

Self-Stretching

Performing a daily stretching routine can be your most effective way to prevent or delay loss of flexibility with Duchenne muscular dystrophy. When performed correctly, daily stretching can delay the onset of muscle contractures. Ultimately, it is possible to prolong physical ability and independence with a daily stretching routine.

The following sets of stretches can be performed by an individual on his/her own, dependent upon physical abilities, as a daily self-stretching routine.

General Rules of Stretching

- Stretching should not be painful
- Stretches should be held for 60 seconds and repeated
- As the muscle relaxes, increase the pressure
- A daily routine is most effective

Lower Extremity Stretches



1. Hamstring Stretch - Wall

Lay at the corner of two walls, place a heel on the wall and the other leg along the wall on the floor. Slowly move closer to wall until a stretch is felt in the back of the thigh. Hold for 60 seconds and repeat 1-2 times.



2. Gastrocnemius (Achilles)

While standing at a wall, position one foot in front of the other. Lean forward while keeping the back knee straight and toes pointed forward. Hold for 60 seconds, relax, then repeat.



3. Soleus Stretch

While standing at a wall, position one foot in front of the other. Slowly lean forward while bending the back knee and keeping toes forward and heel on the ground. Hold for 60 seconds, relax, then repeat.



4. Trunk Rotation

While laying on back with knees bent, swing legs to one side, allowing the hips and lower back to rotate in the same direction. Hold for 10-20 seconds, then rotate to opposite direction and hold for 10-20 seconds. Repeat on each side 10-20 times.

Upper Extremity Self-Stretches



1. Wrist Extension Stretch

While seated, place palms down at your side. Slowly move hands backward until a stretch is felt. Hold for 60 seconds, relax, reposition, and repeat.



2. Wrist and Finger Extension

While seated, place palms together in front of chest, slowly lower hands, keeping elbows out until a stretch is felt. Hold for 60 seconds, relax, reposition, and repeat.



3a. Neck Extensor

While laying on back, position neck in a comfortable position looking forward.



3b. Neck Extensor

Tuck the chin down while extending the back of the neck. Hold for 5-10 seconds, relax, and repeat 5-10 times.

Massage therapy* refers to many manual techniques done by a licenses and specific trained professional with the intent of normalizing soft tissue to promote health, muscle relaxation, healing and other benefits. Massage techniques can be used in home programs to produce some of the same health and mobility benefits. For more information, visit CureDuchenne.org/care/videos/

Physiologic Benefits of Massage

- Prevention/Treatment of injury.
- Muscle Relaxation.
- Release of restrictions.
- Increased circulation.
- Enhanced immune system function.
- Pain relief.
- Improved respiration.
- Sensory stimulation.

Contraindications for Massage

DO NOT MASSAGE WHEN THERE ARE:

- Sores, cuts, burns, boils, infectious rash.
- Inflamed joints, tumors or undiagnosed lumps.
- Injured areas including bruise, sprain, fracture, dislocation.
- Endangerment sights: back of knee, elbow, xiphoid process.
- Acute illness especially when accompanied by viral infection and/or fever.

5 Effleurage Massage Steps**



STEP 1: Maintaining mild pressure, the hands start together in the middle.



STEP 4: Hands move upward together.



STEP 2: Hands move in opposite directions, with mild pressure.



STEP 5: Hands move downward together. Then, repeat from Step 1.



STEP 3: Move hands back together.

*All interventions, including massage, have their cautions. Please read the list of "Contraindications for Massage" and consult a physician before beginning a new routine and/or if new symptoms arise after starting a routine.

**The following is a suggested, simple routine that can be implemented on a regular basis by a caregiver. Advisement from Victoria Laster, BA, NMT, CPMT - First Touch Neuromuscular Pediatrics

Transfer Safety

A transfer refers to moving a person from one position to another. For a person with Duchenne, moving from one position to another can become very difficult without the assistance of someone else and/or use of specialized equipment. For more information, visit CureDuchenne.org/care/videos/

Several key factors to consider when determining the correct transfer: **(1)** The individual's cognitive ability to contribute to the transfer. **(2)** The individual's current physical function during the transfer. **(3)** The individual's clinical restraints.

Prior to any transfer, the following steps are recommended:

Equipment Preparation

- Position chair very close to the transferring surface.
- If individual is transferring from a wheelchair, engage the brakes and/or turn off the power controls.
- Move the foot and armrests away.

Caregiver Preparation

- Maintain a wide base of support.
- Use your legs, not your back.
- Engage your core muscles.
- Stay as close to the individual being transferred as possible.

One Person Transfer

When conducting a one-person transfer, transferring someone with significant weakness is best done and most safely performed when moving the individual from a higher surface downward to a lower surface. Transferring upward adds strain to the caregiver and increases the risk of injuring the individual.



ONE PERSON TRANSFER INSTRUCTIONS

Have the individual facing you. The individual, using both arms, hugs your neck over your shoulders. The caregiver wraps one arm tightly around the individual's back until the caregiver's hand has a secure grip on the individual's ribs. Then, the caregiver uses his/her other hand to secure a grip under the individual's thigh to tightly secure the body close to the caregiver, then lift and transfer.

Two Person Transfer

When two able bodied people are available to perform the transfer, they are able to distribute the weight of the individual being transferred which helps to reduce the strain on the caregivers. It is easiest and safest to do a two person transfer between two surfaces of similar height.

TWO PERSON TRANSFER INSTRUCTIONS

One caregiver will stand behind the individual, and the other will stand in front. Crossing the individual's arms, the caregiver behind the individual slides his/her hands under the individual's arms and grips both wrists with the caregiver's palms facing downward. The caregiver standing in front will place both hands under the individual's thighs. Both caregivers should count aloud to ensure simultaneous lifting.



Lift Systems

Here are a variety of transfer systems and types of transfer slings available to safely and comfortably transfer someone from one location to another. A sampling of lift options includes:



Mobile Lift
(Manual or Electric)



Free
Standing



Fixed Ceiling Lift
& Track System

Daily Passive Stretching

Performing a daily stretching routine can be your most effective way to prevent or delay loss of flexibility with Duchenne muscular dystrophy. When performed correctly, daily stretching can delay the onset of muscle stiffness. Ultimately, it is possible to prolong physical ability and independence with a daily stretching routine.

General Rules of Stretching

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Lower Extremity Stretches



1. Hamstring Stretch - Supine

Flex the hip 90 degrees and stabilize at the knee. With other hand, slowly raise the lower leg until stretch is felt in the back of the thigh. Hold for 60 seconds, reposition and repeat for 60 seconds.



2. Gastrocnemius Stretch - Supine

While lying on back, place small roll under the knee to avoid hyperextension of the knee. Grasp the heel and pull to stretch the Achilles then flex the foot. Hold for 60 seconds, reposition and repeat for 60 seconds.



3. Soleus Stretch - Prone

While lying on stomach, flex knee 90 degrees. Stabilize the lower leg. Grasp the heel and foot and press down to stretch the calf. Hold for 60 seconds, reposition and then repeat 60 seconds.



4. Hip Flexor/IT Band Stretch – Prone

Stabilize the pelvis with one hand. Cradle the knee with the other hand. Pull it up then toward the other leg. Hold for 60 seconds, reposition then repeat for 60 seconds.

Upper Extremity Stretches



1. Wrist And Finger Extension

Hold the palm with two hands and slowly extend the wrist. Move one hand towards the fingers continuing to extend the wrist and the fingers. Hold for 60 seconds, reposition and repeat 60 seconds.



2. Forearm Supination Stretch

Stabilize elbow at side of body. Bend elbow 90 degrees. Hold above the wrist and turn the arm to palm up position. Hold for 60 seconds, reposition then repeat for 60 seconds.

Aquatic therapy* is a skilled treatment by a physical therapist specially trained to use the water environment to benefit the individual client in many ways. For more information, visit CureDuchenne.org/care/videos/

The pool is great for those with Duchenne muscular dystrophy. It provides many benefits including:

- Buoyancy to reduce stress on muscles and joints.
- Mild resistance for low grade muscle work.
- Respiratory exercise to maintain and/or increase capacity and breath control.
- A fun, suitable place for social interaction with others.

Home-Based Pool Activities

Gliding

- Have him clasp his hands above his head and push off the wall to see how far he can glide with one breath or until his body floats to the surface.
- To decrease the work for the shoulders, have him place his hands at his side before pushing off the wall.
- While gliding he can pretend to swim like a shark, frog, dolphin, snake, etc., to get more mobility in many directions (up/down/sideways) and make it more fun.

Breath Control

- Encourage that he takes the biggest breath he can before playing any of the following activities:
- Search for pool toys under water. Place them within arm's reach and give him an order that he must pick them up. For example: say, "Go under and get the red, yellow and orange rings then come up."
- Sing songs or yell while under water. See if you can identify what each other is singing/saying.
- Practice bubbles under water until breath runs out. For a breath control activity, see if he can let one big bubble out at a time.
- Float face-down until he runs out of breath and roll to a back-float position. Take deep breaths working on rib expansion and then roll back to a face-down float.

Relaxing and Stretching

- While floating face up, do "snow angels" slowly and with the full range of motion of his shoulders and hips.
- While he is floating with his hands above his head, hold his hands and slowly pull him across the pool in a zig-zag line creating a snake-like motion of his body.
- Using the steps, he can do his calf and hamstring stretches with ease.

**Always monitor the physical demands of any pool program and consult a healthcare professional as needed.*