New to a Wheelchair?

If you are new to using a wheelchair it can become pretty overwhelming and challenging to relearn how to do everything from a seated position. But while your view of life may have changed (literally), it certainly doesn’t have to be limited. The most important thing to get you active and independent is your health. This includes physical activity and nutrition.

“Life on Wheels” is a toolkit designed to help you navigate this new life and break down all the barriers and myths you might face along the way. It will help guide you through becoming active and independent, as well as show you what you need if you want to take it to the next level.

What you choose to do from here on out will make a big impact on your life. Your health can dictate so many things, like being able to transfer in multiple situations or traverse different terrains. Don’t let it hold you back from doing what you want to do.

**Barriers to Exercise:**

There’s no need to start with excuses; not only have we heard them all, but we have studied them all as well. Typically, the biggest barriers to exercise you will face include transportation, cost, not knowing where or how to workout, motivation and self efficacy. This Guide will provide you options for both at home and in gym workouts, as well as resources to be prepared when you do hit the gym. Lack of motivation is certainly not limited to individuals who use a wheelchair, but you do have one motivating factor that others might not: your independence!
**General Safety Before you Begin**

Stop exercising if you experience pain, discomfort, nausea, dizziness, lightheadedness, chest pain, irregular heartbeat, shortness of breath, or clammy hands.

Drink plenty of water.

Wear appropriate clothing.

Follow an exercise program that meets your goals.

Check your blood pressure and blood sugar levels before exercising to make sure they are at acceptable levels.

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**Blood Pressure Numbers:**

- **120/80:** Normal Blood Pressure
- **120-139/80-89:** Pre-Hypertensive
- **140-159/90-99:** Stage 1 Hypertensive
- **>160/100:** Stage 2 Hypertensive

Check with your doctor before starting an exercise program if you are Stage 2

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**Physical Activity is for Everybody!**

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**Preliminary Steps to Exercise**

Inform your physician or primary care giver that you are considering starting an exercise program.

If possible, participate in exercise testing to determine your current level of fitness.

If you take any medications, learn the effects they may have on or from exercise.

If possible, consult a trained exercise professional before beginning your program.
Aerobic Training:

You need at least 30 minutes of cardiovascular activity most days of the week for general health benefits. However, if you want to lose weight or improve mobility it will require about 60 minutes most days of the week. Check the box for a list of appropriate aerobic activities that you can do. Not all activities are created equal. The main thing to watch out for is intensity level. Make sure that whatever exercise you do is actually making you work.

**Aerobic Activities Include:**
- Arm Bike
- Hand Cycle
- Pushing Briskly
- Rowing
- Seated Aerobics
- Circuit Training
- Swimming
- Wheelchair Sports
- Wheelchair Racing

**Talk Test** for Aerobic Exercise:

If you can sing during the exercise, you aren’t working hard enough.

If you can talk while stopping occasionally to take deep breaths that is good.

If you can’t talk at all your intensity is too high.

Don’t have 30 minutes?

Getting bouts of exercise in 5 to 10 minute increments can also be beneficial. Just try to add multiple bouts in one day!

Myth: I can’t exercise. I use a wheelchair.

Now that you are using a wheelchair to get around, it is important that your exercise routine provides you with the strength you need to be as independent as possible. Exercise can make a huge impact on your life by helping you transfer independently and push your own chair. In return, those two things can open up a whole world of activities that you will be able to do. So don’t believe the myth and get started on an exercise program today!

Fitness Components
Strength Training:

This component can make a huge impact on your activities of daily living and make it easier to get around in general.

A typical strength training programs includes all the major muscle groups and some smaller groups important to chair users. You want to perform each exercise at least 10 times. If that gets easy start doing 2 or 3 sets of 10 repetitions of each exercise. Major muscle groups include biceps, triceps and back muscles. Which muscles you are able to work will be different for everyone. Active movement means you are doing the work, while passive movement means someone else is doing it for you. Active movement is great to increase muscle strength, while passive movement should just be used in range of motion exercises and not involve a lot of weight. If you get stuck trying to work a muscle group, try to think outside of the box to make that movement happen.

Flexibility Training:

Full body flexibility is one component that is often neglected in individuals with spinal cord injuries. Having a good flexibility program can help with circulation in your extremities that may have reduced blood flow. It can also help with counteracting the stiff position that comes with sitting in a wheelchair all the time. Being able to straighten your legs fully or flex your feet can help you in many situations, including transfers.

A good flexibility program should stretch all the major muscle groups.

Starting out, you should hold each stretch for at least 10 seconds. Gradually work your way up to longer periods of time, holding some stretches all the way up to a full minute. You should perform at least 2 reps of each stretch. On the second rep try to get a little bit further on your stretch. Your flexibility program can be performed most if not all days of the week and multiple times a day. One key point to remember is: never stretch a cold muscle! Make sure you’ve done something to warm those muscles up, like pushing, before you stretch.

For a video on inclusive yoga go to NCHPAD’s YouTube channel.
If you do have access to a gym there are a ton of different options available to you. However, some of these options may require some extra equipment, and if the gym doesn’t provide it you may need to bring it with you. In this section we will go over strength training tips and techniques to help you get the best workout possible.

**Strength Training Options**

The gym you attend may or may not have accessible pieces of equipment but don’t let that hold you back. Your first option is to transfer onto their machines. It can actually be very beneficial to get out of your chair and work off their machines because it will make you engage your core. This is another reason why being able to transfer independently is so important.

Your second option is to use a cable column. A cable column can be found in almost any gym and it will allow you to work multiple muscle groups all from the same location. You should be able to adjust the cable up to perform lat pull downs, triceps extension, and straight arm pull downs. Putting the cable at chest height allows you to perform chest press, rowing, and internal external rotations. Finally, lowering the cable down allows you to perform bicep curls, upright rows, and shoulder press.

Your third option is free weights. Free weights allow for multiple angles, range of motions, and variety! To avoid injury make sure you are using proper form for all exercises.

**Strength Training Tips:**

Straps: Straps can be used in multiple areas. They can be used to strap your legs together to provide stability, around your chest to provide balance, or anywhere else they might be helpful.

Cuffs: Cuffs can come in all different shapes and sizes. If you have difficulty with grip strength, cuffs will allow you to move the weight without having to hold it.

Ace bandages: If you don’t have a lot of grip strength, these can be used to keep your hands attached.
**Push vs. Pull**

If you are one that likes to go to the gym every day, you want to make sure that you aren’t working the same muscle groups every day. There are a couple ways you can avoid this. Split your exercise days into “push and pull” or “front and back.” Using the push vs. pull method, you would work all the muscles that you use to pull something on one day and then use all your pushing muscles the next. You can also split your routine by doing the muscles on the front of your body and muscles on the back.

Push and pull muscles are also important for another reason. If you are a chair user then your “push” muscles are sure to see plenty of action. The more you push the more rounded your shoulders and hunched your back will become. Your goal should be to combat these effects when in the gym. Start with the pull moves that use the largest muscle groups and work your way down to smaller muscle groups. Keep in mind that smaller muscle groups won’t require a lot of weight so be sure not to over stress them.

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**All Pull—No Push Workout Routine**

3 sets of 10 reps

- Pull Ups
- Rowing
- Lat Pulldowns
- Dumbbell Pullovers
- Diagonal Kettlebell Swings
- Reverse Flys
- Scapular Retractions
- External Rotations
- Planks

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**Think Outside the Box**

So maybe you can’t do some exercises the way you used to, but that doesn’t mean you can’t do the exercise at all. There are plenty of ways to do things that will still get you the same effect. For instance, maybe you can’t do a regular push up anymore because you can’t hold your hips off the ground. Instead, try doing them off a mat. To increase the work load come as far off the mat as you are able to and still perform a push up. For other exercises, you may have to strap yourself to a bench if you don’t have enough core strength or control to hold yourself up and perform the exercise. Some exercises that you used to do standing may now need to be done lying down, like reverse flys. Dips are a very good exercise to help you with your transfers. You can practice these by getting between two chairs.

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For more high intensity inclusive exercises, check out Champion’s Rx at www.nchpad.org/crx
Designing a Program

What does this all mean for you?

Without a proper fitness program your life on wheels can be harder than it has to. A regular exercise routine will not only help you feel and look better; it will also produce mental benefits, decrease stress, and increase self esteem. Even if you are starting from scratch or aren’t very athletic, there are still things you can do to increase your health. The first thing you need to do is:

Start Moving: Transfer out of your chair more, push around your neighborhood or mall, or do some light chores around your house. The main emphasis is moving and doing it yourself, whatever “it” may be. Even just 5 minutes a day can start to make a difference!

Once you are ready to start a fitness routine, it’s as easy as 1… 2… 3...

1. Warm Up

This is any light movement that slowly increases your heart rate and gets your muscles warm, such as an easy push or light arm bike routine.

2. Exercise

This should consist of at least 30 minutes of large muscle continuous movement. Your heart rate should remain elevated. Examples include handcycling, arm biking, pushing, and swimming.

3. Cool Down

Don’t abruptly stop your workout; instead, slowly bring your heart rate back down by doing some light movements similar to those used in the warm up.

Benefits of Exercise:

- Decrease blood pressure
- Increase mobility
- Decrease cholesterol level
- Decrease risk of cancers
- Look better
- Feel better
- Move better
- Weight control

Want some help?

Check out NCHPAD’s “14 Weeks to a Healthier You” program, a personalized, web-based physical activity and nutrition program primarily for individuals with physical disabilities. www.nchpad.org/14weeks/
No Gym, No Problem!

If there is no gym in your area or you don’t have the time, money, or transportation to get there you can always workout at home.

Body weight exercises or using items around your house are a great way to build strength without any weight equipment. Things like push ups and dips are great at working the muscles you need to get around and transfer.

Another option is light calisthenics. This just means body movements that get your heart rate up. Examples are arm jacks, arm circles or punching motion.

Ready to take it up a notch?

Do those same exercises Tabata style. This means you will do each exercise for 4 minutes, doing 20 seconds of work followed by 10 seconds of rest repetitively for the full 4 minutes.

You can also add exercises like push ups, dips, and mountain climbers for the arms.

Check out NCHPAD’s YouTube channel for more options.

HOME WORKOUT

Complete 3 sets of 10 repetitions for each exercise.

Chair push ups: Using your wheelchair or a chair with arms, place your hands slightly behind you on the arms and push up until your elbows are fully extended and your body comes out of the chair.

Arm circles: Hold your arms straight out to the side and perform a circular motion with both.

Biceps curls: Using a soup can, start with arms down by your side, then curl your arm up to your shoulder.

Sitting wall pushups: Place a stationary chair next to a wall. Place your arms at chest height with elbows bent on the wall and then fully extend your elbows, pushing your body away from the wall.

Arm jacks: Perform the motion of a jumping jack with just your arms.

Shoulder press: With a soup can in each hand, start with your hands at shoulder height and push straight up.

Seated crunches: From a seated position, bend over and try to touch your toes, then bring your arms up and fully extend them over your head.

“You are only limited by your imagination. DREAM BIG”
Nutrition is such a vital component to your health, yet it is one that very often gets left out. In this section we will try to break it down into simple components. Implementing and maintaining a good diet will be key to where you go from here.

Balance your calories: Enjoy your food, but eat in moderation. Avoid any super-sized or over-sized portions.

Foods to increase: Half of your dinner plate should be fruits and vegetables. Make sure half of your grains are whole grains. Make the switch to fat-free or 1% milk.

Foods to decrease: Choose foods with lower sodium, particularly when selecting canned foods and frozen meals. Drink water instead of sugary drinks like soda.

How big is your dinner plate? Keeping your dinner plate 9 inches or less can help guarantee portion control.

For more information check out www.nchpad.org

**Benefits of good nutrition:**
- Decreases blood pressure
- Decreases cholesterol
- Decreases risk of certain cancers
- Decreases risk of diabetes
- Decreases risk of heart disease
- Maintains healthy immune system
- Improves body composition
- Key to weight loss (which can help make your activities of daily living and transferring much easier)
- Helps provide energy for activity
- Promotes healing of UTI’s and skin breakdowns
- AND SO MUCH MORE

*Myth: Eating Healthy is TOO expensive.*
Top 10 Nutrition Tips:

1. More fruits and vegetables; aim for 5 servings each day
2. Choose whole grains
3. Limit the consumption of red meat and processed foods
4. Choose lean protein such as chicken and fish
5. Eat breakfast every morning
6. Drink water with each meal and snack
7. Small portion sizes
8. Limit drinking sugar-sweetened beverages like soda and fruit juices
9. Limit creamy sauces and high fat condiments like butter and sour cream
10. Between meals, choose healthy snacks like fresh veggies, fruit or low-fat yogurt

Goal Weight

Here is an equation to determine the amount of calories you need to maintain your current weight.

Individuals with Paraplegia: 27.9 kcal x kilograms of body weight

Individuals with Quadriplegia: 22.7 kcals x kilograms of body weight

(To convert pounds to kilograms: pounds / 2.2 = kilograms)

To determine the amount of calories you need for weight loss, use your adjusted ideal body weight instead of your current weight.

Start subtracting 500–1,000 calories from what you are currently eating to start losing weight.

Go to NCHPAD.org and search “BMI calculator” to calculate your BMI

For more information go to: www.choosemyplate.gov
What's your Goal?

Our goal is to help you be as healthy and independent as you can. We want you to be fit for all your functions of daily living and then some. We also want to help you reduce the risk of secondary conditions like diabetes, obesity, and heart disease that are common in chair users. Knowing what your goals are is very important to help keep you motivated and on track. Write down your goals and place them somewhere you can see them every day. Whether it’s to transfer independently or push through your neighborhood, understanding the basics laid out here will help you get there.

Health Complications

There are numerous health complications that you should be aware of now that you are a wheelchair user.

SKIN BREAKDOWNS:

Due to the lack of feeling and decreased circulation below your level of injury, a tiny scratch or cut can turn into something serious. Protect your skin by being conscious of where you are and what you are sitting on and never sit or lie on a hard surface without a cushion. Watch for any red spots when wearing new clothing, braces or shoes. Any continual rubbing can cause problems. Skin breakdowns can turn into pressure sores, which if not treated can become life threatening.

UTI stands for urinary tract infection and can be quite common among people with spinal cord injuries. Those who can use intermittent catheterization are less prone to UTI’s. Always make sure to thoroughly clean catheters and leg bags to avoid UTI recurrence. Avoid regular use of antibiotics as bacteria may become immune.

Self Check: If not daily then at least weekly you need to check yourself regularly for any skin breakdown.

Pressure Release: If you don’t transfer out of your chair regularly, perform chair pushups often.
Thermoregulation

Higher level injuries have a hard time regulating their body temperature. Often they lose the ability to sweat below level of injury and therefore have to take other precautions to make sure they don’t overheat. This can happen even if the outside temperature isn’t that hot. Muscle movement produces heat and without sweat they have no way to get rid of that heat. They may also have issues in the winter staying warm.

TIPS: In order to prevent any issues, wear appropriate clothing and drink plenty of fluids. Take precautions in certain environments; in warm environments, a fan, cold towel and/or water spray bottle will aid in cooling. It may be smart to keep a spray bottle with you at all times. In cold environments, wear extra layers. It is also smart to test the temperature of your skin to make sure its not too hot or too cold.

Orthostatic Hypertension

This is a drop in blood pressure (greater than 20 mmHg for systolic blood pressure and greater than 10 mmHg for diastolic blood pressure). It can occur in upright postures like sitting up, especially moving from lying down to upright sitting/standing/head-up tilt. Symptoms include nausea, dizziness and light-headedness. Be aware of this when you are working out. If you feel light headed, try holding your breath while you sit up.

TIPS: Monitor blood pressure throughout exercise, avoid quick movements, perform orthostatic training (if available), maintain proper hydration, and use compression stockings and an abdominal binder. If orthostatic hypotension occurs, lie in a supine position with your feet elevated.

Autonomic Dysreflexia

Most likely, your body has changed the way it responds to pain below your level of injury. If you have a lower level injury or are incomplete you may be able to sense when pain is present by a sensation of pressure or actual pain indicators. As a higher level (above T6) or more complete injury you may not notice these pain indicators but your body will still find a way to tell you something is wrong. This reaction is known as Autonomic Dysreflexia (AD) and can be life threatening if left untreated. If you notice any of the symptoms of AD you should immediately attempt to get rid of whatever is causing it. Get to know your body well so you can detect the warning signs early.

Causes of AD

- Bladder infections
- Full leg bags
- Pressure sores
- Fractures
- Bug bites
- Blisters
- Tight clothing
- Ingrown toenail

Symptoms of AD

- Headache
- Stuffy nose
- Sweating
- Nausea
- High blood pressure
- Goose bumps
- Slow pulse
Wheelchair Basics

Outside of physical fitness and watching for health complications, there are other things you can do to help increase your independence. Having a proper fitting wheelchair, mastering certain moves, and being prepared for the unexpected are just a few.

Choosing the Right Wheelchair

Having a properly fitting wheelchair is very important to your independence. A wheelchair should have equal parts of both form and function. Your chair affects everything in your life from your independence to your body image, and therefore the chair should look and feel like an extension of your body.

Fit and weight are the most important components of your wheelchair. You should fit snuggly in your chair with no large gaps between your body and your chair. Your chair should also be as light as possible so that you are able to maneuver independently and lift it in and out of a vehicle.

Taper is another detail regarding the fit of your chair. Taper is the narrowing of your chair from the top of the frame to the footplate. Adding taper allows your chair to conform to the shape of your body so others will see more of you and less of the chair.

Center of gravity is the placement of the axle to the front or back of your chair and is a very important component of your chair’s function. The further back your axle is placed the more evenly your weight is distributed, making for a smoother ride. The more forward your axle is placed the easier it is to pop wheelies and maneuver rough terrain. It is important to find a balance between function and safety.

Wheel and caster size is also important. The larger the wheel the faster you can go, but you also want to make sure that you are sitting at a height where you can still pick things up off the floor. Typically, this means that with your hands by your sides your finger tips should reach your axles. Caster size is also important. The wider the caster the less likely it is to catch on cracks and bumps.

Moves to Master

If you do have a wheelchair that fits you well and doesn’t prohibit any actions then there are a couple moves you can master to help you be able to get even more places that you want to go. Unfortunately, this world is still not completely accessible and there are some times when you just have to go off the beaten path. In these instances it is important to be able to do things like pop a wheelie, hop up or down a curb, and ride an escalator. These moves are best learned by example. We have put a group of “How To” video’s together to help you out.
Ten things every chair user should have at all times

1. Tire repair tools
2. Adapter for your tires
3. Tools for chair repairs
4. An extra tire tube
5. Extra catheters
6. Wet wipes
7. Medical gloves
8. A towel
9. Extra clothes
10. Duct tape

Some of these items can be kept in a book bag or toolkit that you keep in your car, locker, desk, or elsewhere.

Why?

Accidents happen, and as a chair user you will find that to be true more and more often. As the saying goes, the best offense is a good defense. Do what you can to avoid accidents, like practicing a regular bowel and bladder management program, and check your tires for any wear and tear. But accidents are still going to happen, so you need to be prepared. You may blow a tire at the most inconvenient time or place. Make sure you know how to change your own tire and have all the tools you need to do so with you at all times. You don’t want to get stuck somewhere just because you have a flat tire. Unfortunately, you probably don’t have the bowel or bladder control you once did, but this doesn’t mean you can’t leave the house “just in case,” and it may not mean you have to wear a diaper, either. All you have to do is be prepared! There will probably come a day (if it hasn’t happened already) where you will have an accident. It happens to most if not all spinal cord injuries. YOU ARE NOT ALONE. And it’s not the end of the world. First, if you don’t know how now, learn to clean yourself up. Use your gloves and towel that you have packed, or whatever else it may take. You still may need to find the closest restroom to make sure your body is done messing with you. Then change into your extra clothes and you can continue on with your day. You will also want to make sure that you clean up any “mess” that was left behind–it’s just the polite thing to do! There are also smaller, more discrete options out there other than a diaper to control any minor leaks. Finally, you just never know what may happen to your chair (broken caster, bent frame, tear in fabric, etc.); duct tape can work wonders in a pinch until you get it fixed for good.
Our Advice

Our best advice is to get involved. Find a facility in your area where others with similar conditions are being physically active. You can learn the best from others who have been there and done that. It also helps provide support knowing you aren’t the only one going through what you are going through. If there are no options around you look online and find folks just like you who are finding ways to live active, independent lifestyles.

Being around others in similar circumstances also helps you learn how to accept your disability and the things that come along with it.

Sports Clubs

Your activity certainly doesn’t have to stop with the basics. There are tons of wheelchairs sports out there for you to participate in. There are solo sports like wheelchair racing and slalom skiing and team sports like wheelchair basketball and rugby. The key is to find something that you enjoy!

There may be a sports club in your area. To find out you can search for Paralympic sports clubs at http://findaclub.usparalympics.org/

Sports Chairs

Almost every sport has its own chair type. There are racing chairs, basketball chairs, tennis chairs, rugby chairs, skiing chairs and more. The two most common types of sports chairs are rigid or custom fit chairs and adjustable chairs. If you know you are going to be predominately playing one sport you should get a custom built chair. However, if you are new to a sport or will be participating in multiple sports it is probably best to get an adjustable chair. You will need to work with a sport chair manufacturer to get the chair that’s right for you.

Organizing Bodies:

Wheelchair and Ambulatory Sports USA (WASUSA)
U.S. Paralympics
National Wheelchair Basketball Association (NWBA)
United States Quad Rugby (USQRA)
Water Skiers with Disabilities Association (WSWDA)
More Sports, More Chairs

Sports chair manufacturers seem to be more numerous than the number of sports there are to play. Here’s a brief list:

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<td>Eagle Sports</td>
<td>Beneficial Designs</td>
<td>Top End</td>
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<td>Melrose</td>
<td>Liquid Access</td>
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<tr>
<td>Per4Max</td>
<td>Mike Box Designs</td>
<td>Freedom Factory</td>
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Getting a Sports Chair

Sports chairs can be just as costly, if not moreso, than your everyday chair, and they are not covered by insurance. Therefore, you should think carefully before you purchase a sports chair to make sure that it is the right one for you. It is also important to make sure someone who is familiar with the sport you will be playing and the chair you want to purchase fits you for the chair. Most likely, this will not be a physical therapist. You need to consider such things as strapping, hand rims, camber, tire type, caster and fifth wheels, just to name a few.

Challenged Athletes Foundation

Provides grants for adaptive sports equipment as well as training clinics. Check out: www.challengedathletes.org

College Sports

Playing sports in college is no longer just for the able bodied athlete. There are a number of universities that have started adapted athletic programs, and some even offer scholarships for their athletes. Athletes must qualify for their sport according to their disability.

Universities with Adapted Sports Programs.

University of Alabama
Auburn University
University of Arizona
University of Illinois at Urbana-Champaign
University of Missouri
Oklahoma State University
University of Central Oklahoma
University of Oregon
Edinboro University
Penn State University
University of Texas at Arlington
University of Wisconsin at Whitewater
Overuse injuries

Overuse injuries are quite common in wheelchair users because they are forced to use the same muscle groups for every move they make. It is important to take care of your body so that you can avoid these as much as possible. The two most common injuries are carpal tunnel syndrome and rotator cuff (shoulder impingement) injuries.

**Carpal Tunnel Syndrome:**
This is caused by the amount of weight-bearing stress placed on the upper body. Symptoms include pain and numbness over the first three fingers and palm of the hand. Treatment involves rest and immobilization, though you should check with your doctor to see what’s right for you.

**Rotator Cuff / Shoulder Impingement:**
The shoulder joint is the primary joint used for transfers and propulsion. It is also the most mobile joint, increasing its chance of injury. Proper biomechanics and strength training routines can help protect your shoulder from injury.

Getting Back in the Game

Getting back in the game doesn’t just pertain to sports. Being healthy and independent means getting back into the game of life. Going to college, getting a good job, raising a family. All of these things can be attainable for you. Just because you have a disability doesn’t mean you can’t be a valuable member of society. In the end, your goals in life should look just like those of everyone else. But as all things wheelchair related usually are, the route you take to get there may just look a little different. Being healthy and strong are the tools you will need to take that path all the way through to the finish line of success.

Live the life you were meant to live.
For more information or resources contact:

National Center on Health, Physical Activity and Disability
www.nchpad.org
email@nchpad.org
(800) 900-8086