

Home Exercise Program Guide

For Kate Kohn 1/xx/2024

Kate, this initial exercise program aims to tackle various concerns: tightness in your right neck and shoulder with occasional ache to the elbow, intermittent instability in your left wrist, and postural habits developed from extended periods of work without a counterbalancing exercise regime. Given your general hypermobility across all joints and your self-identification as potentially being on the Ehlers-Danlos spectrum, a program emphasizing progressive resistance training may be more beneficial as we move forward. You've indicated that you are currently on maternity leave and wish to use this time to focus on these specific issues and improve your overall fitness.

You will need a few tools for this program: a mobilization wedge (available at OPTP.com, SKU 613), a 4-inch diameter by 36-inch long foam roller ([foam roll](#)), a jar of Free-Up ([Free-Up](#)), and a pair of 5-pound dumbbells.

The exercises include stretches for the right side of your neck and upper shoulder, using the wedge to mobilize your upper mid-back area, and training in postural muscles and diaphragmatic breathing, which are essential for core conditioning. Additionally, you'll be using dumbbells for core and upper extremity strengthening, which also helps with co-contraction loading at the wrists and includes an overhead isometric push loading pattern.

Regarding your diet, consuming sugar can hinder building exercise capacity and reducing body fat. Fructose can damage mitochondria and lead to long-term health issues. You've mentioned experiencing bouts of fatigue after spending seven months caring for your newborn, who only recently began sleeping regularly. This may have led to a habit of snacking on sweets for an energy boost. Now might be an opportune moment to also focus on your nutrition. Considering your medical school training likely included minimal nutrition study, I recommend watching Dr. Robert Lustig's mini-medical school lecture on sugar ([Robert Lustig](#)). For a more in-depth exploration, his book "Metabocal" and various interviews with physicians on YouTube could be beneficial.

The last page has information about load and nutrition in tissue strengthening.

Let me know how these are going and we can build on these once you've had 2 months of training.

Mike

Michael Caruso DPT FAAOMPT



Tissue Mobility - Neck and Upper Shoulder

The Set Up: Lie along the 4" diameter foam roll centering your head (not shown), then grab the end of the roll with the right hand.

Place a 1" pad to the left of the roll next to your head to reduce head drop and ease the stretch as needed.

The Stretch: Keep your nose pointed at the ceiling as you slide your head to the left and let it lower down to the mat or pad for a firm but comfortable stretch.

Massage: Apply Free-Up to left hand fingers and massage the tightness at the right side of your neck and upper shoulder area.



Torso Mobility - Loosen the mid-back

Lie on a bed with knees bend over the **red mobilization wedge** (OPTP.com sku 613) at midline at the mid-scapulae level to start.

Place a pillow under your pelvis - the lift often helps when using the wedge closer to the head.

Incrementally move the wedge up toward your head an inch at a time. Stay below the C7-T1 area. The feeling of increased pressure usually indicates tissue tightness. Stay in that position for 10 - 20 minutes, once or twice a day as needed to ease tightness.

When your neck is flexible again put the wedge away in a safe place. You may only need it a couple of times a year.



DoorFrame for Posture and Core Breathing Training

Snug your back up to a doorframe.

Pull into the doorframe to flatten your back and make the space the width of 1 finger.

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. Try to reduce chest lifting. (This combination focuses on use of the diaphragm for respiration).

Pay close attention on the feeling of lower rib movement until you can recall it easily without use of your hands.

Overhead Stretch: Reach over your shoulders and grab the molding lightly. Then slowly inch your fingers up the molding while keeping the space small and the lower ribs moving with your breath. Advance up only if breathing and posture are controlled.

Practice this step for 5 minutes, 3 times a day or more until it becomes second nature.



Posture and Breathing Pattern Loading

Hold a 5-lbs dumbbell in each hand with arms by your sides (left).

Again, focus on lower ribs expanding with inhalation and keeping the back pulled in to the doorframe.

Lift the weights (middle) as a challenge to posture muscles and the LCB breathing pattern.

Hold for 30 seconds and release weights back to your side. Repeat 5 times.

Progress the lifted weight hold to 2 min only when you can also sustain LCB and posture.

After several cycles try a free walk. Walk away from the doorframe using small steps while keeping the back flat-ish and the lower ribs moving.

After 2 weeks practice you may be ready to increase the load. This can be done by adding 2-3 lbs cuff weights to the wrists. For the next step up try with 10 lbs dumbbells without wrist weights .



DoorFrame Over Head Push

Place your palms on the bottom of the doorframe top while standing on a 2-inch book stack.

Lead forward so there is a slight stretch of the shoulders.

Tighten abdominals (similar to the feeling to pulling low back into the doorframe).

Push firmly up into the doorframe for 30 seconds. Rest 30 seconds and repeat for a total of 4.

Do this exercise before and during breaks throughout the day.

Regulation of Connective Tissue (Fascia) Function Through Exercise and Nutrition
Keith Baar & Danielle Steffen - University of California

Take Aways

1. Connective tissue adapts maximally, with short periods (5-10 minutes) of activity separated by 6 hours of rest. This is an ideal recovery protocol.
2. Loading increases the amount of ExtraCellular Matrix (ECM) within a muscle and is important for increase in strength following training.
3. Following acute exercise, there is a rapid increase in Egr1 mRNA, then protein and this precedes the increase in ECM proteins.
4. Egr1 increases muscle ECM gene expression in a dose dependent manner.
5. The increase in collagen synthesis following exercise can be augmented by consuming 15g of gelatin 1 hr before these short periods of activity.
6. Vitamin C is necessary for collagen synthesis and must be replaced each day. At least 500 mg is used.
7. Structures that need to endure tension such as tendons, ligaments and some deep fascia may have delayed healing due to stress-shielding (healthy fibers prevent the injured areas from sensing the tension needed to initiate collagen synthesis). This load deficit can be overcome with strong isometric tension for 30 seconds creating stress-relaxation. 4 repetitions over 10 min is used.

Protocol:

- Vitamin C, 500 mg each morning
- Gelatin 15grams, one hour before exercise
- Strong exercise is needed for 5 - 10 min (exercise) every 6 hours (1-3 sessions a day is possible)
 - 30 second hold X 4 reps. Repair
 - 13 reps 3 sets heavy load Strengthening

Gelatin is available in capsules. One source is Solgar Gelatin 1680 mg, 250 Capsules.
Other sources; Great Lakes unflavored Gelatin. NaturesPlus Collagen Peptides

Reference:

Steffen, D., Mienaltowski M.J., and Baar, K. (2022). Scleraxis and collagen I expression increase following pilot isometric loading experiments in a rodent model of patellar tendinopathy, *Matrix Biology* 109, 3448 <https://doi.org/10.1016/j.matbio.2022.03.006>

YouTube Lectures by Keith Baar