

Home Exercise Program Guide

For Karen White

10/xx/2023

Karen, this exercise program has been tailored for you based on today's evaluation and functional movement assessment. The key findings from our session include:

- A history of consistent weakness in your right leg and loss of motor control following exercise.
- Difficulty in functional movements such as swinging your leg over to dismount a horse.
- Experience of low back pain after Pilates classes.
- Sensation of imbalance in your pelvis while walking.
- Despite previous visits to a physical therapist and attempts at self-mobilization of the SI joint, these interventions seem to have provided limited benefit.

During today's session, we noticed an asymmetrical movement on the right side of your pelvis while you performed various functional movements. These movements included controlled step-down exercises, touching your heel and returning (STR) while supporting yourself on your right leg, and maintaining single-leg support on your right leg with your pelvis in a posterior tilt (slight lordosis) and your hip internally rotated. Additionally, you found it challenging to maintain a slight lordosis in your pelvis with your torso aligned against a doorframe while performing diaphragmatic breathing.

These patterns suggest a weakness in your core muscles around the pelvis, affecting stability at the pelvic girdle, SI joints, and right leg. Our working hypothesis is that this may be due to a deep fascial restriction contributing to the asymmetry, along with a disruption in proprioception and balance leading to a loss of motor control in key muscles supporting the pelvis, including the transversus abdominis and left quadratus lumborum. This proximal weakness likely contributes to your distal symptoms like low back pain and loss of motor control post-exercise. While this theory cannot be definitively proven, it guides us towards specific exercises aimed at addressing these functional movement deficits.

The initial exercise prescription includes:

1. Butterfly exercise.
2. SI joint self-mobilization.
3. Doorframe alignment feedback for abdominal muscle training with diaphragmatic breathing.
4. Pelvic girdle stabilization training in single-leg support using the STR exercise, with a 2-inch step challenge for the right side and a 3-inch for the left.



1. Butterfly -

Lie on a mat with a dense fabric roll* across the mid back near the bottom of the shoulder blades.

Grab opposite elbows and rest overhead.

Bend knees then allow the knees to drop to sides and bring bottom of feet together.

Hold this position 30 seconds to 2 min.

Very slowly slide feet away while allowing the knees to stay out until the legs are straight out again.

As the legs are moving pause at any tight or tender spots.

Repeat for 3 reps.

*roll about 1 1/2 diameter made using 2 folded and rolled pillow cases secured with tape or rubber bands

2. SI Joint Self Mobilization

In the same position on the mat, bring one knee up and out to the side grab the inside of your knee as shown.

Hold this position 30 seconds.

Release the knee and allow the leg to slowly return to straight while keeping the knee out to the side until the bottom.

Repeat 3 times on each side.

3. Core Breathing Training at Doorframe

- step 1 Alignment

Snug your back up to a doorframe touching in 3 places: back of head, mid-back, and sacrum

Make the space at the low back the width of 1 finger.

- step 2 Lateral Costal Breathing (LCB)

Place the back of fingers against the lower ribs and monitor rib movement with breathing rhythm. Notice the ribs expand with inhalation. Focus on the feeling of that rib movement until you can recall it easily.

- step 3 Torso Stretch with LCB

Focus on your breathing and rib movement as you reach up and grab the molding at the level just behind the ears (not shown).

Slowly work your fingers up the molding while keeping the low back close to the doorframe and the lower ribs expanding with inhalation. Check often.

- step 4 Loading with support

Hold a hand weight in each hand with arms by your sides (left).

Focus on lower ribs expanding with inhalation (step 2).

Lift the weights as a challenge to posture and breathing.

Hold for 30 seconds and release back to your side. Repeat

Progress the hold to 2 min only when you can also sustain LCB rib movement while keeping the low back against the doorframe.



- step 5 Load FreeStanding

After multiple practice sessions and steps 1 - 4 feel quite familiar try without the alignment cue of the doorframe.

Step away from the doorframe using very small steps while holding the weights up.

Slowly and smoothly shift weight to one side before moving the opposite foot.

Focus on alignment and LCB along the way.

Drop the weights as needed to rest. Set to rest as needed.

Go back through the steps spending as much time as needed until familiar and freestanding walking with weights can be extended to 3 min (may take a month of daily practice.)



4. Pelvis Support Training using STR

Stand on a 3 inch platform in a doorway where you can initially support balance. (With practice reduce balance support)

Place a 1 inch block in front of the the left side as shown

Shift weigh to the Left side, drop the tailbone, use LCB (from above exercise),

Carefully **S**tep down with the right heel, **T**ouch the heel, and **R**eturn (**STR**). Lift the right side of the pelvis slightly and focus on keeping the tailbone down.

Repeat 5 to 10 times, rest as needed.

Note: This is a complex movement so go very slowly and work to incorporate the above lessons of LCB and alignment while keeping the pelvis level. Initially this movement can be exhausting.

Shift weight to the right side and repeat all the above while stepping down onto the 1 inch block with the left foot.

This is your difficult side so expect it to be more difficult and require more practice and more rest breaks.

Refer to the video for further information.



Home Exercise Program Guide

For Karen White

11/xx/2023

Karen,

Today, we observed significant progress since your first visit three weeks ago. Congratulations on your hard work!

Your posture training at the doorframe has notably improved. You were able to engage your torso muscles effectively by holding hand weights of 3, 5, and 8 lbs in each hand, moving away from the doorframe while maintaining alignment, and continuing the lateral costal breathing pattern. This is truly impressive!

Furthermore, you successfully performed the Step-down Touch Return (STR) exercise from a 2-inch step without requiring balance assistance. While there is still room for improvement in the smoothness of the movement, your enhanced control is evident. I encourage you to practice this exercise frequently throughout the day until it becomes effortless. We will discuss additional challenges below.

Additionally, there has been improvement in flexibility at your right hip, and instances of right SI joint pain have decreased. This is excellent news!

Today's program upgrade includes:

1. Doorframe posture and breathing pattern training (BPT) with overhead stretch.
2. Incorporating hand weights into the posture/BPT at the doorframe and during walking.
3. Performing STR from a 2-inch step without balance assistance.
4. Doorframe overhead press for 30 seconds on both legs and each single leg.
5. Standing single-leg hip extension.
6. The Tactile Frog (Pavel) hip opener.

Keep up the fantastic work!

Michael Caruso PT DPT FAAOMPT



1. Core Breathing Training at Doorframe with Overhead Reach

Warm up with Lateral Costal Breathing and a small curve at the low back as practiced the last 3 weeks.

Maintain the posture and breathing pattern as you reach over your shoulders and touch the moulding at ear level.

Then, slowly slide fingers up moulding and cycle breathing.

When breathing or posture becomes difficult lower the fingers back a little, continue breathing for 3 - 5 cycles, exhale fully, stretch up slightly for one breath cycle and return arms back to your side.

Repeat for 3 cycles. Can be repeated often throughout the day until it becomes easy to breath with arms fully overhead and keeping the small curve at the low back.





2. Loading and Walking with LCB Alignment

Hold a weight in each hand with arms by your sides.

Focus on LCB and keeping the small curve at the low back .

Lift both weights as shown ... a challenge to posture and breathing.

Hold for 30 seconds and release back to your side. Repeat

Progress the hold to 2 min only when you can also sustain LCB while keeping the low back against the doorframe.

When ready walk away from the doorframe by shifting to one side and taking very small steps.

Drop arms to rest as needed

Recheck alignment and posture as needed

Practice several times.

Increase the weight when this becomes easy. Over time add this challenge to the next exercise, the STR.



3. Pelvis Support Training using STR

Stand on a 2-inch platform without balance support

Shift weight to the Left side, drop the tailbone, use LCB.

Carefully **S**tep down with the left heel, **T**ouch the heel, and **R**eturn (**STR**). Lift the left side of the pelvis slightly and focus on keeping the tailbone down.

Repeat 5 to 10 times alternating sides, rest as needed.

Note: This is a complex movement and you've made great progress with getting to this level- absent balance support.

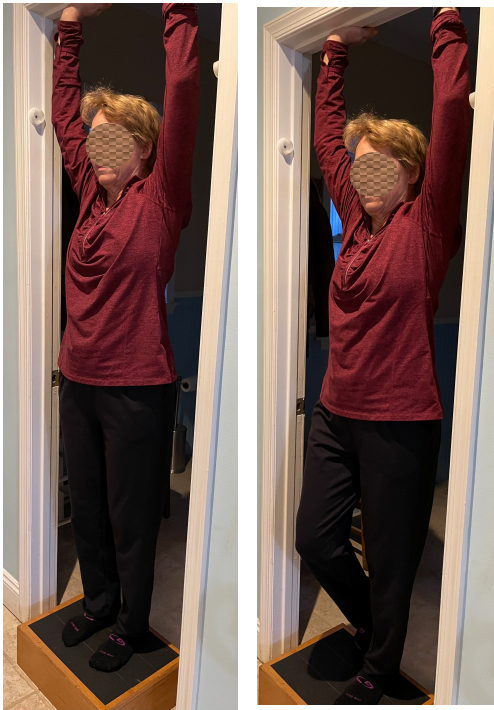
When this movement pattern feels solid and easy add the above exercise holding weight to advance the challenge.

Beyond that:

Add one inch to the step height, eventually to 4"

Add more hand weight

See your video by clicking the link sent



4. DoorFrame Over Head Push

Stand on a platform in a doorway so you can reach the top with palms and arms slightly bent.

Lean forward so there is a slight stretch at the shoulders.

Tighten abdominals and hold.

Press firmly up into the doorframe for 30 seconds while standing equally on both legs.

Repeat while standing on one leg, then the other.

Rest 30 seconds in between.

Repeat in 6 hours, or as a break when working at a computer.

Note: Start with an easy but firm press and move/bobble head side to side to make sure your not also tightening your neck muscles.

Over the following weeks increase the push effort but check often that neck stays loose.

Over time see if the overhead reach (shorter) on the right leg becomes more like the left.



5. Standing Single Leg Hip Extension

Stand facing a bench or chair seat (platform) about 16-20 inches high and a chair at the side for balance. Turn one foot in about 15° (yellow arrow). Place the other foot on the platform.

Straighten the standing leg and keep the torso tall and vertical, and hips level.

With the standing leg knee straight, very gradually begin lifting the foot without losing contact with the surface.

Concentrate on keeping the standing-leg straight and note the growing tension at the standing leg. Hold 10 seconds than rest 10. Progress to a 30-second hold. Do 2 set of 3 reps each side once a day.

NOTE: It can be counterproductive to lift the foot off the platform initially. Better to focus on keeping the standing leg locked straight at the knee, erect posture with LCB.



6. Tactical Frog

Start on elbows and knees.

Spread knees wide and sit back... check carefully that the low back does not rounded up. Point feet.

Hold stretch 30 sec to 2+ min.

Shift forward lifting chest keeping abs tight as hips come forward and toward the mat. Allowing your knees to get wider.

Then turn pelvis and push one hip toward the mat, then the other.

Watch this demonstration of the tactile frog by Pavel

<https://www.youtube.com/watch?v=Gew1zfbnMPw>