

Exercising to Maintain Lung Function and Mobility for Women with LAM

Tools for Monitoring Your Cardiopulmonary Status During Exercise

During any exercise it is important to monitor your cardiopulmonary status so that you do not exceed safe levels. Please note that you may need to confer with your personal physician to determine what intensity is safe for your specific disease status. The following are some tools that can be used to monitor your status.

Heart Rate

There are several ways you can track your heart rate. The least expensive way is to palpate your pulse. Do not use your thumb to feel your pulse as your thumb has a pulse of its own. Instead use your index and middle finger to feel your pulse. The easiest arteries to palpate are the radial pulse at your wrist and your carotid artery in your neck.



Alternatively you can purchase a heart rate monitor. The monitor will consist of a strap that goes around your chest and a watch that you wear on your wrist. The most useful heart rate monitors have a built in alarm which will sound if you exceed your “safe” maximum heart rate. Please note that you will have to calculate your “safe” maximum heart rate and program this number into the heart rate monitor. One fairly inexpensive and reliable brand that has this feature is the Polar Heart Rate Monitor.

Age-Adjusted Maximum Heart Rate

$$220 - \text{Current Age} = \text{Age-Adjusted Maximum Heart Rate (beats/minute)}$$

Your Age-Adjusted Maximum Heart Rate should never be exceeded during any exercise. If you reach this level during exercise, rest until your heart rate returns to baseline.

Calculating Your Heart Rate for Cardiovascular Training Effect

To obtain a cardiovascular training effect your heart rate should fall within 60% to 80% of your age-adjusted maximum heart rate. When your heart rate is near 80% of your age-adjusted maximum heart rate you will obtain an increased cardiovascular training effect. Exercising at this intensity will make your heart stronger and increase its efficiency. This in turn makes oxygen exchange in the lungs more efficient. When your heart rate is near 60% of your age-adjusted maximum heart rate during exercise you still will obtain a cardiovascular training effect, although less of one. Exercising at this intensity level will more efficiently burn fat stores.

To calculate 80% of your age-adjusted maximum heart rate:

$$220 - \text{Current Age} \times .80 = 80\% \text{ of Age-Adjusted Maximum Heart Rate}$$

To calculate 60% of your age-adjusted maximum heart rate:

$$220 - \text{Current Age} \times .60 = 60\% \text{ of Age-Adjusted Maximum Heart Rate}$$

Oxygen Saturation

Oxygen saturation can be monitored with a pulse oximeter during exercise if you know you have saturation problems during exercise or utilize supplemental oxygen during exercise. An added benefit of the pulse oximeter, is that it will also display your heart rate. Oxygen saturation should be kept over 95% during exercise unless you have been instructed otherwise by your physician.

Breathing Correctly – The Basis for Exercise

It might surprise you to know that most people (even those without lung disease) use less than efficient breathing patterns. Specifically as a LAM patient you may have experienced surgeries, chest tubes, or areas of pain that have led to muscle imbalances in your chest, neck, and upper quarter regions. These muscle imbalances and dysfunctional movement patterns can persist even after the initial pain causing them has disappeared and lead to less efficient breathing. As a LAM patient it is important to train your lungs to breath as efficiently as possible. Benefits of doing so include increased oxygen flow into the lungs and improved chest mobility.

Diaphragmatic Breathing Instructions

Diaphragmatic breathing is a skill we possess at birth. If you watch a small infant breath you will notice that their belly rises and falls with each breath. Later in life people get the idea that “sucking the belly in” as we breathe is diaphragmatic breathing and people start demonstrating all types of dysfunctional breathing patterns. Breathing is largely designed to be a passive process and so your shoulders and neck muscles should be relaxed during breathing. The following are instructions for diaphragmatic breathing.

- Initially assume a comfortable position lying on your back on the floor. Alternatively you may assume a comfortable position sitting upright in a supportive chair (although to determine you are breathing with a good pattern is easier while lying on your back). Place your hands on your abdomen.
- Relax your belly as much as possible.
- Inhale through your nose. As you feel your abdomen, notice that during the first third of your inhalation your belly should expand slightly on its own in an outward direction. This occurs as the diaphragm pushes down on the contents of the abdomen.
- Next, the air should move to the middle portion of the lungs, which will cause the area of the middle and lower ribs to expand. You should be able to feel your rib-cage move slightly upwards and out to the sides. Complete inhalation results in the lungs being filled forwards, backwards, and to the sides. With a dysfunctional breathing pattern you will often “neglect” to breathe to the sides and will feel forwards and backwards motion of the rib cage only.
- Exhale through your mouth. The chest muscles and diaphragm relax, the ribs drop back close together and the lungs recoil as the air is expelled.

Most commonly when people demonstrate a faulty breathing pattern, they are either over-recruiting their neck musculature to assist breathing or pulling their belly in while breathing. Commonly over-recruited musculature include the scalenes, upper trapezius, levator scapulae, pectoralis minor, and pectoralis

major. Poor posture is also a contributor to a less efficient breathing pattern since your chest cavity starts out with a mechanical disadvantage.

Pursed Lipped Breathing

Pursed lipped breathing is merely a specific variation of diaphragmatic breathing that helps you further empty your lungs on exhalation in order to improve inhalation. It is commonly used in restrictive lung diseases to help improve the volume of inhalation and therefore oxygen exchange.

To perform pursed lipped breathing, follow the instructions for diaphragmatic breathing. Make sure you are taking your inhalation through your nose. Then upon exhalation purse your lips as though you were going to whistle and exhale.

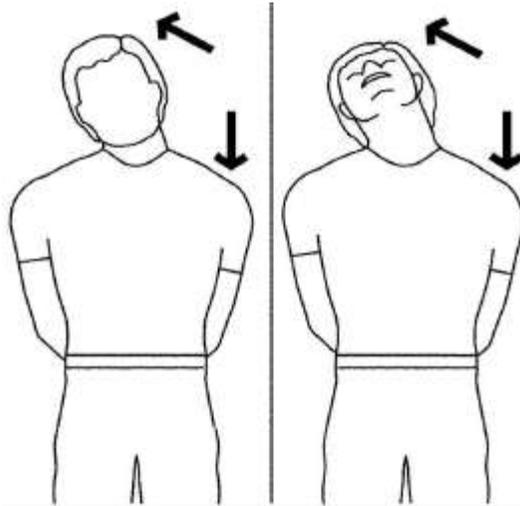
Exercises for Lung Maintaining Function and Mobility for LAM Patients

The following exercises have been chosen to improve chest mobility, common muscle imbalances seen in individuals with dysfunctional breathing patterns, lung function through coordination of the breathe during exercise, and general strength/conditioning. Not every exercise is right for every person and you should seek clearance from your physician before starting an exercise program. In general, if you have not been exercising it is better to start off slowly. If you get short of breath or dizzy during these exercises you should sit and rest comfortably. If you are on oxygen, you may need to temporarily turn up your liter flow. If your heart rate exceeds your age-adjusted maximum, you should sit and rest comfortably allowing it to return to its safe zone before proceeding. If an exercise hurts you should not do it until consulting with a medical professional. Please note that pictures and instructions of the exercises have been given as a reference.

Stretches for Commonly Over-Recruited Neck Musculature

Purpose: To stretch the muscles generally over-utilized during dysfunctional breathing patterns and improve flexibility of the anterior chest cavity.

Scalenes

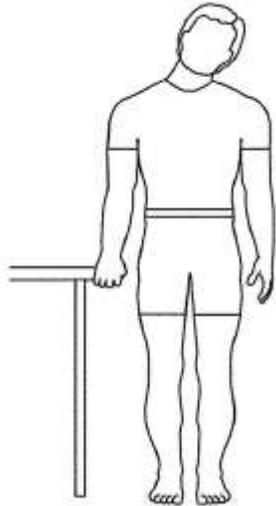


Stretch may be performed either in standing or in sitting position.

Standing Version: Hold hands behind back while pinching your shoulder blades slightly together so that the front of your shoulders are not forward and rolled in. To stretch your left side, lower your left shoulder downwards. Tilt your head to the right and slightly upwards (as if looking up at the ceiling). Hold position for 5 slow inhalations and exhalations. Repeat to the other side.

Sitting Version: Make sure you are sitting with good posture in a supportive chair. Alternatively you can sit on a stool or chair with your back supported by a wall. To stretch your left side, first sit on your left hand. Make sure your left shoulder is down and slightly back by slightly pinching your shoulder blades together. Tilt your head to the right and slightly upwards (as if looking up at the ceiling). Hold position for 5 slow inhalations and exhalations. Repeat to the other side.

Upper Trapezius

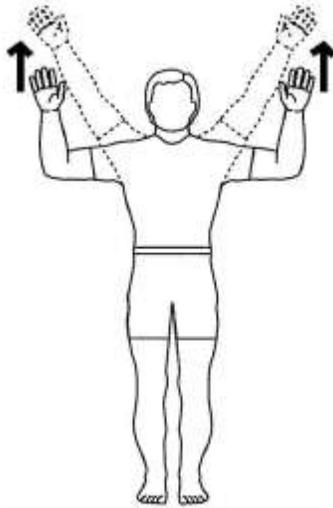


This exercise can be performed either in a standing or sitting position.

Standing Version: Stand with your arm holding onto a secure object or hold hands behind back while pinching your shoulder blades slightly together so that the front of your shoulders are not forward and rolled in. To stretch your right side, bring your head gently towards your left shoulder making sure your nose faces directly forward. Hold position for 5 slow inhalations and exhalations. Repeat to the other side.

Sitting Version: Make sure you are sitting with good posture in a supportive chair. Alternatively you can sit on a stool or chair with your back supported by a wall. To stretch your right side, first sit on your right hand. Make sure your right shoulder is down and slightly back by slightly pinching your shoulder blades together. Bring your head gently towards your left shoulder making sure your nose faces directly forward. Hold position for 5 slow inhalations and exhalations. Repeat to the other side.

Pectoralis

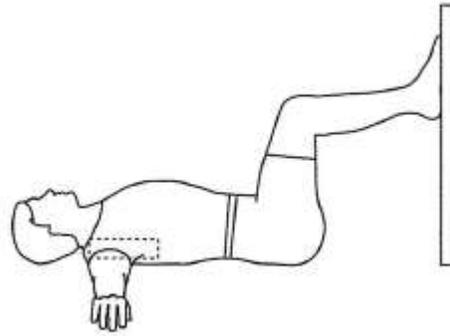


Standing Version: Stand with your back to the wall. There should be no more space between your lower back and the wall than the width of your hand. To achieve this position you may have to bring your feet slightly away from the wall. Tighten your lower abdominal muscles slightly as if you are trying to put on a tight pair of pants. DO NOT hold your breath to achieve this action.

Place both your arms out to your sides with your elbows bent to a 90 degree angle against the wall so that you form a “T” shape between your trunk and upper arms. Please note that depending upon how tight your pectoral muscles are, your elbows and hands may not be flat against the wall. If this is the case bring your arms as close to the optimal starting position as possible. You should feel a stretching action in the front of your shoulders/chest. You should not allow the front of your rib cage to flair outwards. If this occurs you may need to move your feet even further away from the wall.

Once you have achieved the starting position keep your arms in contact with the wall and your lower abdominals engaged slightly. Inhale slowly as you bring straighten your elbows, sliding the arms up the wall towards the ceiling as if signaling a “touchdown”. You may not be able to fully straighten your arms into the position due to tightness. If this is the case, DO NOT force the motion, merely go as far as you are able. As you return to the starting position slowly exhale maintaining your arms against the wall as much as possible. Repeat 10 times.

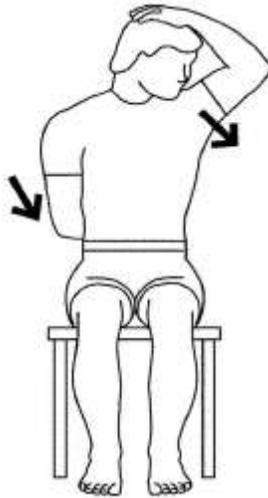
Alternatively this exercise can be performed in a seated position.



Lying Position: Lie on your back. You may support your legs on a wall as pictured. Alternatively you may lie with your legs in the same position with a chair or stool under your lower legs making sure your lower leg is approximately parallel with the floor or you may lie with your knees bent and your feet flat on the floor. Place a rolled up towel between your shoulder blades. (If you have access to one you and have sufficient flexibility you may also lie on a foam roll running the length of your spine).

Place your arms out to your sides so that if someone was looking down at you from above your arms would form a “T” shape with your trunk. Slightly pull your lower abdominals in as if you are putting on a tight pair of pants. Gently allow your shoulders to fall towards the floor. (As your pectoral flexibility improves you may be able to increase the bulk of your towel roll) Maintaining this position, slowly inhale and exhale for up to 2 minutes.

Levator Scapulae



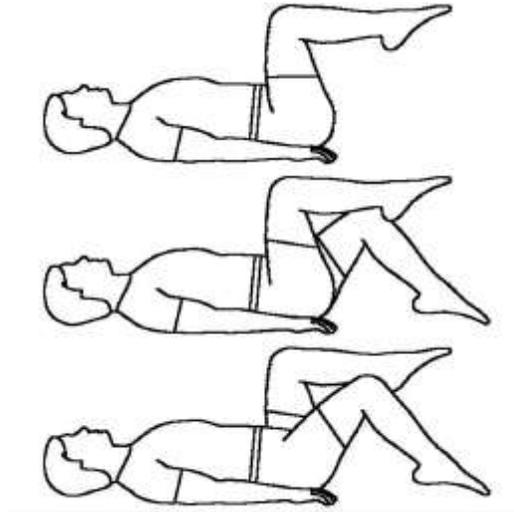
Standing Version: Stand with your arm holding onto a secure object or hold hands behind back while pinching your shoulder blades slightly together so that the front of your shoulders are not forward and rolled in. To stretch your right side, turn your head to the left and look downwards (as if you are looking down towards your left armpit). You may use your left hand to put slight pressure on the back of your head to the left and downwards. However, if you feel a stretch without putting pressure on the head this is not necessary and if it is not recommended to do so if you have any neck problems or experience neck pain when doing so. Hold position for 5 slow inhalations and exhalations. Repeat to the other side.

Sitting Version: Make sure you are sitting with good posture in a supportive chair. Alternatively you can sit on a stool or chair with your back supported by a wall. To stretch your right side, first sit on your right hand. Make sure your right shoulder is down and slightly back by slightly pinching your shoulder blades together. Turn your head to the left and look downwards (as if you are looking down towards your left armpit). You may use your left hand to put slight pressure on the back of your head to the left and downwards. However, if you feel a stretch without putting pressure on the head this is not necessary and if it is not recommended to do so if you have any neck problems or experience neck pain when doing so. Hold position for 5 slow inhalations and exhalations. Repeat to the other side.

Pilates Based Exercises for Lammies

Alternating Toe Touch Taps

Purpose: To strengthen the lower abdominals while working on breathing mechanics.

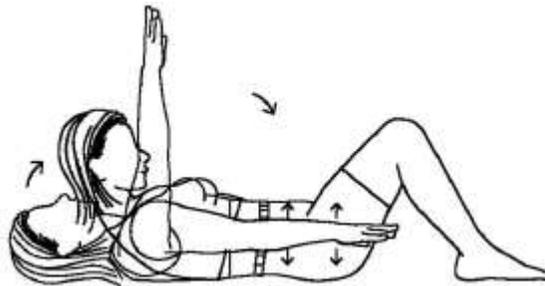


Lie on your back and slightly pull your lower abdominals in towards your spine as if you are putting on a tight pair of pants. You should feel your lower back slightly flatten into the floor although it is normal for a slight space to remain between your back and the floor. Bring your legs up (one at a time until your hips and knees are bent to 90 degrees as in the top picture). Place your arms at your sides palms down. This is your starting position for the exercise. If you are having great difficulty breathing while flat on your back (and turning oxygen up does not help) you may put several pillows under your upper back. Try to use the minimum number of pillows possible to facilitate your breathing so you are as close to the optimal position as possible.

Take a slow inhalation allowing your belly to expand slightly but maintaining your slight lower abdominal contraction. As you slowly exhale keep your left knee bent while lowering your left foot towards the floor until your toe touches. **DO NOT** allow your back to arch away from the floor as you do this motion. Keep your neck area and upper chest relaxed and **DO NOT** allow your rib cage to flair upwards towards the ceiling. Inhale as you raise the left leg back to the starting position. Exhale in the starting position. Start with a slow inhalation and repeat with the right leg. Perform 5 to 10 times on each leg.

The “Hundred” Modified Beginner Version

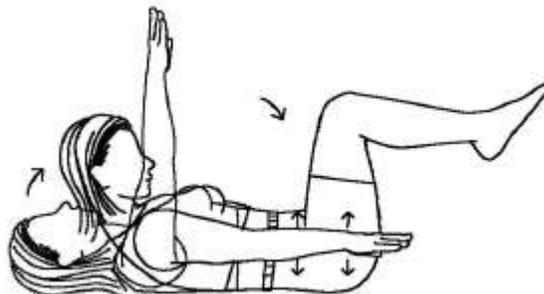
Purpose: The “Hundred” is used in Pilates as a warm-up exercise and is focused on coordination of the breath and to facilitate circulation in the body in preparation for exercise. The eventual goal is to maintain the exercise for all one hundred breaths.



Lie on your back with your knees bent and your arms pointed upwards towards the ceiling. Inhale slowly and then as you exhale, slightly pull in your lower abdominals towards your spine as if you were putting on a tight pair of pants. Maintain that abdominal contraction as you bring your head up to look at your belly button. Make sure you are folding forward from your upper torso/chest and not your neck. Continue lifting forward until you feel the bottom of your shoulder blades pressing into the mat below you. Stretch your arms out beside you, reaching from deep in the pit of your arm as if you were trying to touch the wall across the room with your fingertips.

Begin pumping your arms straight up and down as if you were slapping water, keeping your arms straight and pumping just above the floor. Inhale for five counts (slaps) and exhale for five counts (slaps) continuing to reach forward. If you are having great difficulty breathing while flat on your back (and turning oxygen up does not help) you may put several pillows under your head/upper back. Try to use the minimum number of pillows possible to facilitate your breathing so you are as close to the optimal position as possible. Try to start out with 3 rounds (15 inhalations and 15 exhalations) and gradually work up to 10 rounds (50 inhalations and 50 exhalations)

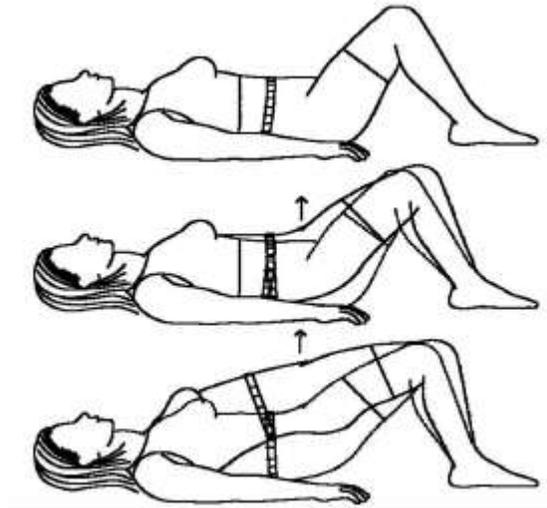
The “Hundred” Modified Beginner Version – More Advanced



Instructions are the same as above except that hips/knees are bent to 90 degrees during performance of the exercise as pictured.

Segmental Bridging

Purpose: To strengthen the gluteal (butt) musculature and lower abdominals, enhance spinal and upper back/chest mobility in conjunction with coordinated breathing.

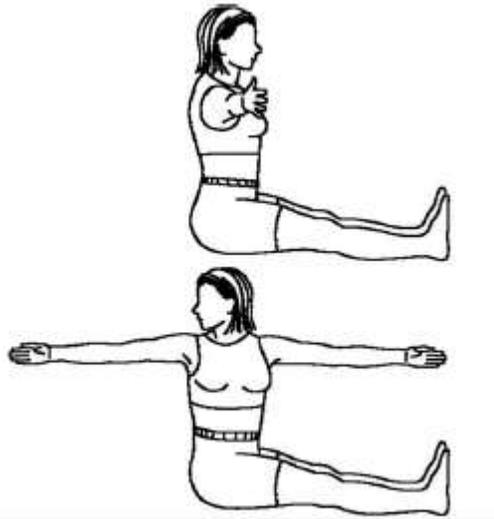


Lie on your back with your knees bent and feet flat on the floor and spaced about shoulder width apart. Inhale slowly letting your belly rise. Exhale slowly as you pull your lower abdominals in towards your spine as if putting on a tight pair of pants. Inhale slowly and starting at your tailbone slowly roll your pelvis up towards the ceiling moving one spinal vertebrae at a time and squeezing your buttocks until all your weight is supported on your shoulders and through your feet. Exhale slowly and lower back to the starting position one spinal segment at a time starting from your upper back and moving towards your tailbone. Repeat 5-10 times.

If you are having great difficulty breathing while flat on your back (and turning oxygen up does not help) you may put several pillows under your head/upper back. Try to use the minimum number of pillows possible to facilitate your breathing so you are as close to the optimal position as possible.

Spine Twist

Purpose: To “wring” out the stale air from your lungs as you stretch the spine and backs of your legs.



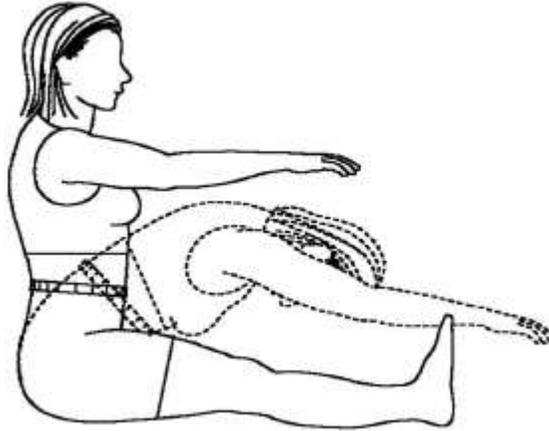
Sit up very tall (as if someone is pulling the crown of your head towards the ceiling with a string) with your arms stretched to either side of the room. Straighten your legs out in front of you so that your knees are straight and your feet are flexed and heels are pressed out from under you. Please note that if you have very tight hamstrings you may have to bend your knees slightly or place a small towel roll/blanket under your sit bones to make sure your spine is straight.

Inhale as you pull your lower abdominals in towards your spine as if you were putting on a tight pair of pants. Maintain this position as you exhale and twist your torso to the right staying perched on top of your hips and squeezing your buttocks and legs together. Increase the stretch by lifting up in the chest as you increase the exhalation. Inhale deeply as you return to your starting position. Keep your shoulders pressing down and your arms outstretched. Allow your head to follow the natural twist of the spine. DO NOT force your head to turn past the point of comfort. DO NOT sink into your back as you twist. Lift tall out of your waist and lift your chest as you twist. Repeat the movement to the left side. Repeat 5-10 times to each side.

Twist gently, LAM patients who have had chest tubes and/or VATS with pleurodesis have internal scar tissue that may be stretched during this exercise. DO NOT stretch into pain. Over time, repetition of the exercise will help improve the elasticity of this scar tissue if done just to the point where a gentle stretch is felt and the stretch should not be forced.

Spine Stretch Forward

Purpose: To improve spinal/chest mobility and posture while working the deep abdominals in conjunction with coordinated breathing.



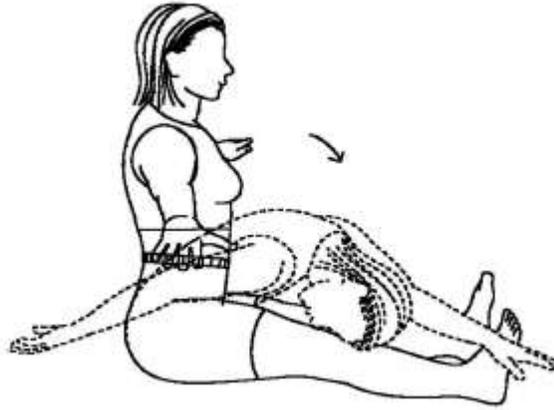
Sit up tall with your legs extended in front of you and open to slightly wider than hip width. If your hamstrings are tight you may have to bend your knees slightly or sit on a rolled up towel/blanket to maintain a straight spine during this exercise. Straighten your arms out in front of you at shoulder height and flex your feet. Inhale and try to sit even taller. Bring your chin towards your chest and begin rolling down, pulling your lower abdominals in towards your spine as if you were putting on a tight pair of pants. Exhale as you stretch your upper body forward, resisting the stretch by continuing to engage your lower abdominals. Imagine you are forming the letter “C” with your body as you roll down. Your hips should remain still at all times. Inhale as you reverse the motion of the exercise, rolling up as if constrained by a wall behind you. Exhale while returning to a tall seated position. Press your shoulders down, and stretch your back flat up against the imagined wall behind you. Repeat 5-10 times.

DO NOT let your knees roll inwards as you stretch forward. **DO NOT** flop forward as you stretch.

If your hamstrings (the muscle on your posterior thigh) are tight you can try to gradually improve their flexibility by straightening one leg and then the other as you exhale forward.

The Saw

Purpose: To “wring” out the stale air from the bottom lobes of your lungs as you stretch the spine, backs of your legs, and strengthen the lower abdominals.



Sit up as tall as possible with your legs extended and open slightly wider than hip width. Flex your feet and push your heels out from under you. If your hamstrings are tight you may have to slightly bend your knees or sit on a rolled up towel/blanket in order to maintain an erect spinal alignment. Stretch your arms out to the sides as if you were reaching out to touch both sides of the room at once.

Inhale and pull your lower abdominals in towards your spine as if you were putting on a pair of tight pants. Imagine that you are being pulled upwards through the spine by a string attached to your head. Twist from your waist to the left as you exhale. Make sure your opposite hip remains pressing down on the floor below you. Bring your head and chest toward your right leg, stretching your left arm forward and just past your baby toe. If you are flexible enough allow your pinkie finger to brush by the baby toe as if you were going to saw it off.

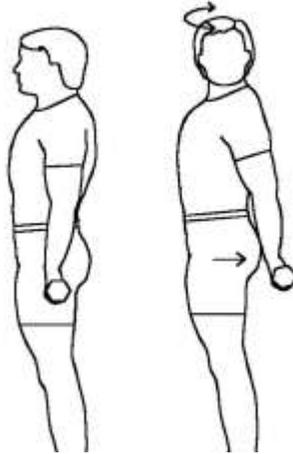
Continue to stretch your chest to the thigh as you deepen your exhalation while you lift your back arm in opposition to your front arm.

Inhale and draw your body up, initiating from the lower abdominals, into the starting position. Make sure you roll up to a tall seated position and inhale before twisting to the other side. Think of filling your lungs with air and then wringing them out as you twist on the exhalation. Repeat the sequence to the right, exhaling deeply as you stretch your head and chest toward the left leg. Repeat 5-10 times to each side.

DO NOT scrunch your neck as you reach past your baby toe. Keep your neck long. DO NOT allow your knees to roll in as you stretch forward.

Chest Expansion

Purpose: To enhance anterior chest mobility and the flexibility of the neck musculature in conjunction with coordinated breathing.



This exercise can be performed in standing, while kneeling on both knees (increases focus on gluteal and lower abdominal strength), or sitting.

Starting Positions:

Standing – Stand with legs and heels together, with the toes turned outward. Tighten your buttocks and pull your lower abdominals in towards your spine. Reach your arms forward of your body so that they are parallel to the floor.

Kneeling – Kneel on a comfortable surface with your legs hip-width apart, buttocks tight and lower abdominals pulled in towards your spine, and arms reaching forward of your body so that they are parallel to the floor.

Sitting – Sit with a tall spine on a chair with your feet hip width apart and flat on the floor. Pull your lower abdominals in towards your spine and reach your arms forward of your body so that they are parallel to the floor.

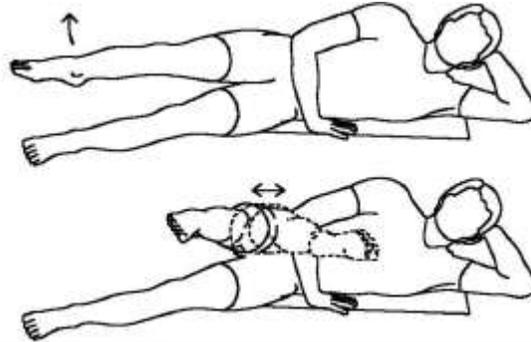
Inhale while making sure your lower abdominals are engaged. Press both arms back with resistance (as if you are dragging them through mud) as far as you are able while lifting your chest in opposition to your elbows without allowing your ribs to stick out. Pinch shoulder blades together as the arms draw backwards.

Maintaining your inhalation turn your head to look right, then center, then left, and then center before slowly exhaling and releasing the tension in your arms. If you are initially unable to hold your inhalation for the entire sequence try to maintain the inhalation as you turn your head to look right, exhale upon returning to center, inhale as you turn your head to look left, exhaling upon returning to center.

On the next repetition, begin the head turns by looking left first. Alternate sides with each repetition. Repeat 5 times to each alternate side.

Side Kick Series – Front/Back

Purpose: Strengthens the inner/outer thigh, improves mobility of the hip joint, improves lower abdominal stabilization while working on coordination of breathing.

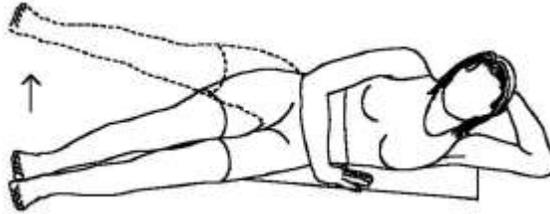


Lie on your side with your elbow, shoulder, midback, and buttocks aligned with the back edge of an exercise mat. Position your legs at a 45 degree angle in front of your body. Keep your weight pressing into the palm of your forward hand and imagine you are balancing a cup of coffee on your shoulder throughout the exercise. Lengthen the back of your neck by pressing the crown of your head away from your shoulder. Keep your feet turned slightly outward from each other. Hold your foot long and aligned with your hip.

Lift your top leg to hip height keeping your foot turned slightly upward toward the ceiling. Inhale pulling your lower abdominals toward the spine as if you are putting on a tight pair of pants. Swing your leg to the front and pulse it twice as far forward as you can go without rocking forward in your hips or scrunching in your waist. Your abdominal region should not move. Exhale as you swing your leg back. Repeat 10 times on each side.

Side Kick Series – Up/Down

Purpose: Strengthens the inner/outer thigh, improves mobility of the hip joint, improves lower abdominal stabilization while working on coordination of breathing.

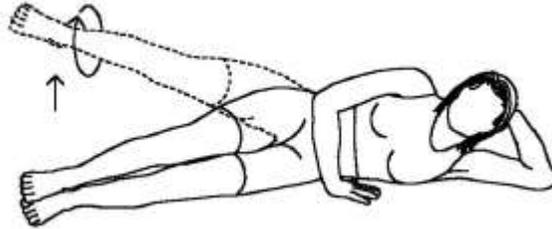


Lie on your side with your elbow, shoulder, midback, and buttocks aligned with the back edge of an exercise mat. Position your legs at a 45 degree angle in front of your body. Keep your weight pressing into the palm of your forward hand and imagine you are balancing a cup of coffee on your shoulder throughout the exercise. Lengthen the back of your neck by pressing the crown of your head away from your shoulder. Keep your feet turned slightly outward from each other. Hold your foot long and aligned with your hip.

Inhale and lift your top leg straight up to the ceiling. Exhale as you resist gravity on the way back down as if you were dragging your leg through mud. Stretch your leg long out of your hip as you lower the leg. Make sure your foot remains turned outward throughout the exercise without allowing your knee to roll inwards. Lift the leg only as high as you can while maintaining a straight leg. Do not rock through the hips or sink through the waist or shoulders. Repeat 10 times on each side.

Side Kick Series – Small Circles

Purpose: Strengthens the inner/outer thigh, improves mobility of the hip joint, improves lower abdominal stabilization.



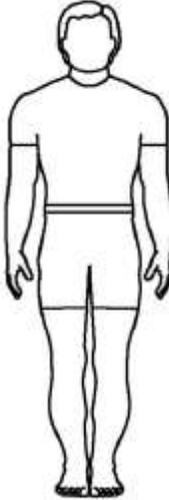
Lie on your side with your elbow, shoulder, midback, and buttocks aligned with the back edge of an exercise mat. Position your legs at a 45 degree angle in front of your body. Keep your weight pressing into the palm of your forward hand and imagine you are balancing a cup of coffee on your shoulder throughout the exercise. Lengthen the back of your neck by pressing the crown of your head away from your shoulder. Keep your feet turned slightly outward from each other. Hold your foot long and aligned with your hip.

Lift your top heel just above your bottom heel (in this picture the top leg is lifted too high). Begin circling the leg from the hip in a small forward circle, imagining that you are circling your leg inside a small hoop. Keep your top foot turned slightly up toward the ceiling. Complete 5 circles forward and then complete 5 circles in reverse. Inhale and exhale slowly throughout the exercise. Repeat on the opposite side.

Yoga Based Exercises for Lammies

Tadasana “Mountain Pose”

Purpose: Works on improving overall posture which indirectly enhances breathing mechanics.



Stand on a smooth, even surface keeping your feet together with your heels touching. Stretch your arms along your sides with your palms facing your thighs and your fingers pointing to the floor. Keep your neck muscles relaxed while maintaining an elongated neck as if someone is pulling your head up towards the ceiling. Distribute your weight evenly on the inner and outer edges of your feet, and on the toes and heels. Tighten the front of your thighs slightly so that your kneecaps raise slightly. Tighten the buttocks slightly. Pull your lower abdomen in towards your spine. Keep your chest lifted. Inhale through your nose and out through your mouth using the instructions for diaphragmatic breathing.

Variations of Tadasana

Tadasana Paschima Namaskar “Mountain Pose with Hands in Prayer Position” – Stand in Tadasana. Gently turn your arms in and out a few times before taking them behind you and join your fingertips, pointing them towards the floor. Rest your thumbs on your lower back. You’re your elbows back and rotate your wrists so that your fingertips turn and point first toward your back and then up. Press your palms together behind your back and move them up your back until they are between your shoulder blades or until you feel a stretch in the anterior chest/shoulders. Push your elbows down to stretch your upper arms and chest focusing on keeping your chest and armpits open. Keep the neck and shoulder relaxed. Hold for 15-30 seconds while continuing to inhale through your nose and exhale through your mouth.

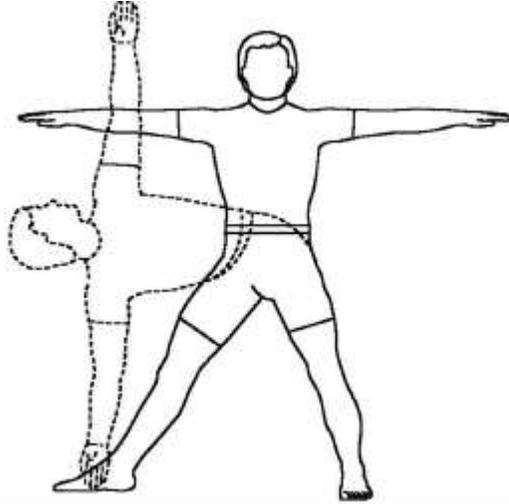
Tadasana Gomukhasana “Mountain Pose with Hands Held in Shape of a Cow’s Face” – Stand in Tadasana. Take your left arm behind you and place the back of your left palm on the middle of your back. Raise your right arm. Bend your right elbow and move your hand down with your palm facing your body. Place your right palm on your left palm and interlink the fingers of both hands. If you don’t have enough flexibility to do this use a towel to link your hands together. Do not force your arms to bend. Open your right armpit to create space between your chest and upper right arm. Keep your right elbow pointed up and back, and your right forearm close to your head. Hold for 15-30 seconds on each side while continuing to inhale through your nose and exhale through your mouth.

Tadasana Urdhva Hastasana “Mountain Pose with Arms Stretched Up” – Stand in Tadasana. Exhale and stretch from your waist lifting up your arms in front of you to shoulder level. Keep your palms open and facing each other. Do not shrug through your shoulders. Raise your arms above your head, perpendicular to the floor stretching your arms and fingers while pinching your shoulder blades together. Stretch your arms further up from your shoulders, keeping them parallel to each other. Extend your wrists, palms, and fingers toward the ceiling feeling the stretch along both sides of your body. Pull your lower abdominals in towards your spine. Turn your wrist so that the palms face forward. Hold for 15-30 seconds while continuing to inhale in through your nose and out through your mouth.

Tadasana Urdhva Baddha Hastasana “Mountain Pose with Bound Hands” – Stand in Tadasana. Bring your arms toward your chest, with your palms facing the chest. Interlock your fingers firmly, from the base of the knuckles. Turn your interlocked fingers inside out. Exhale and stretch your arms out in front of you at shoulder level. Then inhale, and raise your arms above your head until they are perpendicular to the floor. Extend your arms fully keeping your elbows straight. Hold for 15-30 seconds while continuing to inhale in through your nose and out through your mouth.

Trikonasana “Triangle Pose”

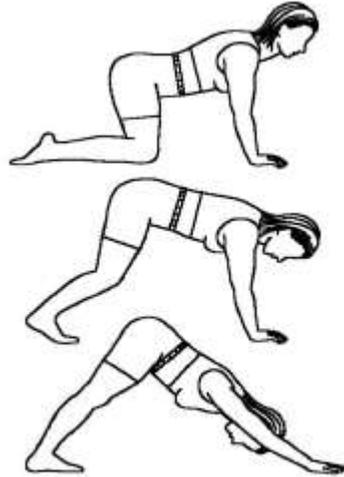
Purpose: Stretches the legs, opens the anterior chest, and lengthens the spine.



Start by standing in Tadasana. Inhale and spread your feet about 3 and ½ feet apart. Inhale and raise your arms out to your sides until they are in line with your shoulders. Turn your right foot to the right until it is parallel to the wall. Turn in your left foot slightly to the right. Your right foot should line up with the middle of the arch of your left foot. Keep your left leg straight. Stretch your arms away from your body keeping them parallel to the floor facing down. Bend to the right and extend your right arm toward the floor. Keep the trunk long and straight. If you can't reach the floor place your palm on a block or your shin. Pull your tailbone in toward your body (as if you are a dog tucking his tail between his legs). Turn your head and look up at your left thumb. Rest your weight on both heels, not on your right palm. Breathe evenly and not deeply. Hold the posture, breathing in through your nose and out through your mouth for 15-30 seconds. Repeat to the other side.

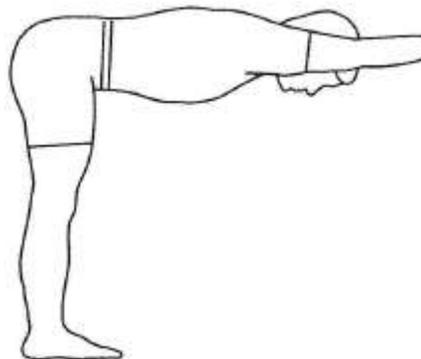
Adhomukha Svanasana “Downward-Facing Dog Pose”

Purpose: Allows for enhanced perfusion in the upper lobes of the lungs, enhances chest mobility and upper back strength, lengthens the spine, and stretches the posterior leg musculature.



Begin on your hands and knees. Exhales, turn your toes under, lift your buttocks upward and straighten your legs. Your feet should be flat on the floor and your knees should be straight. However, if you have tight calves and/or hamstrings your heels may not reach the floor (you can use a small rolled up towel under your heels for support) and you may need to slightly bend the knees. Your arms should be straight with your palms in firm contact with the floor and your fingers spread apart. You should maintain a pinching down and inward action between your shoulder blades. Your feet and hands should be about shoulder width apart and lined up with each other. Inhale and exhale in position for 5-10 repetitions. As you inhale and exhale think about lengthening the spine.

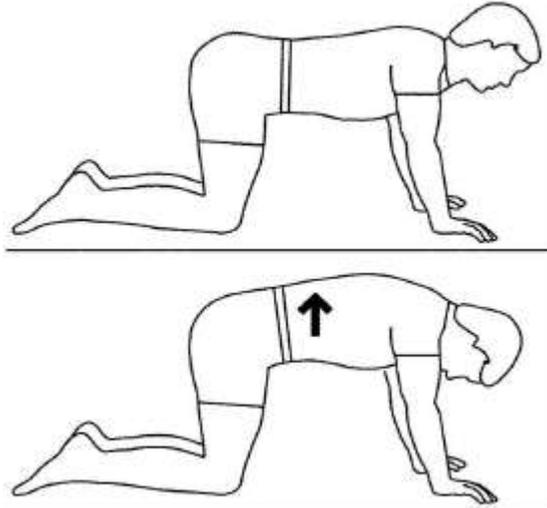
Modified Position for Downward Facing Dog



Place palms against wall about shoulder width apart. Follow instructions as above.

Angry Cat Pose

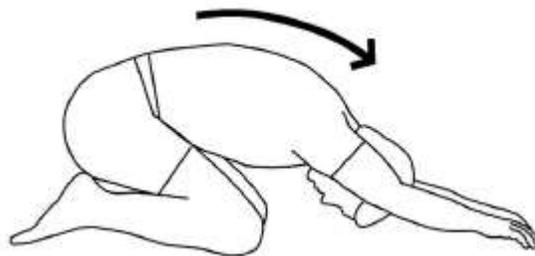
Purpose: Works on thoracic/rib cage mobility. Improves lower abdominal recruitment and strength.



Start on hands and knees. Your knees and hands should be shoulder width apart and in line with each other. Exhale while pulling your belly button in towards your spine and arch your back up towards the ceiling. Inhale letting your belly relax and let your stomach drop towards the floor. Repeat for 5-10 exhalation/inhalations.

Balāsana “Child’s Pose”

Purpose: Stretches the posterior rib cage during breathing. Works on hip flexibility and lengthens the spine. This is a “resting” pose.



Begin in hands and knees. Exhales and bring the buttocks towards the heels while keeping the hands on the floor, about shoulder width apart with the fingers spread apart. Inhale and exhale 5-10 repetitions in position. This pose can also be performed with the knees parted.

Savasana “Corpse Pose”

Purpose: Relaxes the sympathetic nervous system. Can be a meditative pose. According to the Iyengar yoga tradition, alleviates symptoms of respiratory diseases and eases breathing. Traditionally, this is a “resting” pose and should be performed at the end of the exercise session.



Lie on your back and straighten your legs, stretching them evenly away from each other without arching your low back. Exhale and move your arms a comfortable distance away from your body. Stretch your shoulders away from your neck and slightly pinch your shoulder blades together. Keep your abdomen soft and relaxed. Expand your chest as you inhale, keeping your throat relaxed. Relax your facial muscles and jaw. Make sure your teeth are not clenched. Continue to exhale and inhale in posture for 5-10 minutes. When you come out of the position roll over on to your left side and use your arms to push up to a sitting position.

Exercise Suggested Sequence

1. “Hundred” Modified Beginner or Modified Advanced Beginner
2. Alternating Toe Touch Taps
3. Segmental Bridging
4. Spine Twist
5. Spine Stretch Forward
6. The Saw
7. Chest Expansion
8. Side Kick Series
9. Tadasana “Mountain Pose”
10. Tadasana Variations OR Stretches for Commonly Over-recruited Neck Musculature
11. Trikonasana “Triangle Pose”
12. Adhomukha Svanasana “Downward-Facing Dog Pose”
13. Angry Cat Pose
14. Balasana “Child’s Pose”
15. Savasana “Corpse Pose”