

Sit and Be Fit™

Neuropathy Exercise Guide

Movement-based exercises, along with other lifestyle interventions, can help manage neuropathy. Check with your healthcare provider before beginning any exercise program. Listen to your body. If anything causes pain, stop! Do as much as you feel comfortable with and increase the number of repetitions over time.

General Directions:

- Practice the exercises with bare or stocking feet if possible.
- Sit toward the front edge of a chair and firmly plant the feet on the ground.
- Begin all exercises with good postural alignment (shoulders back and down, spine lengthened).
- If you have osteoporosis check with your doctor before doing any pounding/bouncing/stomping.

Toes

Perform these exercises seated. If cramping occurs stop the exercise for a moment and let the foot relax.

1) Toe Spreads

Plant feet firmly on the floor. Lift the toes and spread them as far apart as possible. Hold 5 seconds, release, and repeat as tolerated.

2) Spreads With Big & Little Toe Pressing

Press the big toe into the floor. Lift the other toes and spread them. Hold. Relax the toes down and repeat as tolerated. Try the same exercise with the little toe only pressing.

3) Side Toe Tap

Plant feet on the floor. Move the big toe of the right foot out to the right and bring it back. Repeat on the left foot taking the left big toe out to the left side.

4) Toe Taps

Plant heels on the floor and lift the front part of the foot off the floor. Tap the toes up and down on the floor vigorously. Repeat as tolerated.

5) Toe Curls

Plant feet on the floor and curl the toes under. Release and repeat as tolerated.

6) Big Toe Cross Overs

Lift the big toe and cross it on top of the second toe, pressing down. Repeat several times and change feet.

Feet and Ankles

Perform these exercises seated. If cramping occurs stop the exercise for a moment and let the foot relax.

1) Short Foot

Picture the base of the foot as a tripod with three points:

- big toe
- little toe
- heel

At the same time, press all three points into the floor. The arch of the foot will lift. Hold and release. Repeat several times as tolerated and change feet.

2) The "V"

With feet together on the floor, lift the toes as high as possible and turn ankles outward. Return to floor with feet forming a "V". Lift the toes again and bring feet together. Return to floor. Repeat as tolerated.

3) Foot Somatosensory Exercise

Roll a small ball (such as a tennis ball) under the feet for several minutes. This "self-massage" stimulates the sensory receptors on the soles.

4) Slides

With feet flat on the floor, slide one foot forward and one foot back at the same. Continue sliding them back and forth as tolerated. Maintain connection with the floor.

5) Point and Flex

Straighten one knee, lifting the leg 1-2 inches off the floor. Point and flex the foot 5-10 times. Repeat other foot.

6) Circles

Circle each ankle clockwise, then counter clockwise, 5-10 times.

7) Roundabouts

Plant the ball of the foot and lift the heel. Shift the pressure to the little toe and lift the big toe off the ground. Keeping the heel lifted, roll from the little toe to the big toe, then across the pad of the foot and back to the little toe in a circular motion. Continue in one direction several times and then the other direction. Repeat exercise with other foot.

8) Inversion and Eversion

With feet flat on the floor, 16 inches apart, turn the right knee out to the right side and hold (the inside sole of the right foot will be lifted). Turn the same knee inward and hold (the outside sole of the right foot will be lifted). Hold. Then flatten the foot back to the floor. Rock the foot back and forth several times in this way, moving from inversion to eversion. Repeat with the other foot.

Hands and Fingers

Perform these exercises seated. If cramping occurs stop the exercise for a moment and let the hands relax.

1) Pad Touches

Touch the pad of the thumb with the pad of the index finger. Move the index finger down to the base of the thumb. Repeat twice with the index, middle, ring, and little finger in succession. Repeat with the other hand.

2) Finger Taps

Place the palms of the hands on your lap. Lift index fingers twice, and tap your lap. Repeat twice with each finger in succession.

3) Thumb Circles

Clasp your hands loosely together. Circle your thumbs around each other in both directions. Try not to let the thumbs touch as they circle.

4) Ball Roll

Roll a 2-4 inch diameter ball between your

palms and up and down each finger to stimulate the receptors in the hands.

5) Pad Touches

Touch the pad of the thumb to the pad of the index finger and maintain contact as you circle the pads around each other, first in one direction and then the other. Stretch the hand open. Repeat with the middle, ring, and little finger in succession. Repeat with the other hand.

Recruiting the Core for Balance

Balance is compromised when there is numbness in the feet. Strengthening core muscles will help compensate. Rather than relying solely on the proprioceptors in the ankle, move higher up to the next part of the body where shifts in the center of gravity are sensed. This area is the thoracic lumbar fascia which moves into the complex abdominal wall. Any exercise that teaches control of center of gravity from the more proximal (closer to the midline) to the distal (away from the center) will help improve balance. Practice core strengthening exercises daily.

Core Strengthening

1) Diaphragmatic Breathing

Diaphragmatic breathing plays a role in stabilizing the core. The diaphragm helps stabilize the lumbar region and is connected through fascia to other core muscle groups. Begin seated with good posture. Relax the abdominal muscles as you breathe into the belly. It will expand like a balloon. Breathe out and pull the abdominal muscles in tight. Repeat 5-10 times.

2) Reverse Crunches

Sit on the front edge of the chair with arms crossed at the chest. Maintaining good posture, slowly lean back engaging the core muscles. Hold, return to starting position, and repeat. Build up to 10 or more repetitions.

3) Cross-Touches

Sit on the front edge of the chair. Lift one knee to bring the foot off the ground. With the opposite hand, touch the lifted knee and pull the belly

button to the spine. Repeat with the other knee lifting. Continue alternating knee lifts with the opposite hand touching. Repeat this exercise standing.

4) Reaches

From a seated or standing position, reach forward, bending from the hips. Hold for the count of 5 and return to start position. Repeat several times. Next reach up to the diagonals.

5) Thoracic Lumbar Fascia Stretches

Along with core strengthening it's important to stretch the thoracic lumbar fascia of the lower back. Breathe deeply throughout these stretches.

Sit toward the front edge of the chair. Place feet on the floor, 24-30 inches apart, with hands on knees. Slowly tuck the chin and round the back. Hold. Then roll up one vertebra at a time, slightly arching the back. Shoulders should be back and down and the head lifted with eyes gazing upward. Hold. Repeat slowly several times. Next, slowly roll the right shoulder forward and reach the right hand down to the left diagonal. Rotate the wrist inward, palm forward. Hold. Repeat several times alternating sides.

Circulation

The following exercises can be done from a seated or standing position.

1) Fast Marches

March quickly in place.

2) Mini-Head Nods

Using a very small range of motion (the nose shouldn't move more than 1-inch from side to side) shake the head back and forth (as if saying "no"). Keep the neck elongated and head lifted. Try speeding up the movement to find a natural rhythm that creates a feeling of vibration.

3) Pats

With an open palm pat the chest, (like Tarzan) belly, arms and legs while slightly rocking the hips back and forth.

4) Shakes

Shake the whole body including the hands and shoulders.

5) Rocks

Rock forward and back imagining you are in a rocking chair. Then rock side to side.

6) Cross Crawls

Lift one knee and touch it with the opposite hand. Repeat with the opposite knee and hand. Continue with alternating knees.

7) Dance

Put on some fast-paced music and dance, dance, dance!

8) Walk

From a standing position, take a brisk walk around the block.

9) Jump

From a standing position, make small jumps, up and down, as if you are jumping rope.

Neuropathy and Balance

If you have true neuropathy, especially with numbness in the feet, balance is compromised and therefore it is especially important to work on improving balance skills.

Good balance depends on:

- lower body and core strength
- vision
- vestibular system
- somatosensory system (sensation)
- reaction time

Daily practice of a combination of exercises that incorporate these areas is highly recommended. The balance exercises presented here will help train the eyes, ears, and the skin on the bottom of the feet, as well as the more proximal joints.

Balance

Begin all balance exercises standing by a wall, kitchen counter, or behind a sturdy chair. Lightly touch the support surface but don't lean into it. Before starting the exercises, take a moment to get yourself into good postural alignment. Keep your head up and eyes on the horizon throughout each exercise. Stop if, at any time, you begin to feel dizzy.

1) Slow Marches

March very slowly in place lifting only the heels off the floor. When that becomes easy, slightly lift heels and toes off the floor. Try to make the movement as slow as possible. As your balance improves, lift the feet higher off the floor by lifting the knee higher.

2) Rises

Rise slowly up on the toes, hold, and come down. Repeat several times. Next try lifting the toes with the weight of the body on the heels. Hold and bring the toes down. Repeat several times.

3) Side Steps

Step to the side with right foot, then bring left foot next to right foot. Repeat stepping to the left. Go back and forth, right to left. Repeat several times. As your balance improves, take larger steps to each side. Then try taking two steps in each direction.

4) Squats

Stand tall. Bend at the hip joint and bend the knees slightly. Place hands on the thighs. Reach back with your buttocks and sink down. Return to standing position. Repeat several times. As your strength improves, squat a little deeper by bending the knees more. If you have knee pain, stop the exercise.

5) One-Leg Stands

Shift the weight to one leg and slowly lift the opposite foot off the ground. Engage the toes of the supporting leg by pressing them into the ground. Hold the pose for as long as balance can be maintained. Change legs.

6) Lunges

Take a large step forward with one foot and bend the forward knee keeping the knee over the foot. Bend the back knee slightly with the back heel off the floor. Hold and return to the starting position. Repeat the lunge, with the same foot leading, but this time step out to the diagonal. Return to center and step out to the side. Repeat with the other leg.

7) Static Balance

Stand with hands resting lightly on the back of a chair. Close your eyes and slightly lift hands off the chair. For safety, have someone nearby. Try to maintain balance with eyes closed for 10 seconds. When this becomes easy, practice the same exercise standing on one leg. Open your eyes if you begin to feel dizzy or off balance.

Vision

Begin practicing the vision exercises from a seated position. If you can maintain good balance, progress to a standing position lightly touching a wall, counter or chair back for stability.

1) Up-Down

Keep the head still. Look up and hold. Then look down and hold. Repeat several times.

2) Side to Side

Use the same techniques as the Up-Down exercise only this time look side to side.

3) Diagonals

Use the same technique as the Up-Down exercise. Look up to the right diagonal and down to the left diagonal several times. Then look up the left diagonal and down to the right diagonal.

4) Expanding Peripheral Vision

The head will stay forward for this exercise.

- (a) Extend arms forward with thumbs pointing up. Slowly take both arms out to the side at the same time. Keep eyes forward but continue watching the thumbs until they begin to leave the peripheral vision. Stop the arm movement. Wiggle the thumbs and try taking the arms back farther keeping the thumbs in your peripheral view. Practice this exercise regularly to expand your peripheral vision.
- (b) Try the same exercise as above but slowly move one arm up and the other arm down keeping the eyes forward and thumbs in the peripheral vision.
- (c) Next try the exercise with one arm moving up to the diagonal and the other moving down to the opposite diagonal.

- (d) Combine the three peripheral vision exercises (a), (b) and (c) alternating between them.

5) Saccade

Saccade is a rapid movement of the eyes between fixation points. The head remains still but the eyes look very quickly to the left and right. Those who do saccade on a regular basis see improvement in their balance, the reason being, when we walk, turn or shift the body, the eyes go first and the body follows. Saccade is great training for that aspect of controlling dynamic movement.

6) Fast Blinks

Repeat the pattern below several times. This exercise is especially good to practice after spending time on the computer or in front of a television. Practice each direction for 5 seconds.

- blink both eyes together quickly
- close both eyes and hold
- open both eyes wide and hold
- alternate blinking one eye at a time

Vestibular System

Exercising the vestibular system is often tied into visual work but it targets the inner ear therefore the head does not remain still as it does in vision exercises. The head and eye movements work simultaneously. If you become dizzy stop the exercise. Try slowing the movements and decreasing repetitions. These exercises should be practiced from a seated position.

1) Back and Forth Head

Extend the arm forward at eye level and point the thumb straight up. Keep eyes fixed on the thumb. Slowly move the head back and forth, left to right, as if watching a tennis match. Keep the range of motion to 45 degrees from the center on both sides. Slowly increase the speed. Keep neck elongated and head lifted. Continue 20-60 seconds.

2) Figure 8

Keep your eyes on the thumb as in the previous exercise. Trace the shape of an imaginary infinity sign with your nose. Begin with a small figure 8 and increase the size. Next, practice the exercise without the thumb, allowing your eyes to follow the movement of the head.

Standing Vibration

Stand upright with feet hip width apart, toes pointing forward, and knees softened (not locked). Relax the shoulders, arms, and hands, and tune in to the vibration created by the movements.

1) Heel Bounces

Shift your weight to the front of the feet and bounce the heels quickly creating a vibration that extends from your feet up through your head. Practice 10-15 seconds or as tolerated.

2) Alternate Heel Lifts

Lift the heels, alternately, quickly. When one heel comes up the other goes down firmly on the floor. Feel the vibration moving up through the spine. Practice 10-15 seconds or as tolerated.

3) Stomps

Shift your weight to one leg slightly bending the knee. Stomp the opposite foot as quickly as possible for 5-10 seconds. Change feet.

Seated Vibration

Sit on the front edge of a chair with feet firmly planted on the floor. Maintain good posture with spine lengthened and head lifted. As you practice the vibration exercises, try to find a rhythm that produces a vibration in your body. Experiment with different amounts of pressure.

1) Heel Bounces

Rest hands on the knees and bounce both heels as fast as you can making sure the heels touch the ground with each bounce. Practice this for 10-15 seconds. Then bounce alternate heels back and forth rapidly for 10-15 seconds.

2) Heel Bounces with Resistance

Place hands above the knees, straighten arms and lean forward from the hips. Keep the back straight. Use your upper body weight to apply resistance (pressure) to your legs by leaning into them through the arms. Practice the heel bounces described above, both together and then alternating. Try to feel the vibration going all the way up through your shoulders and back.

3) Foot Pounds

Pound one foot at a time on the floor by lifting the base of the foot completely off the ground and striking the floor with the whole foot. Focus on engaging your core muscles throughout the exercise for support. Next, practice the exercise just striking the heel. Then, repeat the movement but this time just striking the ball of the foot.

4) Claps

Clap the flat surface of both hands together - first slow then faster. Change tempo and rhythm. Next, interlace the fingers and clap just the palms together.

5) Whole Body Shaking

This exercise can be done seated and standing. Get your whole body shaking; hands, arms, shoulders, hips, legs and gently your head. Imagine doing the Hokey Pokey.

What Are Full Body Vibration Machines?

A full body vibration machine or plate is another way to increase circulation. Podiatrist Dr. Emily Splichal recommends it to her patients, especially those managing neuropathy. You can read more about the benefits online by searching "full body vibration machines".

Sensory Stimulation

The following exercises are done seated.

1) Pad Taps

Rest one ankle above the opposite knee. Focus on the sole of the lifted foot. With pads or tips of the fingers tap repetitively across the surface of the sole, first lightly then more firmly. Change feet and repeat.

2) Feather Strokes

Use the fingertips of one hand to LIGHTLY stroke down the inside of the opposite arm, across the palm and to the end of the fingertips. Repeat several times and change arms. Practice this exercise on the legs and feet. You may experience a tickling sensation.

3) Towel Roll

Tie a hand towel into a knot. Place under one foot and SLOWLY roll the foot back and forth, LIGHTLY, on the object. The feeling is not one of pushing down, as in the pressure exercises, but instead the object is placed under the foot to stimulate sensation.

4) Textured Ball Rolls

A textured therapy ball costs very little (found online or in general merchandise or sporting goods stores) and is very useful in stimulating the sensory receptors on the hands and bottom of the feet. The balls come in various sizes and texture depths. Rolling a textured ball between the hands or under the feet is an easy exercise to do while watching television.

5) Finger Flicks

With both hands at once, flick your fingers as if you are flicking water off the hands. Notice the sensation of the fingernail bed sliding across the thumb during the flicking motion.

Heat Generating Exercises

The following exercises are done seated.

1) Quad Rubs

Place hands on the thighs with palms down. Slide hands up and down the thighs as quickly as possible, first with both hands moving back and forth in unison and then alternating with the hands going back and forth in opposite directions. Don't forget to maintain good upright posture.

2) Sliding Hands

Press the palms together, with elbows slightly out, and rub the hands together quickly in an up and down motion. You should feel heat generated by the friction.

3) Foot Slides

With bare or stocking feet come to the front edge of the chair with feet flat on the floor. Keeping the feet flat on the floor, slide one foot forward and one foot back alternating back and forth several times as quickly as possible. Don't forget to keep your core muscles engaged and maintain good posture.

4) Knuckle Rubs

With bare or stocking feet, rest the ankle of one leg above the knee of the other leg. Make a fist and briskly rub the sole of the raised foot, first rubbing up and down then rubbing side by side. Change feet.

Seated Pressure Exercises

1) Proprioception

With feet flat, place palms above one knee. Lift the heel of the same leg and apply resistance with the hands and arms by pressing downward and dropping the heel. Repeat 8 times and change legs.

2) Pinches

With bare or stocking feet, place one ankle on the opposite knee. Gently pinch and release the toes (one at a time) and then the whole foot, working up and down the sole.

3) Hand Presses

Press the thumb of one hand into the palm of the other hand. With each press, hold the pressure several seconds and release. Move across the surface of the palm in this way and up and down each finger. Change hands.

4) Three Point Press Foot Release

Begin this exercise by identifying the following three points on the bottom of the foot:

- (a) front of the heel just before the arch
- (b) center of the arch
- (c) ball of the foot just past where the arch ends

- Place a firm small ball under bare or stocking feet. Begin with the ball under point (a).
- Press the foot down. Add pressure by placing your hands above the knee. With straight arms use your upper body weight to press down on the ball gently. Only press down to the point of comfort.
- Hold for one full minute.
- Repeat with the ball under point (b).
- Then repeat with ball under point (c).
- Change feet and repeat the entire sequence.

Standing Pressure Exercises

1) Standing Three Point Press

Standing near a supportive surface such as wall, counter or chair back, repeat the Three Point Press Foot Release exercise as described above.

2) Heel Strike Holds

Take a small step forward and plant the heel with toes lifted. Shift the weight of the body to the front heel. Hold and release. Change feet and repeat as tolerated.

3) Toe Holds

Repeat the exercise above (Heel Strike Holds) but with the heel of the front foot lifted. Press the ball of the foot into the floor. Bend the forward knee on the front leg to increase the pressure (only to the point of comfort). Change feet and repeat as tolerated.

Why Mind-Centered Exercises?

Research has verified the role that our thoughts play in creating our experiences. The goal of mind-centered exercise is to harness the power of the mind to create a healthy and happy life.

Mindfulness meditation has been shown in clinical trials to reduce chronic pain by 57%. Many pain management clinics prescribe mindfulness meditation training to help patients manage pain arising from a whole array of disease states.

There is a growing body of information about the practice of mindfulness. Below are two resources to get you started:

On the Internet:

A free 8-week online course offered through Palouse Mindfulness
<https://palousemindfulness.com>.

At your local library or bookstore:

"You are Not Your Pain: Using Mindfulness to Relieve Pain, Reduce Stress, and Restore Well-Being – An 8-Week Program", written by Vidyamala Burch and Danny Penman.

Mindfulness

Mindfulness is the practice of using awareness or the senses to bring attention to the present moment. The purpose of mindfulness is reducing stress and increasing a sense of well-being. Diaphragmatic/Intercostal breathing is the cornerstone of this practice.

Diaphragmatic/Intercostal Breathing

Sit or stand tall in good postural alignment. Relax the abdomen so the belly can expand like a balloon on the inhalation.

* When you inhale fill the lower part of the belly first. The entire abdomen will expand like a balloon. Continue to inhale and fill the ribcage area so it expands in all directions.

- Inhale slowly for the count of **6**
- Gently hold the breath for the count of **3**
- Exhale slowly for the count of **9**
- Repeat five times.

Notice how you feel before and after this exercise. Breathing in this way elicits a parasympathetic response from the nervous system cueing the body to relax, reducing blood pressure, and improving mental alertness.

Mind-Centered Exercises

Mindful Eating

SLOW DOWN and enjoy every bite. Take notice of the smells and tastes of the food. Put down your fork and take a deep breath between each bite.

*Turn the television off during meals.

Envision the Best You

Stand in front of the mirror and look at yourself with unconditional love. See your body as whole and healthy. Imagine your energy revitalized.

Plan Your Day

Each morning start fresh. Decide what your day will look like including how you will handle stress when it arises. Plan a day that interests you.

Be Creative

Recognize your inherent ability to create. Notice how your mind activates when you engage in new ideas, projects, friendships, plans.

Reach Out

Every day reach out to as many other people as possible with the intention of uplifting them.

Observe

Throughout the day observe your thoughts without judgment. Notice your inner dialogue. Is it positive and improving your mood, or negative?

Detach

When you observe negative and obsessive thought-patterns, repeating themselves over and over, imagine detaching yourself from them by "cutting the cord".

Identify Your Stressors

Identify activities, people, and behaviors that create stress in your life. Try to minimize your exposure to those things and/or test ways to "flip the script" so you react differently these stressors.

Smile and Laugh

The physical, mental, and social benefits of smiling and laughing include:

- improving mood (increasing endorphins)
- improving immunity
- easing anxiety
- enhancing relationships

Decompress

Take 5 minutes at the end of the day to rest your mind. Give yourself permission to relax. During this time there are no decisions to be made, no problems to be solved, not situations to be evaluated and no regrets.

Be Grateful

Instead of "counting sheep" at night, count your blessings! Include the smallest of things. Gratitude generates a sense of belonging and purpose. Scientific studies on gratitude show it improves overall well-being.

Sleep Well

Prioritize a good night of sleep. Turn off electronics at least an hour before bedtime. Try not to drink liquids 1- 2 hours before you go to bed. A good night of sleep helps the body heal.