

# RESISTANCE TRAINING PROGRESSIONS FOR THE OLDER ADULT—DEADLIFTS

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**S**arcopenia, the loss of muscle mass to the point that ability and function are decreased or lost, affects 25 – 45% of the United States population, and 58% of those over the age of 70 (1). Daily life functions, such as proper pick ups (deadlifts), sit-to-stands (squats), pulling items toward the body (rows), and pushing items away from the body (presses), are most affected by the decrease in muscle mass. The decrease in daily life functional movements can result in falls, tissue injuries, broken bones, loss of independence, and lack of activity due to the fear of injury. All of these potential issues ultimately result in a decreased quality of life. This article will target proper pick-ups (deadlifts) and the progression of three exercises that can aid in the older adult's ability to perform them properly.

## SIT-TO-STANDS

### HOW TO PERFORM

Starting from the standing position, the client should open their feet about four inches outside their hips and externally rotate their toes out about 15 degrees. This is a comfortable squat stance for most clients; however, some may want to open or narrow their stance based on personal preference. Start with a high box or bench that the client can successfully perform a bodyweight sit-to-stand on for a set of 8 – 12 repetitions. Once this is achieved, lower the height of the box or bench by two inches and continue until the client's hips can achieve two inches above parallel, at parallel, or two inches below parallel.

The client should displace their hips back like they are going to perform a stiff-leg deadlift. Once a slight hamstring stretch occurs the client should bend their knees and continue their forward torso tilt as they lower themselves down over the bench until they are seated and unload their weight on the bench. Upon return, instruct the client to push down with the heels, push the hips back, drive the chest up, and return to the standing position. This completes the bodyweight sit-to-stand.

### ADDING LOAD

Once bodyweight sit-to-stands have been mastered, the client can consider adding load or adjusting the height of the bench. Once the client can perform two inches above parallel, at parallel, or two inches below parallel in the sit-to-stand for 8 – 12 repetitions they can then progress to adding load. Having the client hold the load between the knees helps simulate holding the load in the correct position once the client is capable of performing a proper pick up (deadlift). The between the knee load (kettlebell, dumbbell, T-bell) can be adjusted in height off the floor via stacking small plates or DC blocks between the feet (Figures 1 – 4).

With the addition of load comes the opportunity for the client to perform a lift called a “take it, leave it,” in which they properly perform the sit-to-stand with the load in hand and upon returning to the seated position they leave the load on the plate stack and perform a second repetition without the load (only bodyweight). This produces a loaded sit-to-stand with every other repetition, allowing the client to perfect a “dead start” with each repetition. A “static start,” or “dead start,” is achieved when all momentum or eccentric pre-stretch of the quadriceps and glutes is removed by unloading (sitting down) between each repetition.

Starting with a high stack of floor plates under the load being lifted allows the client the chance to practice pulling weight from varied heights off the floor. When the client is progressing in strength and ability, they can begin to perform this lift at a more challenging level. As the plates are lowered, the handle of the load is lowered and the forward tilting position of the torso must be advanced. If the client is capable of removing all plates from under their load, they are nearly replicating the requirements of a proper pick up (deadlift) from the floor. The client has improved their range of motion, achieved solid technique performing a sit-to-stand, and increased their pure strength to the point that they are now ready to train the middle of the lift by performing barbell rack pulls.

### KEY CUES

1. “Shoulders retracted to neutral.” – Encourages the client to not round their back or tip forward.
2. “Push the knees apart.” – Encourages the client to keep proper knee alignment and prevent having a valgus knee collapse.
3. “Push through center foot.” – Encourages the client to push through the center of their foot (not on their toes) and reduces rocking or tipping forward.

### PROGRESSIONS/REGRESSIONS

Proper progression for increased difficulty of the sit-to-stand would include decreasing the height of the bench or box the client is sitting on or to increase the load being lifted. Proper regression of this lift would include increasing the height of the bench or box or reducing the load being lifted.

### KEEP IN MIND

Performing a sit-to-stand is a daily life function that everyone needs to perform efficiently. From sitting in a chair at dinner or a bench at the park to getting off the toilet, the sit-to-stand is extremely functional and should be trained efficiently with proper progressions, regressions, and heavy loads, if possible.



FIGURE 1. SIT-TO-STAND SETUP - HIGH START POSITION



FIGURE 2. SIT-TO-STAND SETUP - MEDIUM START POSITION



FIGURE 3. SIT-TO-STAND SETUP - LOW START POSITION



FIGURE 4. SIT-TO-STAND - FINISH POSITION

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## RACK PULLS

### HOW TO PERFORM

The starting position for the rack pull requires the feet to be near or at shoulder-width apart. The toes should be slightly externally rotated or straight (ideally) to maximize equal hamstring eccentric stretch. Hinge from the hip with a soft knee position (slightly unlocked) and grip the bar just outside shoulder width. Lock in the shoulders by pulling them back (to neutral) and down (depression) while holding the arms muscularly tight (isometrically slightly flexed). Pull with the hamstring, bring the hips forward and stand tall with the load. Maintain the upper body position while moving the hips back into the hinge position and return the bar to the safety catches.

The client should allow the bar to “unload” on the safety catches without removing their hands from the bar. Pause for one second and then repeat the pull again. The unload technique produces a loss of the kinetic hamstring stretch reflex that is built up during the eccentric (preparation) phase of the movement. This is how strength development occurs; the hamstrings pull heavy loads without any momentum or stretch reflex to assist through the middle range of motion for the deadlift. The client is learning how to maximize the middle range of motion for the deadlift by pulling from just above the knee (1 – 2 in.), at the knee or slightly below the knee (1 – 2 in.). This lift should be repeated for 8 – 12 repetitions and can be progressed or regressed in height.

### KEY CUES

1. “Keep shoulders retracted to neutral and depressed.” – This maintains proper posture for the upper half of the body.
2. “Maintain muscular arms.” – This keeps the arms slightly unlocked and engaged, reducing the risk of bone on bone or hyperextensions at the wrist, elbow, and shoulder.
3. “Allow the unload to occur.” – Allowing the safety catches to do their job and take the load for that all-important one second makes the difference between eccentric pre-stretch and pure strength development (Figures 5 and 6).

4. “Search for that hamstring stretch.” – This encourages an anterior pelvic tilt that attempts to maximize the eccentric hamstring loading while minimizing the overload of the lower back muscles (e.g., erectors, quadratus lumborum, etc.).
5. “Lift as one.” – This encourages the client to keep their upper body locked in and their lower body locked in allowing them to simply work the hinge of the hip in the middle.

### PROGRESSIONS/REGRESSIONS

*Three techniques for progressing the lift in difficulty include:*

- Lift the same amount of load but lower the safety catches to allow for a greater range of motion to occur.
- Increase the lifting load and raise the safety catches, creating a shorter range of motion.
- Anchor bands from the floor (or bottom on the lifting rack) to the bar, causing a progressive resistance of load to be lifted as the client increases their range of motion toward the standing position.

*Three techniques for regressing the lift in difficulty include:*

- Lift the same amount of load with elevated safety catches allowing for a shorter range of motion to be trained.
- Lower the load and safety catches to work in a greater range of motion with lighter weight.
- Anchor bands from the top of the rack to the bar creating a “de-loaded” weight as the bar is lowered in the range of motion. The bands progressively reduce the load throughout the eccentric phase of the rack pull.

### KEEP IN MIND

This lift should be thought of as a “loaded stretch” that the client is searching for during the preparation phase (eccentric stretch of hamstrings) to the unloaded position on the safety catch. When the client is ready to drive through the acceleration phase, they should do so aggressively. Focusing on passive control down and dynamic aggression on the way up will produce great results.



FIGURE 5. RACK PULL - START POSITION



FIGURE 6. RACK PULL - FINISH POSITION

## T-BELL REPLACEMENT DEADLIFT

### HOW TO PERFORM

The starting position for the T-bell replacement deadlift is identical to the sit-to-stand, including the standing position, where the client should “step-straddle” their feet around the T-bell (or kettlebell) so they are directly over the top of the load being lifted. The client should open their feet about four inches outside their hips and externally rotate their feet so their toes point outwards about 15 degrees (more narrow or wide for comfort). Start with the T-bell at its highest handle or a kettlebell stacked on a higher set of plates. The client should displace their hips like the start of the rack pull (search for the stretch) and then lower down into a proper squat (deadlift) position over the weight.

The client should grip the T-bell or kettlebell with a pronated grip and drive their heels down into the floor while bringing the hips forward and the head straight up. Cue the client to maintain the retracted and depressed shoulder position, strong muscular arms, and a tight core. Lower the weight back down to the floor and release the weight. The client should then return to the standing position like they did previously but this time without the weight. Continue the “take it, leave-it, take it, leave-it” style while counting only the repetitions in which the weight is being lifted. Once the client is capable of performing a set of 8 – 12 repetitions with that desired load and from that desired T-bell handle height (plate height), they can then progress to a new challenge.

### KEY CUES

1. “Work your levers.” – This cue is designed to encourage the client to keep their torso long and straight, their hips back and loaded, and their heels heavy and pushing down. These three actions will assist in maintaining quality posture throughout the exercise (Figure 9).
2. “Take it, leave it.” – This cue encourages the client to lock in tight when “taking” the load and keep the body tight throughout the loaded repetition. The “leave it” action can be more passive in its attempt as the client should be resetting for their next loaded repetition attempt.

### PROGRESSIONS/REGRESSIONS

The first progression of difficulty for this exercise features the client lowering the handle of the T-bell (or removing plates from under the kettlebell) to work a deeper range of motion in their deadlift (Figure 8). The second progression of difficulty is to increase the load being lifted. Regressions in difficulty would include elevating the height of the T-bell (or plates under the kettlebell) (Figure 7) or reducing the load being lifted.

### KEEP IN MIND

The client no longer has the bench or box behind them as a security blanket to unload on before engaging with the load. The client must prove that they are capable of maintaining balance and controlling the load before they are allowed to progress in difficulty. The client is officially able to perform a proper pick up and should now have a great deal of confidence to perform the daily life functions of properly picking up, transferring, and putting down the loads they will typically encounter on a regular basis.



FIGURE 7. T-BELL DEADLIFT SETUP - HIGH



FIGURE 8. T-BELL DEADLIFT SETUP - LOW



FIGURE 9. T-BELL DEADLIFT - FINISH POSITION

# RESISTANCE TRAINING PROGRESSIONS FOR THE OLDER ADULT—DEADLIFTS

TABLE 1. PROGRAMMING VOLUMES

	REPETITIONS	SETS	LOAD (RPE 1-10)	TEMPO	RECOVERY
<b>Strength</b>	8 – 12	3 – 4	6 – 8	3:1	30 s
<b>Hypertrophy</b>	4 – 8	4 – 5	7 – 10	2:1	30 – 45 s
<b>Power</b>	6 – 10	3 – 4	5 – 6	Fast	45 – 60 s
<b>Muscular Endurance</b>	12 – 20+	3 – 4	3 – 6	2:1	20 s

## LIFTING FOR A HIGHER QUALITY OF LIFE

Practicing these three lifts, and any variation of the progressions or regressions, will assist the older adult client in performing the proper pick-up movement correctly and on a regular basis with great confidence. All clients should feel confident performing a proper pick up with any load they will encounter in their regular day-to-day activities without the fear of injury or negative repercussion (2). Preventing or slowing sarcopenia is the ultimate goal with all aging adult clients. The stronger and more stable they are, the more independent they will stay, and the higher quality of life they will have.

## REFERENCES

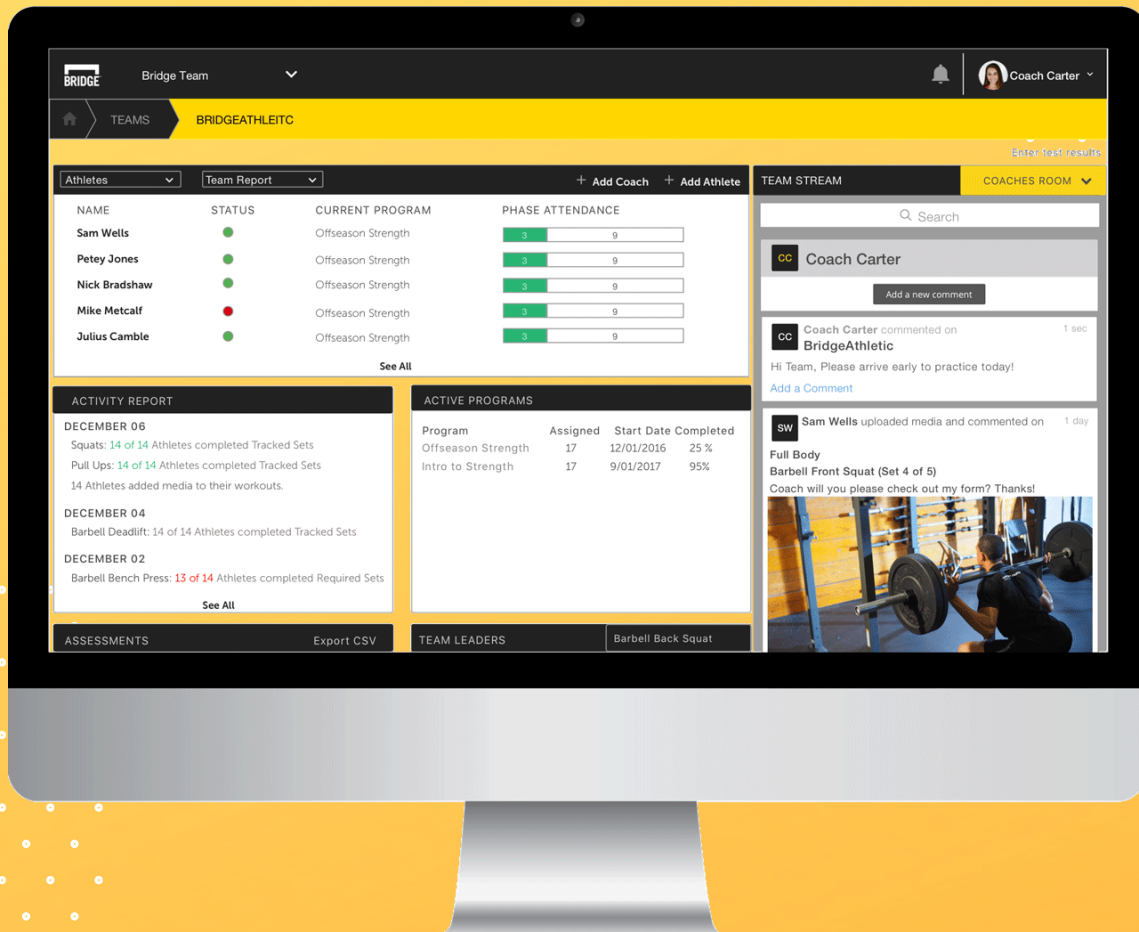
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## ABOUT THE AUTHOR

*Robert Linkul is the owner of Training the Older Adult (TOA), a personal training studio and online continued education provider for fitness professionals in Shingle Springs, CA. Linkul is an internationally known continued education provider for fitness professionals with his area of expertise being in resistance training strategies for the older adult with physical limitations and/or decreased quality of life. Linkul earned his Master's degree in Personal Training, is the National Strength and Conditioning Association (NSCA) 2012 Personal Trainer of the Year award winner, and is a 2017 NSCA Fellowship inductee.*



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