

At-Home Physical Therapy Exercises for Pompe Disease

Introduction

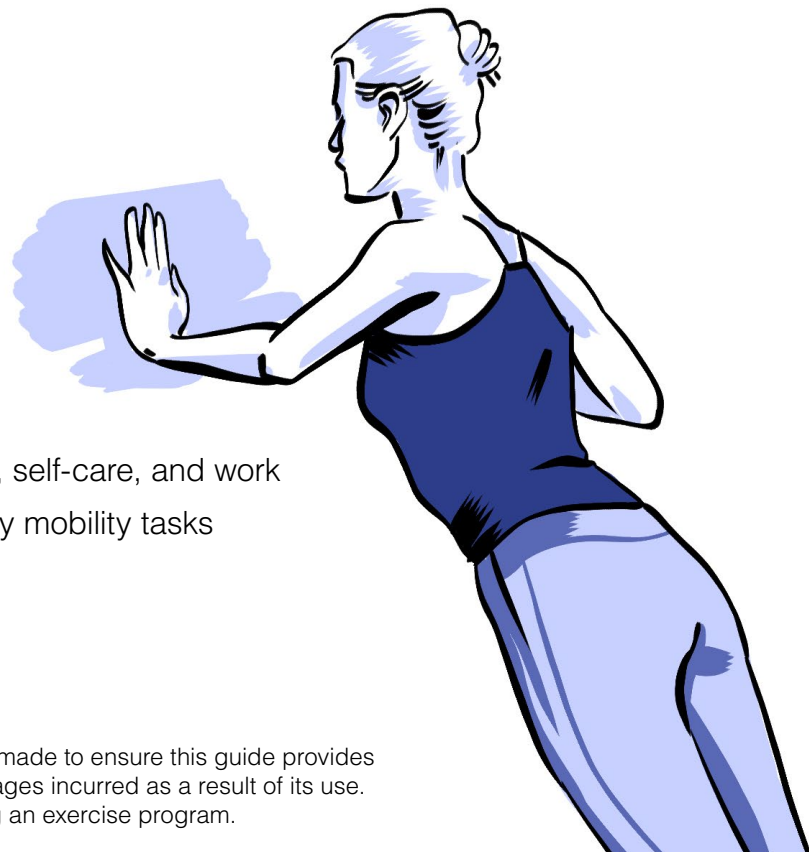
This resource describes physical therapy exercises for adults with Pompe disease. Some of the exercises outline modifications and progression to best fit the functional abilities of the individual.

Before starting a physical therapy program:

- Consult with your healthcare provider to ensure this program is appropriate for you, you are aware of any reasons you shouldn't be starting an exercise routine, and you consider any factors that might require special precautions.
- Avoid exercise that is aggressive, high impact, or high intensity.
- Avoid pushing through pain or fatigue.
- Select exercises that are safe for your level of functioning:
 - Avoid exercises that may cause a fall.
 - Stay around exertion levels of moderate difficulty, 30-40% intensity.
- Start slowly and rest as needed.
- Remember to breathe throughout all exercises; do not hold your breath.

After exercise, you should be able to:

- Recover quickly (in 30 minutes to 1 hour)
- Have enough energy for your daily activities, self-care, and work
- Have enough energy to safely complete daily mobility tasks (e.g., balance and transfers)



Statement of Liability: While every reasonable effort was made to ensure this guide provides safe and helpful information, MDA is not liable for any damages incurred as a result of its use. Please consult with your healthcare provider before starting an exercise program.

Exercises

Bridging

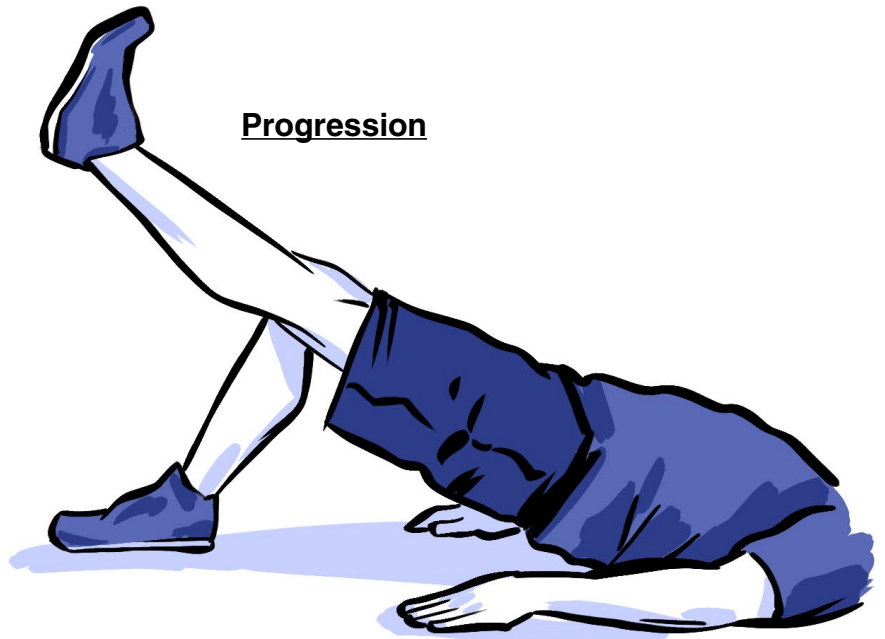
1. Lie on your back on a bed or the floor with your knees bent and feet flat.
2. Tighten your core and glute (buttocks) muscles.
3. Squeeze your glutes and lift your hips until your legs and body are level. Do not arch your back. Do not bear down or hold your breath. Do not allow your hips to rotate.

Duration: Hold for 5-10 seconds. Repeat 5-10 times.

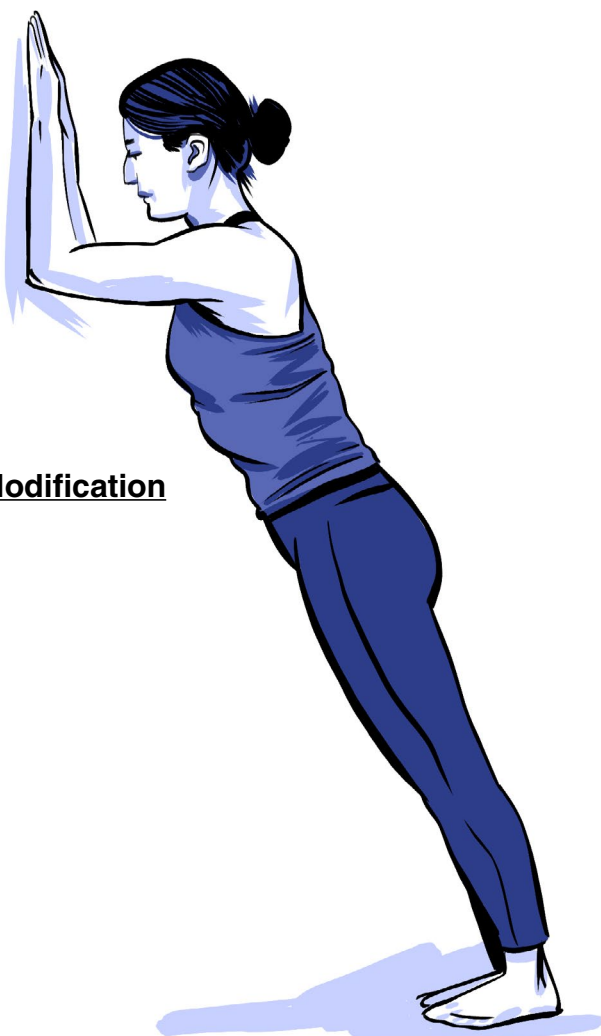
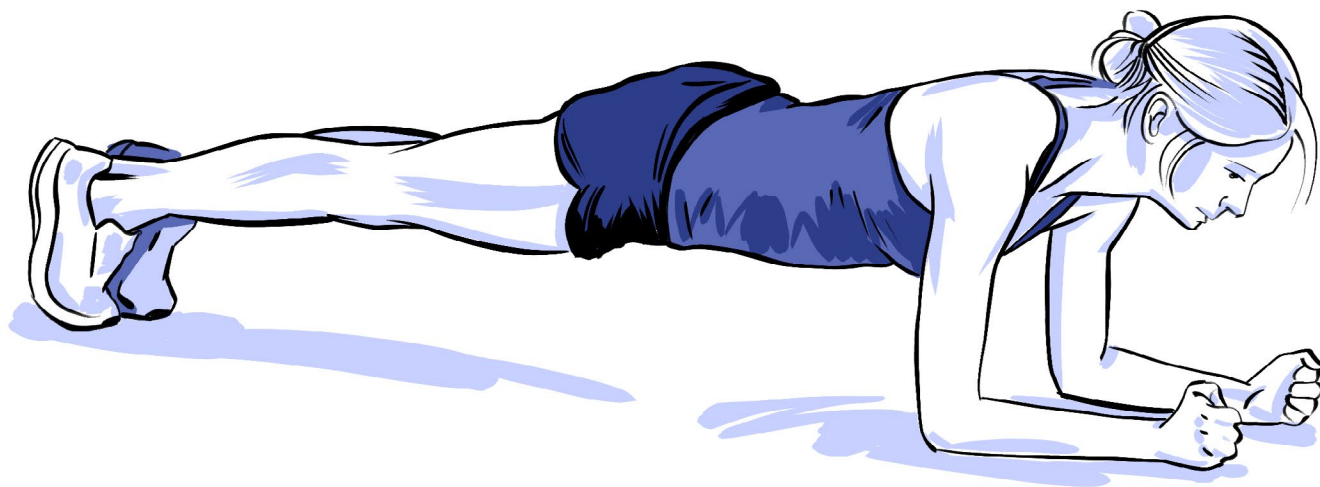
Progression: Increase the hold time or complete the exercise with one leg lifted off the ground.



Progression



Plank



Modification

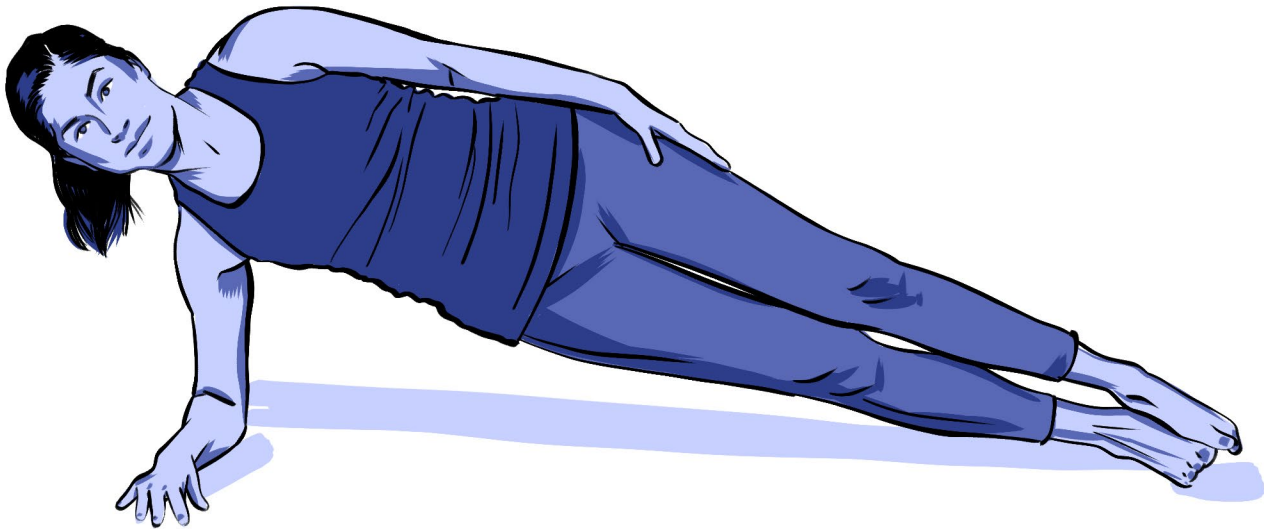
1. Begin with your forearms on the floor and your elbows aligned under your shoulders at about shoulder width apart.
2. Extend your legs, making sure your core is tight and your back is flat. Do not hold your breath. Keep your back from arching and do not let your hips sag.

Duration: Hold for 5-10 seconds. Repeat 3-5 times.

Modification: Hold the position on your knees rather than on your toes. You may place a folded towel under your knees for comfort. For less of a challenge, complete the exercise against a wall.

Progression: Increase the hold time up to 1 minute.

Side plank



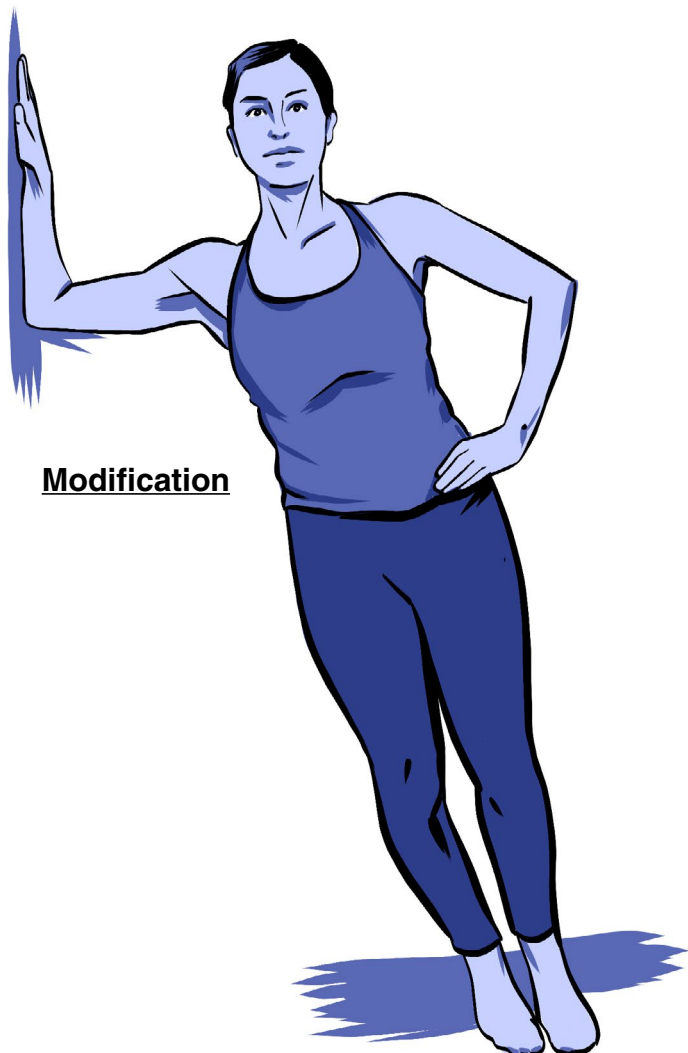
1. Hold your body in a straight line with your feet stacked on each other and one hand or elbow on the floor, directly under the shoulder. Alternatively, both feet can be on the floor, one in front of the other. Do not hold your breath or let your hips sag. You may place a folded towel under your elbow for comfort. Take care not to allow your body to rotate or your hips to turn.

2. Repeat on the other side.

Duration: Hold 5-10 seconds. Repeat 3-5 times.

Modification: Keep the lower knee on the floor. For less of a challenge, complete the exercise against a wall.

Progression: Increase the hold time up to 1 minute, or rotate your top arm to point to the floor and then to the ceiling or to your feet and then overhead. Complete 5-10 repetitions.



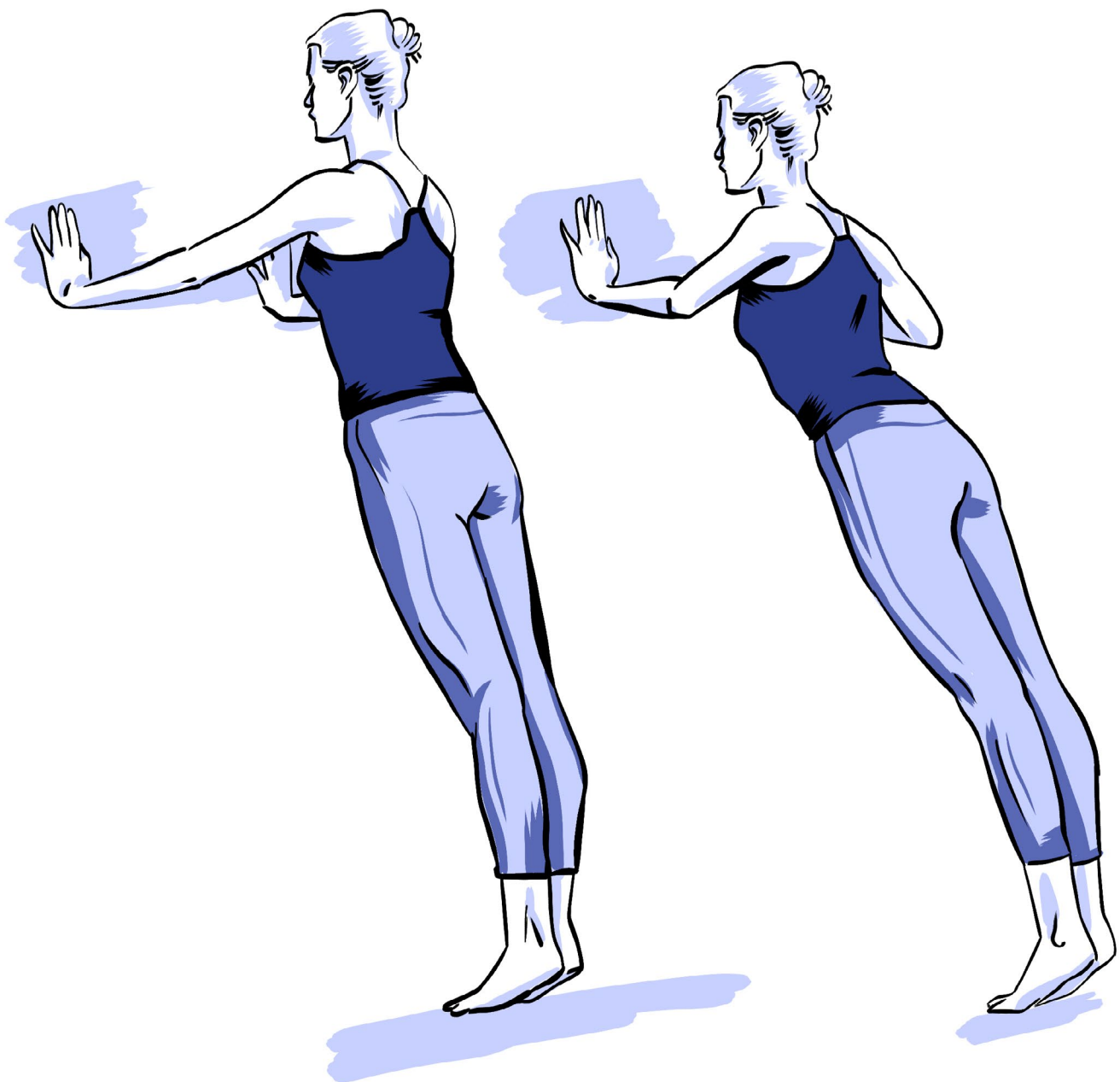
Modification

Wall push-up

1. Start on a stable surface (not a rug) and wear nonslip shoes (not socks). Place your hands on the wall at shoulder height.
2. Bend your elbows until they reach a 90-degree angle.
3. Slowly straighten your elbows. Keep your head and neck in line with your spine (tuck your chin). Lead with your chest and avoid letting your hips sink.

Duration: Hold 2-3 seconds. Repeat 10 times.

Progression: Work up to 30 total repetitions, or 3 sets of 10 repetitions. To target the triceps, point your elbows toward the floor as you bend them. To target the biceps, move your hands wider than your shoulder width and point your elbows out to the sides as you bend them.

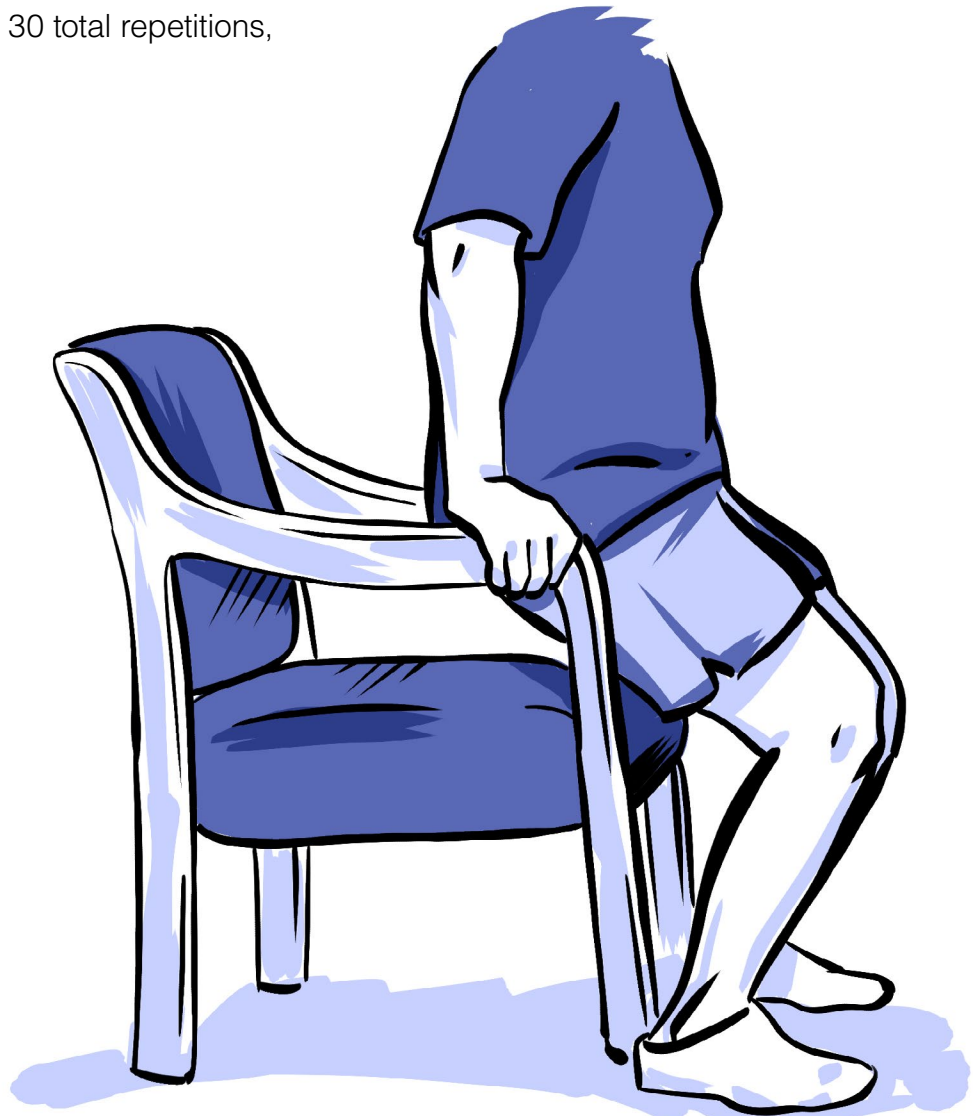


Chair press-ups

1. Sit on a firm surface and place your hands flat beside your hips or on the armrests of a chair.
2. Press down until your shoulders lower and your buttocks lifts away from the seat. Keep your chin tucked. It is alright to lean forward slightly if needed. You should feel this in your trapezius (upper back) muscles, under the shoulders, and in the back of your arms. If you feel any pain or tension in the front of your shoulders or neck, adjust your form. If the pain persists, do not continue the exercise.

Duration: Hold for 2-3 seconds. Repeat 10 times.

Progression: Work up to 30 total repetitions, or 3 sets of 10 repetitions.

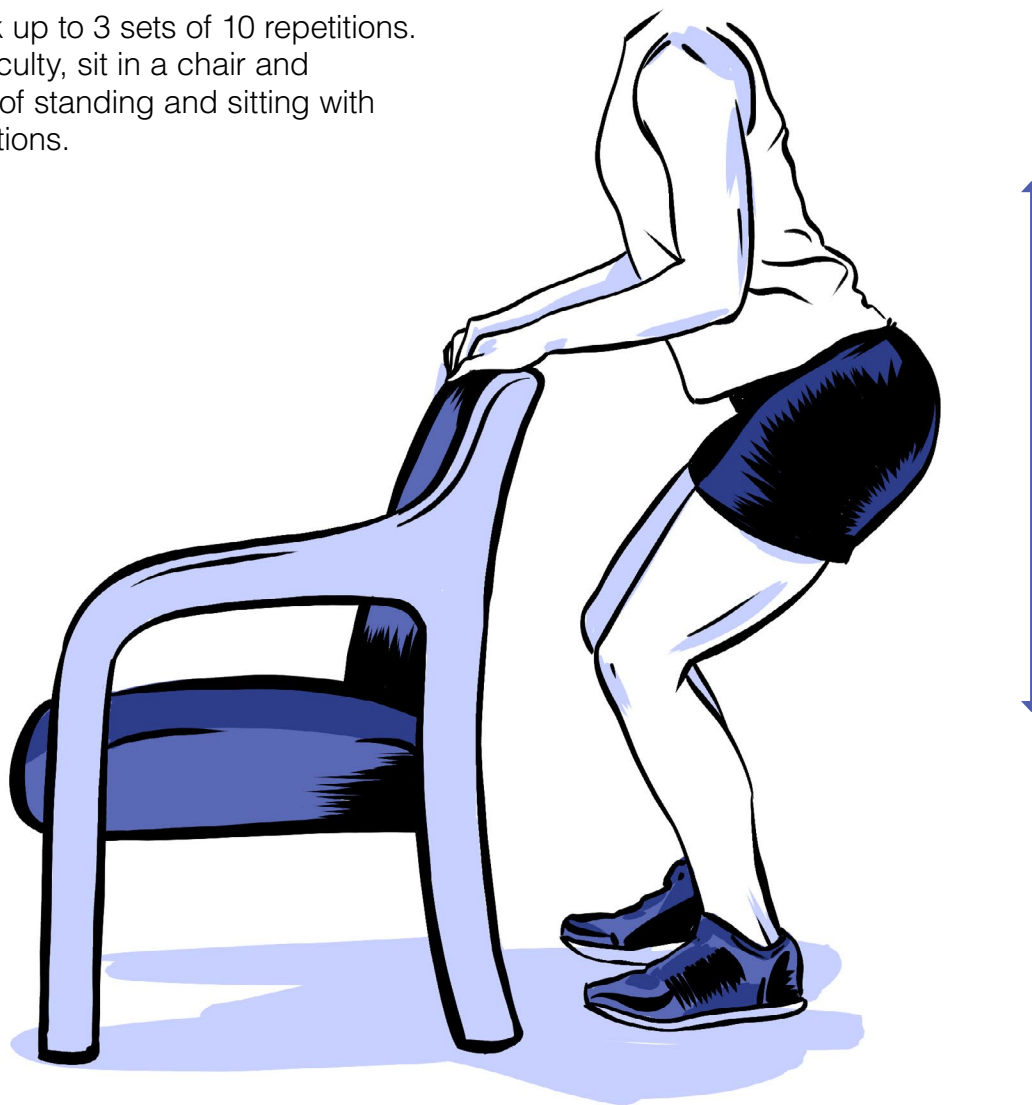


Mini squats

1. Stand with your feet hip distance apart. Place your hands on the back of a chair or the lip of a sink for support. Be sure the surface is sturdy and will not move or tip.
2. Bend at the hips and knees, and lower your body as if you are preparing to sit in a chair. Keep your chest upright and your knees behind your toes.
3. Tighten your core and glutes, and return to standing. If you experience knee pain, do not continue the exercise.

Duration: Hold for 2-3 seconds. Repeat 10 times.

Progression: Work up to 3 sets of 10 repetitions. To increase the difficulty, sit in a chair and perform repetitions of standing and sitting with slow, controlled motions.



Heel raises

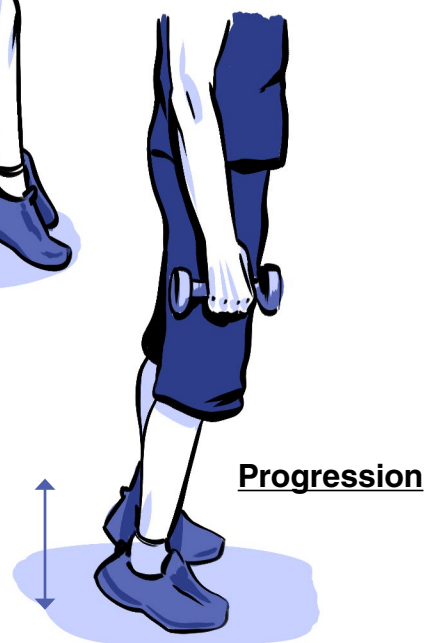
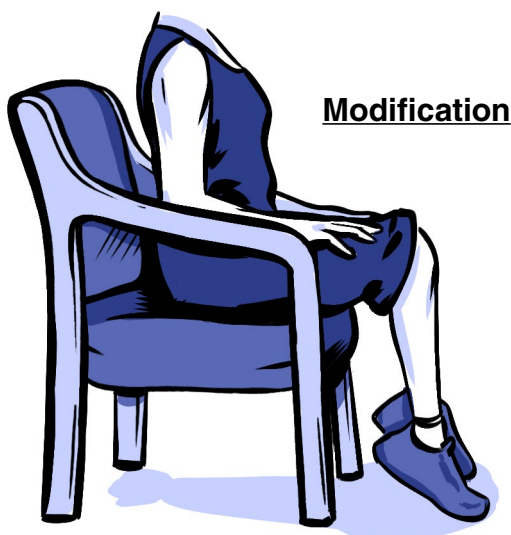


1. Place your hands on the back of a chair or the lip of a sink for support. Be sure the surface is sturdy and will not move or tip.
2. Raise your heels off the ground while pressing your toes into the floor.
3. Lower your heels to the starting position.

Duration: Hold for 2-3 seconds. Repeat 10 times.

Modification: Complete the exercise in a seated position.

Progression: Work up to 3 sets of 10 repetitions. To increase the difficulty, do not hold onto the chair or sink. Small hand weights can be held for additional difficulty.

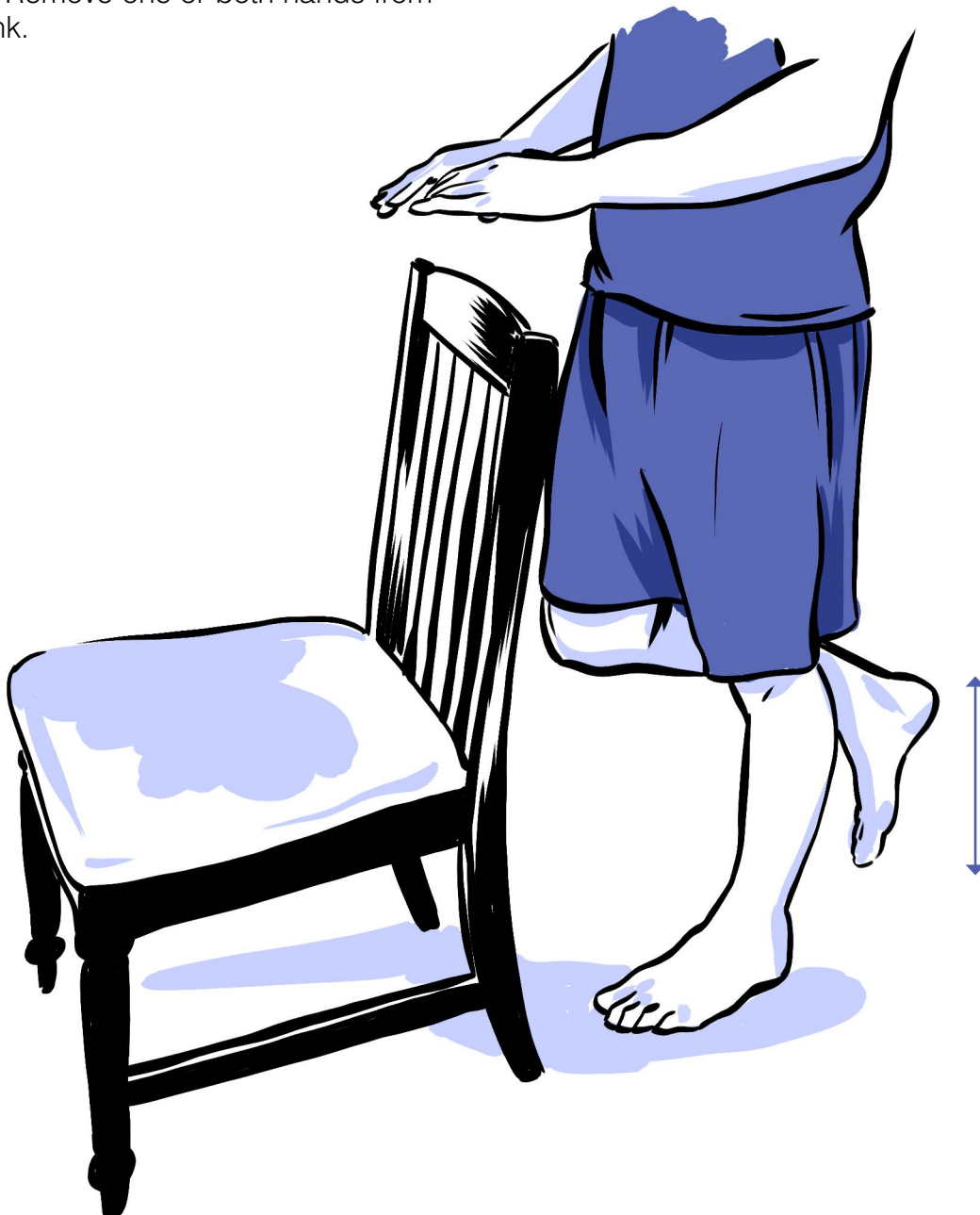


Single leg balance

1. Place your hands on the back of a chair or the lip of a sink for support. Be sure the surface is sturdy and will not move or tip.
2. Shift your weight to one leg and lift the opposite leg a few inches off the floor.
3. Repeat on the other side.

Duration: Hold balance up to 30 seconds.
Repeat 2-3 times.

Progression: Remove one or both hands from the chair or sink.



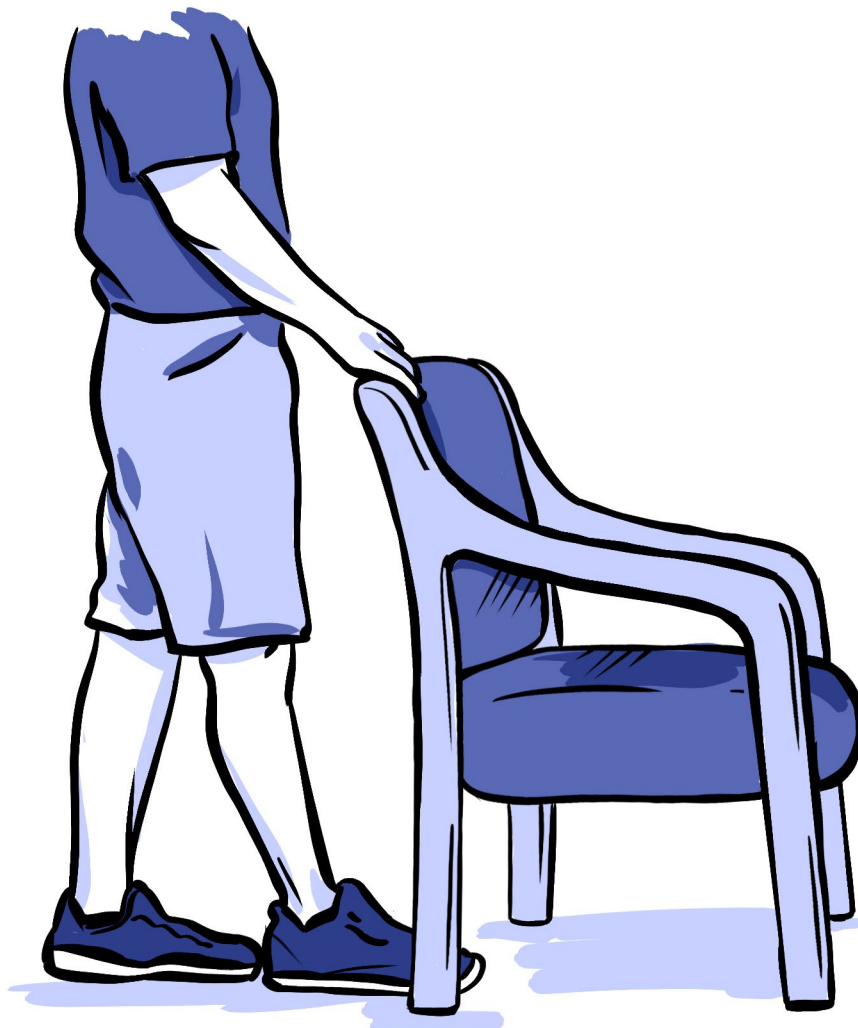
Tandem stance

1. Place your hands on the back of a chair or the lip of a sink for support. Be sure the surface is sturdy and will not move or tip.
2. Bring one foot in front of the other, touching the heel of your front foot to the toes of your back foot, as if you are standing on a tightrope. Try to distribute your weight evenly between both feet.

Duration: Hold balance up to 30 seconds.
Repeat 2-3 times.

Modification: Bring one foot forward as if taking a small step, but without touching the heel to the toes.

Progression: Remove one or both hands from the chair.



Cardiovascular activity

Complete a gentle aerobic activity for 30 minutes, three times per week. Maintain a moderate or slightly difficult intensity, which makes you breathe faster but does not make you feel short of breath. Typically, this level of intensity results in a heart rate of 100-110 beats per minute, 60% of maximum heart rate (or 3-4/10 on the rate of perceived exertion scale below).



For more information on Pompe disease or to find a physical therapist near you, contact the MDA Resource Center at **833-ASK-MDA1 (275-6321)** or resourcecenter@mdausa.org. To learn more about MDA, visit mda.org.

Rate of Perceived Exertion (RPE) Scale

10

Maximum effort activity

Feels impossible to maintain for more than a very short time. Completely out of breath, unable to talk.

9

Very hard activity

Very difficult to maintain. Can barely breathe, can speak only a few words.

7-8

Vigorous activity

Borderline uncomfortable. Short of breath, can speak a sentence.

4-6

Moderate activity

Somewhat comfortable, but noticeably challenging. Breathing heavily, can hold a short conversation.

2-3

Light activity

Feels like you can maintain for hours. Easy to breathe and carry on a conversation.

1

Very light activity

Hardly any exertion, but more than when resting.

References

1. Adapted physical activity and therapeutic exercise in late-onset Pompe disease (LOPD): a two-step rehabilitative approach. Iolascon G, Vitacca M, Carraro E, Chisari C, Fiore P, Messina S, et al. Neurological Sciences [Internet]. 2020 Apr [cited 2021 Apr 23];41(4):859–68. Available from: Krase, Argyro A.; Papadimas, Giorgos K.; Terzis, Gerasimos D.; Annals of Indian Academy of Neurology, Jul 2016; 19(3): 423-424. 2p.
2. Safety and efficacy of exercise training in adults with Pompe disease: evaluation of endurance, muscle strength and core stability before and after a 12-week training program. van den Berg, Linda E M; Favejee, Marein M; Wens, Stephan C A; Kruijshaar, Michelle E; Praet, Stephan F E; Reuser, Arnold J J; Bussmann, Johannes B J; van Doorn, Pieter A; van der Ploeg, Ans T; Orphanet Journal of Rare Diseases, Jan 2015; 10(1): 87-87. 1p.