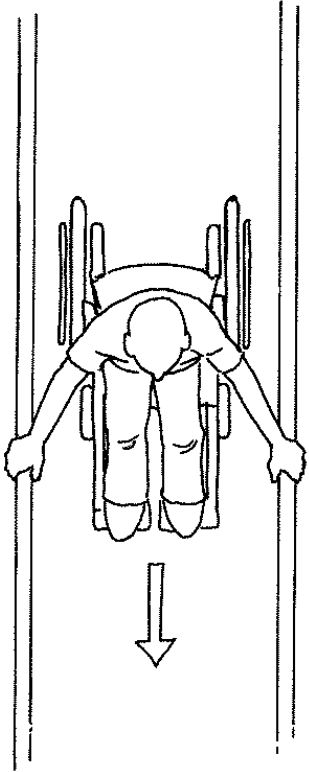
- Gather as much speed as you can before you reach the base of the ramp so your momentum can help propel you up the ramp.
- Propel quickly up the ramp until you start running out of strength.
- Turn the chair sideways to the ramp slope and lean into the hill to rest.



*Use momentum to help you ascend the ramp. If you get tired midway, stop and rest with your wheelchair turned perpendicular to the ramp slope.*

### **Using handrails**

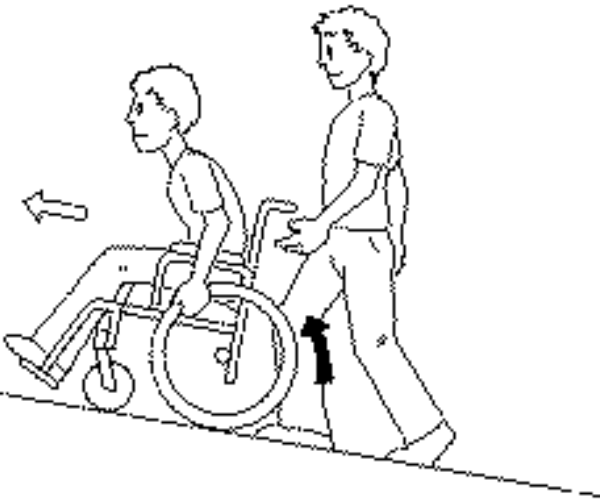
- If there is at least one handrail on the ramp, you can pull yourself up by pushing on one pushrim and pulling on a handrail.
- If there are two handrails on the ramp, you can use both to pull yourself up.



*Climbing a ramp using two handrails.*

### **How a spotter can help**

- Walk behind the wheelchair rider and place your hands close to the push handles or back posts. Try not to influence the movement of the wheelchair
- Prevent the wheelchair from tipping over backward.



*The spotter should walk behind the wheelchair with hands close to the push handles.*

### **Going up backward**

Some people, especially those who propel their wheelchairs with their feet, find it easier to travel up ramps backward. Before going up, make sure the ramp is wide enough for your wheelchair, and check for hazards such as uneven surfaces, obstacles, unprotected drop-offs, and oncoming traffic.

- Just before the base of the ramp, turn your wheelchair around so your rear wheels are next to the base of the ramp.
- Propel your wheelchair backward by pulling on the pushrims.
- Lean backward into the hill.
- At the top, check behind you for oncoming traffic before turning around and proceeding forward.

### **How a spotter can help**

- Stay downhill and to the side of the wheelchair rider.
- Prevent the rider from falling forward out of the chair.

### **How to ask for assistance**

When you find a steep ramp you cannot climb independently, ask for assistance. Remember the slope of ramps that cause you to lose your stability.

- Ask your assistant to push you using your push handles or the back of your wheelchair. Your assistant should also keep your wheelchair from tipping backward.
- Push forward on your pushrims at the same time.

### **Going Down a Ramp**

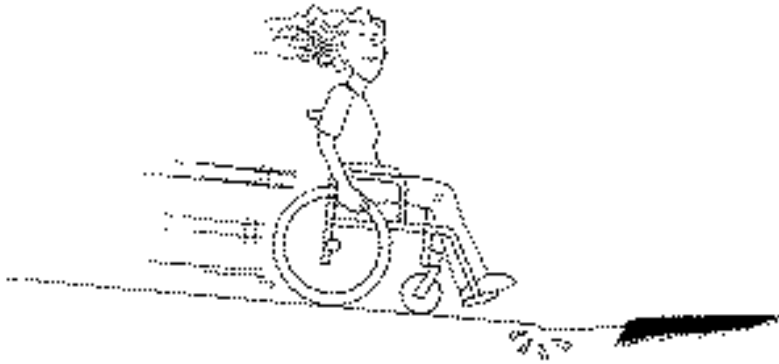
Before descending a ramp, always check for obstacles such as cracks and level changes. Also examine the base of the ramp for any obstacles such as drainage grates you will need to cross.

Always shift your weight back when going down ramps, and proceed slowly to maintain control. As you get more comfortable and confident with ramps, you will be able to increase your speed and remain safe. Apply pressure to the pushrims to reduce your speed.

Be careful of footrest clearance when you get to the base of the ramp. If the footrests contact the ramp at

the start of the climb, they will contact the ground coming down the ramp. If you're moving slowly, you will be less likely to get thrown out of your chair if your footrests contact the bottom of the ramp.

Always practice descending ramps with a spotter. Malls, medical facilities, and other public places generally have good practice ramps. Propel forward down ramps of increasing steepness with a spotter until you can no longer descend it independently with confidence. Always obtain assistance when you do not feel comfortable descending a ramp independently.



*If the bottom of the ramp meets the ground at a sharp angle, your footrests might catch and tip your wheelchair forward.*

## **Going Down a Ramp Forward**

### **On four wheels**

Start practicing ramp descents by going down on four wheels.

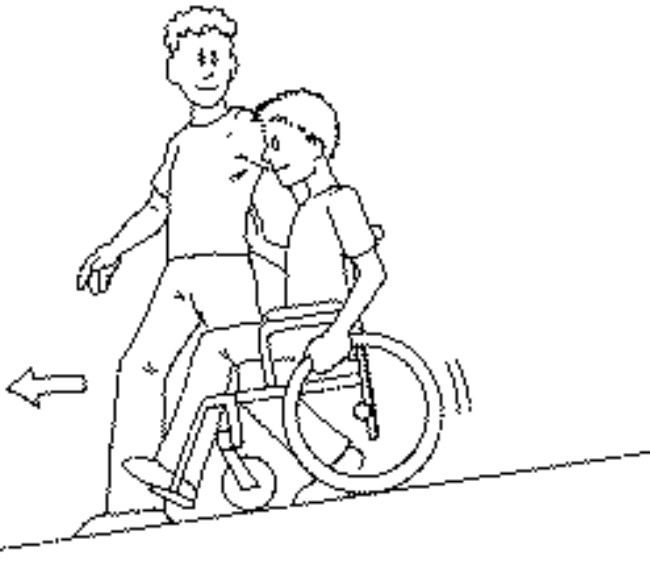
- Examine the ramp for obstacles.
- Propel your wheelchair forward onto the ramp, shifting your weight back to avoid falling forward out of the chair.
- Proceed slowly to maintain control.
- Keep your arms forward with your hands cupped on the pushrims.
- Apply pressure on the pushrims to reduce your speed.

### **How to ask for assistance**

- Ask your assistant to hold onto the push handles or back posts as you move down the ramp.
- Shift your weight back to avoid falling forward out of your chair.
- Your assistant can pull back on the push handles to reduce your speed. Be sure your assistant uses leg rather than back strength. (See Section 5.1 for more information on how to prevent back injuries.)

### **How a spotter can help**

- Remain in front and to the side of the wheelchair rider.
- Prevent the wheelchair rider from toppling forward out of the chair.
- Be sure to stay out of the wheelchair rider's path of travel.

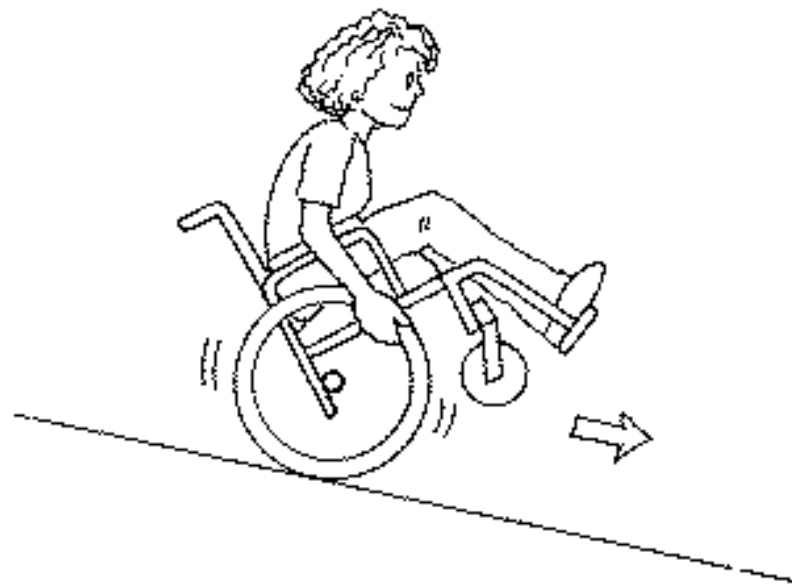


*Have your spotter walk in front and to the side of your wheelchair when descending a ramp.*

### **In a wheelie**

Traveling down steeper ramps on four wheels could cause you to fall forward. Traveling down steeper ramps in a wheelie can help you avoid this problem. In a wheelie, your weight is back and you will be less likely to fall forward out of the wheelchair.

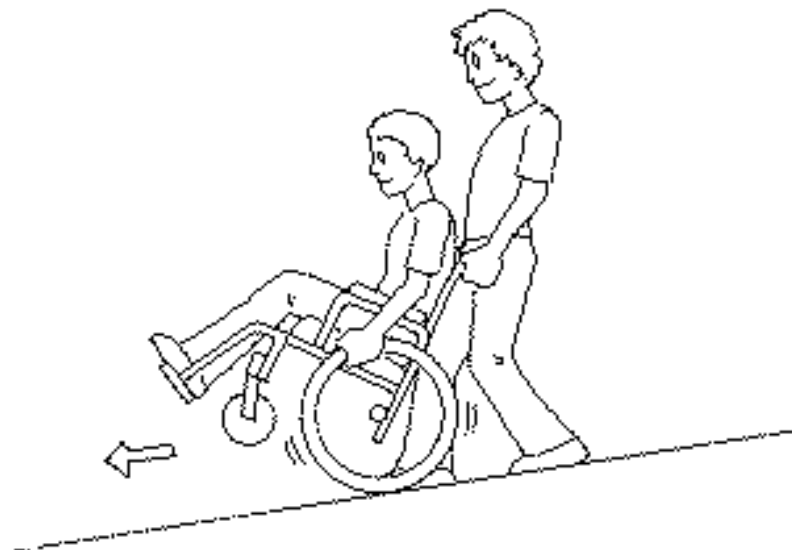
- Check the ramp for any obstacles.
- Facing the ramp, pop a wheelie.
- Maintaining the wheelie position, roll forward onto the ramp.
- Allow the pushrims to slide through your grasp, applying pressure to reduce speed or reducing pressure to increase speed.
- A higher wheelie with more gripping pressure will reduce your speed. A lower wheelie with less gripping pressure will increase your speed.
- Come out of the wheelie after you regain level ground at a landing or the bottom of the ramp.



*The farther back you tip into a wheelie, the slower you will travel down the ramp.*

### **How a spotter can help**

- With your assistant holding onto your push handles or supporting the back posts, pop into a wheelie position.
- Maintaining the wheelie position, roll forward onto the ramp. Your assistant can help by pushing on the push handles.
- Your assistant can pull back on the push handles to reduce your speed. Be sure your assistant uses leg rather than back strength. (See Section 5.1 for more information about how to prevent injuries.)
- Apply pressure on the pushrims to help reduce your speed.
- When you are on level ground, ask your assistant to lower you out of the wheelie position.

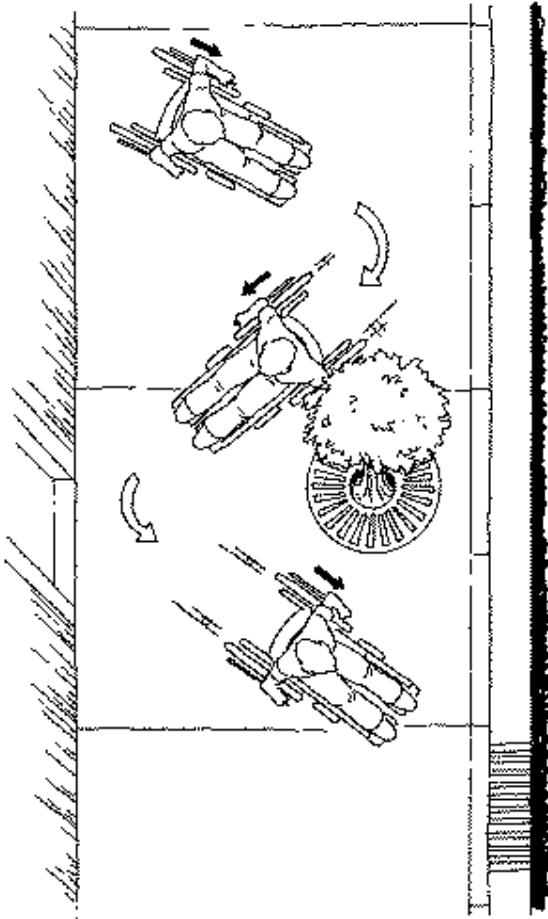


*An assistant can prevent you from rolling too fast by holding the push handles.*

### **Zig-zagging down forward**

Zig-zagging is a way to descend very steep ramps facing forward while maintaining control. While zig-zagging can decrease the steepness of the slope you experience, it will also increase the amount of side slope you must cope with. Side slopes are addressed later in Section 2.6.

- Travel down the ramp in a "Z" pattern. The more you angle your wheelchair, the greater the side slope you will have to travel across.
- Grip mostly with your uphill hand. This will prevent your wheelchair from heading straight down the ramp.



*Zig-zagging down a ramp can help slow you down enough to maintain control.*

- To turn, grip with your downhill hand.
- This can also be done in a wheelie.
- You can also help reduce your speed by applying more pressure on the pushrims. Less pressure on the pushrims will increase your speed.

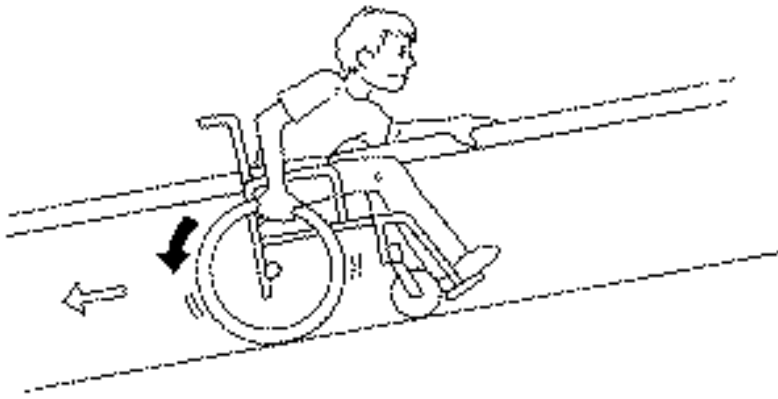
### **How a spotter can help**

- Walk on the downhill side of the wheelchair rider.
- Prevent the wheelchair rider from tipping sideways.
- Be sure to stay out of the wheelchair rider's path of travel.

### **Going Down a Ramp Backward**

## Using one handrail

- Examine the ramp for obstacles.
- Turn your wheelchair until your back is to the ramp.
- Grasp the handrail with one hand. With the other hand, grip your wheelchair's tire or pushrim in a forward position.
- Start sliding down the ramp backward, dragging your hand on the wheel and sliding your other hand down the railing to slow your progress.



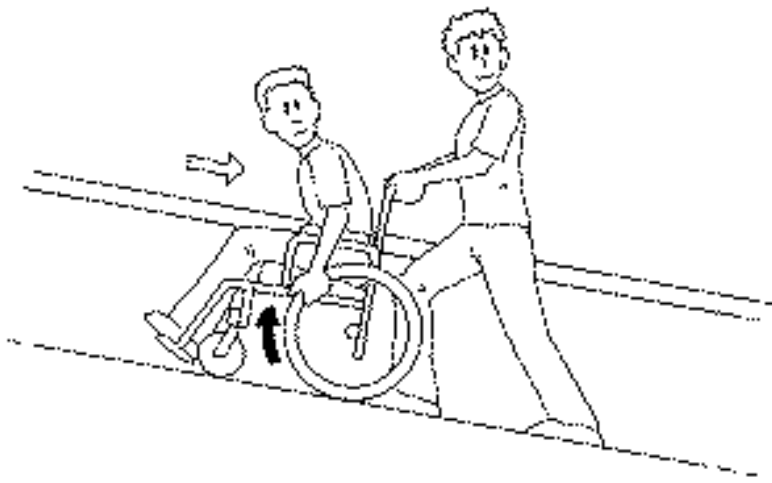
*When alone, do not descend ramps backward unless a handrail is available.*

## How to ask for assistance

- Examine the ramp for obstacles.
- Turn until your back is to the ramp.
- Have your assistant step behind your wheelchair and grasp the push handles or back posts.
- Your assistant can pull on the push handles or back posts to initiate the descent. Be sure your assistant uses leg strength rather than back strength to slow your descent. (See Section 5.1 for more information on how to prevent back injuries.)
- As your assistant begins to back down the ramp, shift your weight forward and apply pressure on the pushrims in a forward position to help brake.

## How a spotter can help

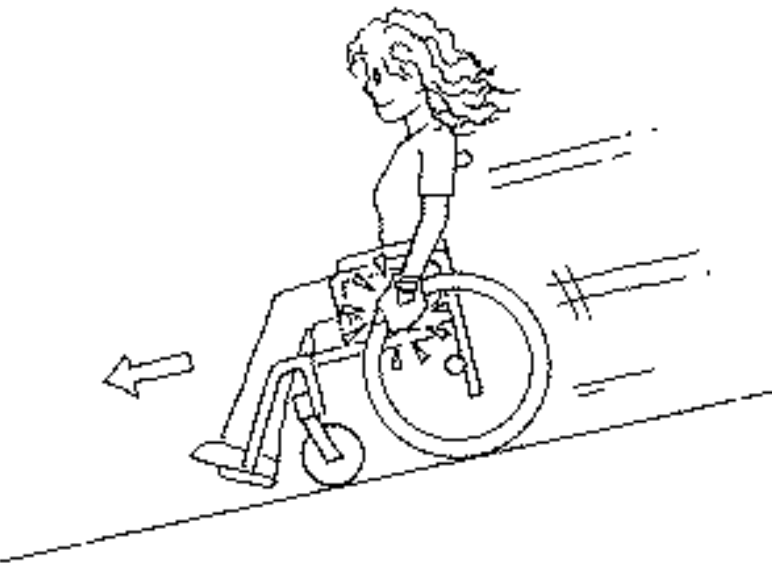
- Position yourself behind the wheelchair rider.
- Prevent the wheelchair rider from descending the ramp too quickly.



*The spotter should keep the wheelchair rider from descending the ramp too quickly.*

### **Helpful Hint**

Slowing your wheels down with your hands may give you "hot hands." Avoid this discomfort by wearing gloves or stopping to rest on the way down a ramp.



*Gloves can help you avoid getting hot hands.*

### **Resting on a Ramp**

The safest way to turn on a ramp is to wait until you reach a level landing. Otherwise, your wheelchair might tip sideways while pivoting on a side slope. Techniques for crossing side slopes are found in Section 2.6.

You may need to turn sideways to rest while traveling on a ramp or need to change propulsion directions to alternate using your pulling and pushing muscles.

### **Turning on a Ramp / Propelling up a Ramp Backward**

With a little practice, you can turn around safely on the incline of a ramp. Always keep your weight shifted

uphill when turning around on a ramp, as this will help prevent your wheelchair from tipping over. Some people propel as far forward up a ramp as they can, then turn around and pull backward the rest of the way. Others can use their feet to propel themselves backward up a ramp. This technique will not work for someone who does not have lower back muscles.

- Propel forward up the ramp.
- When you need to give your pushing muscles a break, turn the wheelchair around by pulling on one pushrim and pushing on the other.
- To avoid tipping over, lean into the hill as you turn.
- Lean back into the hill when you are facing downhill.
- Now propel your wheelchair up the ramp, by pulling backward on the pushrims.
- When you reach the top, check behind you for any oncoming traffic before turning around and proceeding forward.

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