



Keep Moving: Upper and Lower Body Exercises for Early Arthritis and Joint Replacement

According to the Centers for Disease Control and Prevention (CDC), approximately 52.5 million adults, age 18 and older, have been diagnosed by a physician with arthritis, and 22.7 million have arthritis-attributable activity limitation. By 2040, the number of adults with doctor-diagnosed arthritis is projected to increase to 78.4 million or 25.9 percent of all adults, and the number with activity limitations will increase 34.6 million or about 11.4 percent of all adults. The medical cost associated with arthritis in 2013, the most recent record available, was \$140 billion or an extra \$2,117 per adult with arthritis and lost wages totaled \$164 billion or \$4,040 less pay compared to an adult without arthritis.



Arthritis is the physical damage, loss or wearing away of the protective cartilage surface covering the ends of our bones at our joints. When functioning appropriately, this cartilage surface allows smooth and painless range of motion of our joints. As the cartilage wears out over time, after injury or because of disease, the worn surfaces of the bones contact causing pain, sometimes crepitus (audible or palpable grinding of the bony surfaces) and swelling and inflammation. Arthritis symptoms generally progress over time at an unpredictable rate (months, years, decades) and can have periods of decreased or increased pain and symptoms. Arthritis is often associated with pain and stiffness with the initiation of movement after a period of prolonged rest, particularly in the morning (morning stiffness).

The treatment for arthritis depends upon the cause and the individual's symptoms. Not all patients with X-ray findings of joint arthritis have pain. Based on the analysis of many studies, it is clear that education, exercise and weight loss are the pillars of non-pharmacological (not medicine) treatments. These treatments have proven to be effective but require changes in patient behaviors that are difficult to attain. Exercise and weight loss improve function and reduce pain. Education potentiates compliance to exercise and weight loss programs, thereby improving their long-term benefits. Cost efficiency studies have found a reduction in medical visits and healthcare costs after 12 months because of self-management programs.

Eventually, arthritis may cause a significant decrease in the quality of life or the inability to complete daily activities such as walking. In these cases of symptomatic arthritis that do not respond to conservative treatment, joint replacement surgery to replace the damaged surfaces of the joint can eliminate pain and allow an improved functional recovery.

The following exercise program is designed for individuals with shoulder, hip or knee arthritis or joint replacements who want to optimize their joint function and help alleviate pain. It is sufficiently vigorous to see benefits and increase performance, yet sufficiently moderate and well-tolerated for individuals with arthritis or replaced joints. The goal of this program is to decrease the level of pain associated with arthritis and be used to maximize function and limit discomfort following joint replacement surgery.

Precautions

Please note, not all exercises are suitable for everyone. Consult your physician before beginning this or any other exercise program. Individuals with a history of other hip, knee, ankle, shoulder, elbow, wrist or spinal (neck or back) problems or other significant medical history should not participate in this program without permission from your medical and/or orthopaedic physician.

This program is designed for moderate arthritis or well-functioning joint replacements. Regular exercise and stretching has shown to help reduce pain and lead to a more manageable life. If you are having an increase in pain or soreness, modify or avoid the aggravating exercises. Use your best judgement and consult a physician if problems continue. The goal of this program is to manage and maintain function in everyday life.

INSTRUCTIONS

This program is designed to for individuals with hip, knee or shoulder arthritis or those who had a hip, knee or shoulder replacement. It is recommended to be performed at least two to three times each week to achieve the best results. The program can be upper body-focused, lower body-focused, or both.

- Individuals with **upper extremity arthritis or a shoulder replacement** can perform upper body exercises two to three times per week and rest or perform other non-upper extremity exercises/activities on the opposite days.
- Individuals with **lower extremity arthritis or a hip or knee replacement** can perform lower body exercises two to three times per week and rest or perform other non-lower extremity exercises/activities on the opposite days.
- Individuals with **upper and lower extremity arthritis, or upper and lower extremity total joint replacements** can perform upper and lower body workouts on alternating days or perform a selection of exercises from both the upper and lower body workouts two to three days per week.

Regardless of the type program selected, always begin each exercise session with both warm-up and stretching exercises. You may add two to three core exercises or other endurance exercises as tolerated. Pictures and descriptions for each exercise are provided on the following pages along with the recommended number of sets, repetitions or time.

Upper Body Exercises

For individuals with upper extremity arthritis or a shoulder replacement, perform the upper body exercises listed in the chart at right two to three times per week and rest or perform other non-upper extremity exercises/activities on the opposite days.

To progress the program, increase the weight or band resistance, the number of sets or repetitions, or the number of days you perform the exercises per week. Additionally, you can seek assistance from a trainer for guidance and other progression of exercises. Please inform them of your underlying condition so they do not exceed your limits.

The purpose of this exercise program is to be moderate and joint preserving so progressions may not be necessary or beneficial. Use caution as you progress and consult your physician if you have any pain or aggravations.

| | | |
|--|------------------|-----------------------------|
| REQUIRED Warm Up and Stretching Exercises | Doorway Stretch | 2-3 sets, 10-15 second hold |
| | Arm Circles | 2-3 sets, 10-15 seconds |
| | Overhead Stretch | 2-3 sets, 10-15 second hold |
| | Internal Stretch | 2-3 sets, 10-15 seconds |
| | Angel | 2-3 sets, 10-15 seconds |

| | | |
|--|----------------------------|--------------------------|
| PROGRAM Strength & Conditioning Exercises | Trap at Wall | 2-3 sets, 10 repetitions |
| | "T" Exercises | 2-3 sets, 10 repetitions |
| | Arm Raises | 2-3 sets, 10 repetitions |
| | Rows | 2-3 sets, 10 repetitions |
| | Lat Pull-Down | 2-3 sets, 10 repetitions |
| | Bicep Curls | 2-3 sets, 10 repetitions |
| | Wall Push Up | 2-3 sets, 10 repetitions |
| | Triceps Extensions | 2-3 sets, 10 repetitions |
| | Shoulder Internal Rotation | 2-3 sets, 10 repetitions |
| | Shoulder External Rotation | 2-3 sets, 10 repetitions |

| | | |
|--|----------------|-----------------------------|
| OPTIONAL Core Exercises | Plank | 2-3 sets, 15-20 second hold |
| | Side Plank | 2-3 sets, 10-15 second hold |
| | Russian Twist | 2-3 sets, 10 repetitions |
| | Reverse Crunch | 2-3 sets, 10 repetitions |

Lower Body

For individuals with lower extremity arthritis or a hip or knee replacement, perform the lower body exercises listed in the chart at right two to three times per week and rest or perform other non-upper extremity exercises/activities on the opposite days.

To progress the program, increase the weight or band resistance, the number of sets or repetitions, or the number of days you perform the exercises per week. Additionally, you can seek assistance from a trainer for guidance and other progression of exercises. Please inform them of your underlying condition so they do not exceed your limits.

The purpose of this exercise program is to be moderate and joint preserving so progressions may not be necessary or beneficial. Use caution as you progress and consult your physician if you have any pain or aggravations.

| | | |
|--|----------------------------|-------------------------|
| REQUIRED Warm Up & Stretching Exercises | Standing Hamstring Stretch | 2-3 sets, 10-15 seconds |
| | Standing Hip Flexor | 2-3 sets, 10-15 seconds |
| | Kneeling Hip Flexor | 2-3 sets, 10-15 seconds |
| | Calf Stretch | 2-3 sets, 10-15 seconds |
| | Laying Quad Stretch | 2-3 sets, 10-15 seconds |

| | | |
|--|------------------------|--------------------------|
| PROGRAM Strength & Conditioning Exercises | Straight Leg Hip ABD | 2-3 sets, 10 repetitions |
| | Straight Leg Hip ADD | 2-3 sets, 10 repetitions |
| | Bridge | 2-3 sets, 10 repetitions |
| | Straight Leg Press | 2-3 sets, 10 repetitions |
| | Long Arc Quad | 2-3 sets, 10 repetitions |
| | Prone Hip Extension | 2-3 sets, 10 repetitions |
| | Straight Leg Balance | 1 to 3 minutes |
| | Calf Raise | 2-3 sets, 10 repetitions |
| | Hip Hinge Straight Leg | 2-3 sets, 10 repetitions |
| | Front Squat | 2-3 sets, 10 repetitions |

| | | |
|--|----------------|-----------------------------|
| OPTIONAL Core & Exercises | Plank | 2-3 sets, 15-20 second hold |
| | Side Plank | 2-3 sets, 15-20 second hold |
| | Russian Twist | 2-3 sets, 10 repetitions |
| | Reverse Crunch | 2-3 sets, 10 repetitions |

Program Options

| OPTIONS | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 | Day 7 |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-------|
| Upper Body Two Days/Week | Upper Body Exercises | ★ | ★ | Upper Body Exercises | ★ | ★ | Rest |
| Upper Body Three Days/Week | Upper Body Exercises | ★ | Upper Body Exercises | ★ | Upper Body Exercises | ★ | Rest |
| | | | | | | | |
| Lower Body Two Days/Week | Lower Body Exercises | ★ | ★ | Lower Body Exercises | ★ | ★ | Rest |
| Lower Body Three Days/Week | Lower Body Exercises | ★ | Lower Body Exercises | ★ | Lower Body Exercises | ★ | Rest |
| | | | | | | | |
| Upper & Lower Two Days Each/Week | Upper Body Exercises | Lower Body Exercises | ★ | Upper Body Exercises | Lower Body Exercises | ★ | Rest |
| Upper & Lower Three Days Each/ Week | Upper Body Exercises | Lower Body Exercises | Upper Body Exercises | Lower Body Exercises | Upper Body Exercises | Lower Body Exercises | Rest |

★ Alternate activity of your choice that does not put stress on your knees and/or shoulders such as biking, swimming, Yoga or rest.

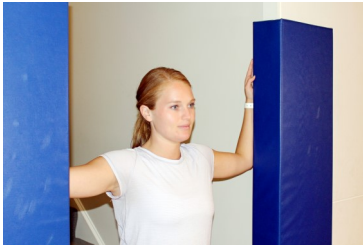
NOTE: To progress the program, increase the weight or band resistance, the number of sets or repetitions or the number of days you perform the exercises per week. Additionally, you can seek assistance from a trainer for guidance and other progression of exercises. Please inform them of your underlying condition so they do not exceed your limits.

Upper Extremity

Warm Up Exercises

Doorway Stretch

| Sets | Time/Reps |
|------|-------------------|
| 2-3 | 10-15 Second hold |



- Begin in a standing upright position in the center of a doorway.
- With your elbows bent, place your forearms on the sides of the doorway at a 90-degree angle from your sides
- Take a small step forward until you feel a stretch in the front of your shoulders. Hold this position for 10-15 seconds then return to starting the position.
- Make sure to maintain a gentle stretch and do not shrug your shoulders during the exercise.

Arm Circles

| Sets | Time/Reps |
|------|------------------------------|
| 2-3 | 10-15 Seconds each direction |



- Raise your arms directly to your sides with your elbows straight.
- Make small circles with your arms, first in one direction for 10-15 seconds, and then in the other direction for 10-15 seconds.
- Do not arch your back during the exercise.

Upper Extremity

Warm Up Exercises

Overhead Stretch

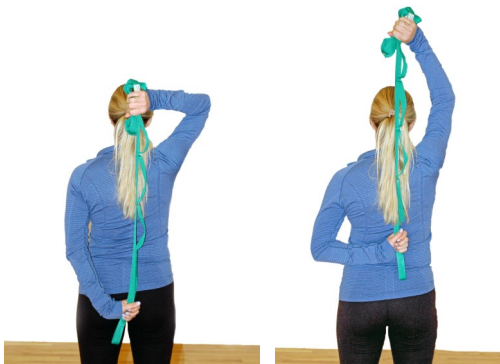
| Sets | Time/Reps |
|------|-------------------|
| 2-3 | 10-15 Second hold |



- Begin in a staggered stance position with both of your forearms resting flat on a wall.
- Slowly slide your arms up overhead and gently lean your chest toward the wall.
- Hold, this stretch for 10-15 seconds then slide your hands back to the starting position, and repeat for a total of 10 repetitions.
- Make sure to move within a comfortable range of motion and do not shrug your shoulders during the exercise.

Internal Stretch/Strap

| Sets | Time/Reps |
|------|-------------------|
| 2-3 | 10-15 Second hold |



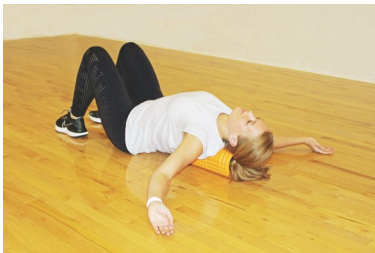
- Stand and hold both ends of a towel or strap in each hand, with one arm behind your head and the other behind your mid to low back.
- Slowly straighten your upper arm, gently pulling upward on the towel/strap, and when you feel a stretch hold 10-15 seconds, then return to starting position and repeat.
- Make sure to keep your back straight during the exercise.

Upper Extremity

Warm Up Exercises

Angel

| Sets | Time/Reps |
|------|---------------|
| 2-3 | 10-15 Seconds |



- Begin lying with a foam roll positioned vertically along the middle of your back, knees bent, and your arms resting on the ground.
- Spread your arms straight out to your sides.
- Move your arms upwards along the floor to above your head, then lower them back to your sides, and repeat as if you are making the wings on a snow angel.
- Your fingertips should stay in contact with the ground. Make sure not to arch your back as you raise your arms overhead. If you do not have a foam roll use a rolled-up towel.

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The *Upper and Lower Body exercise program* provided in this publication should not be attempted by anyone who does not meet minimum fitness requirements, or who has a history of hip, knee, ankle, shoulder, elbow, wrist or spinal (neck or back) problems. **THIS WARNING IS NOT TO BE DISCOUNTED.** There are many other fitness alternatives if you have weaknesses, or are prone to injuries. The user assumes all risks of injury in the use of this program.

Upper Extremity

Strength & Conditioning Exercises

Low Trap at Wall

| Sets | Time/Reps |
|------|-----------|
| 2-3 | 10 Reps |



- Begin in a standing upright position facing a wall.
- Rest both hands on the wall with your palms facing inward
- Slide your hands up the wall in a diagonal direction.
- When your arms are straight, raise your hands a few inches from the wall, activating your shoulder muscles.
- Slide your hands down and repeat.
- Make sure to keep your back straight and do not shrug your shoulders during the exercise. This can be done with a band around the hands for resistance.

“T” Exercises

| Sets | Time/Reps |
|------|-----------|
| 2-3 | 10 Reps |

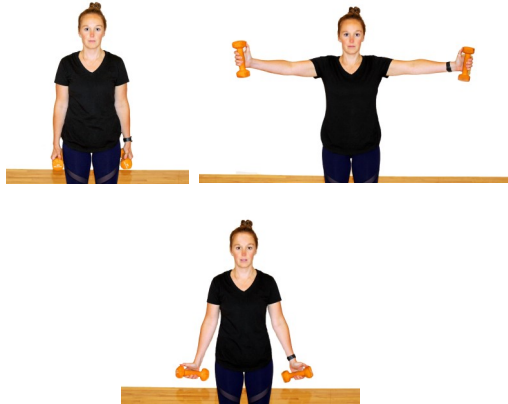


- Lay on the floor or a bench face down with your arms straight out to your sides, thumbs pointing up.
- Raise your arms as far as is comfortable, then lower them back to the starting position and repeat.
- Think of squeezing your shoulder blades together as you lift your arms. Do not arch your back as you lift your arms. Do the exercise with your thumbs up and then again with your thumbs down.

Upper Extremity

Arm Raises

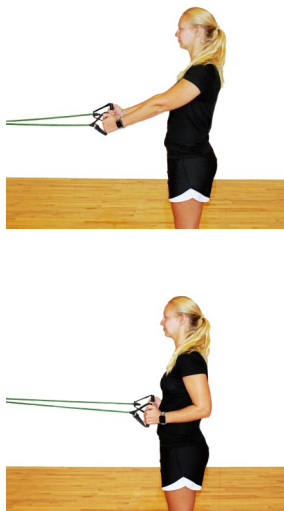
| Sets | Time/Reps |
|------|-----------|
| 2-3 | 10 Reps |



- Stand in an upright position with your arms resting at your side, grasping lightweight dumbbells.
- Slowly raise your arms diagonally at roughly a 30-degree angle from your body, then lower your arms back to your sides.
- Make sure to keep your elbows straight and avoid shrugging your shoulders. Try not to arch your low back while raising and lowering your arms.

Rows

| Sets | Time/Reps |
|------|-----------|
| 2-3 | 10 Reps |



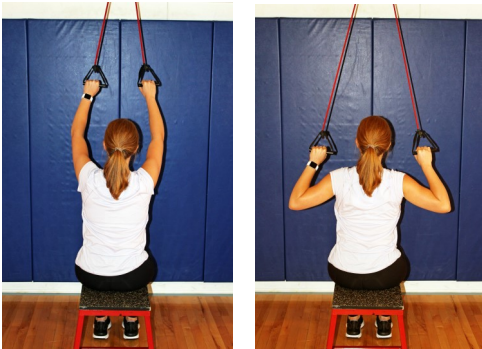
- Using good posture, stand with your arms straight forward holding the ends of a band anchored in front of you.
- Gently squeeze your shoulder blades together and pull the band towards you, keeping your elbows by your sides.
- Slowly return to the starting position and repeat.
- Make sure to maintain good posture and do not shrug your shoulders or arch your back.

Upper Extremity

Lat Pull Down

with a resistance band

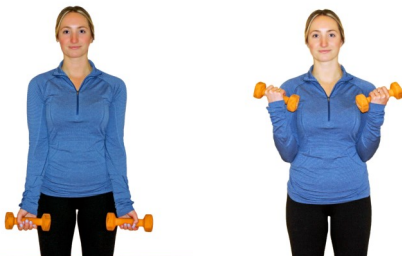
| Sets | Time/Reps |
|------|-----------|
| 2-3 | 10 Reps |



- Facing the wall, adjust the resistance bands to the desired resistance.
- Grab the band overhead and move to a seated position with your arms straight and the band in front of you.
- Pull the band down against the resistance to shoulder height and then slowly return to the starting position and repeat.
- Make sure to keep your back straight and core muscles engaged. Keep your shoulders pulled down towards your hips through the exercise. You should feel the muscles in your back and outer rib cage working during the exercise.

Biceps Curls

| Sets | Time/Reps |
|------|-----------|
| 2-3 | 10 Reps |

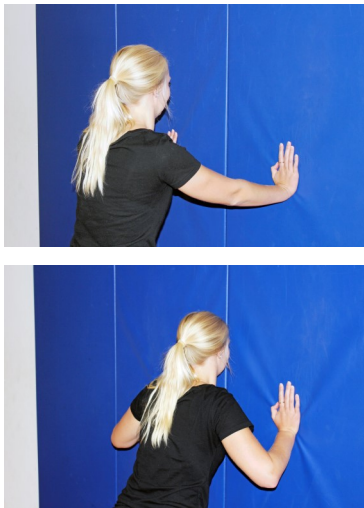


- Stand with your back straight and arms at your sides holding a dumbbell in each hand.
- With your thumbs facing forward, slowly curl both dumbbells up toward your shoulders, then lower them back to the starting position.
- Repeat.
- Make sure to keep your thumbs facing forward, back straight and do not shrug your shoulders during the exercise.

Upper Extremity

Wall Push-Up

| Sets | Time/Reps |
|------|-----------|
| 2-3 | 10 Reps |

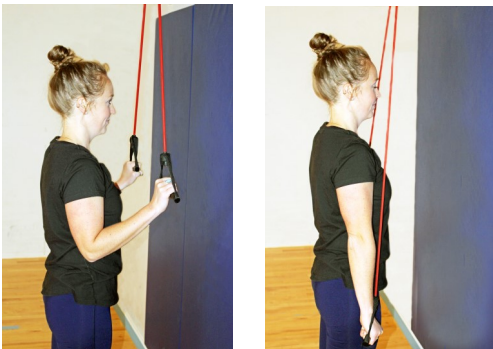


- Begin in a standing position with your arms straight and your hands resting on a wall at shoulder height.
- Bend your elbows leaning your body toward the wall, then push yourself back into the starting position and repeat.
- Make sure to bend only at the elbows and keep the rest of your body straight during the exercise.

Triceps Extension

with a resistance band

| Sets | Time/Reps |
|------|-----------|
| 2-3 | 10 Reps |



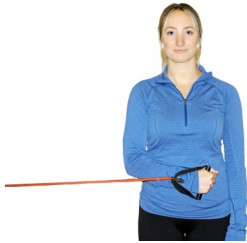
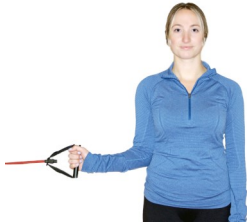
- Standing with your back straight and shoulders back, grab the ends of a resistance band anchored overhead and in front of you.
- Gently squeeze your shoulder blades together.
- Maintaining this position, slowly straighten your arms, pressing your hands towards the floor, then return to the starting position and repeat.
- Make sure to keep your elbows close to your sides and do not shrug your shoulders during the exercise.

Upper Extremity

Shoulder Internal Rotation

with resistance band

| Sets | Time/Reps |
|------|--------------|
| 2-3 | 10 each side |

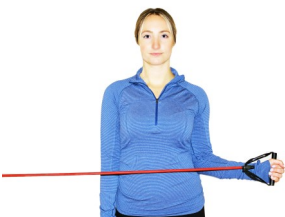
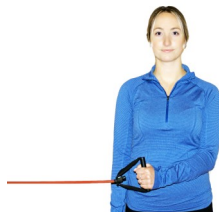


- Move the resistance band so it's anchored at waist height.
- With your right hand grab the band.
- Turn so your right shoulder is in line with the band and step to your left until the band is taught.
- Stand with your elbow next to your body and bent to 90 degrees.
- Without moving your elbow, pull/rotate your hand in towards your belly and against the resistance, then slowly return to the starting position and repeat for 10 repetitions. Then, perform the exercise with the left arm.
- Make sure to keep your elbow bent to 90 degrees throughout the movement. Keep your shoulders facing forward, your body steady, and do not shrug your working shoulder. Hold your wrist neutral throughout the exercise.

Shoulder External Rotation

with a resistance band

| Sets | Time/Reps |
|------|--------------|
| 2-3 | 10 each side |



- Move the resistance band so it's anchored at waist height.
- With your left hand grab the band.
- Turn so your right shoulder is in line with the band and step to your left until the band is taught.
- Stand with your elbow next to your body and bent to 90 degrees.
- Without moving your elbow, pull your hand away from your belly and against the resistance, then slowly return to the starting position and repeat for 10 repetitions. Then perform the exercise with the right arm.
- Make sure to keep your elbow bent to 90 degrees throughout the movement. Keep your shoulders facing forward, your body steady, and do not shrug your working shoulder. Hold your wrist neutral throughout the exercise.

Lower Extremity

Warm Up Exercises Standing Hamstring Stretch

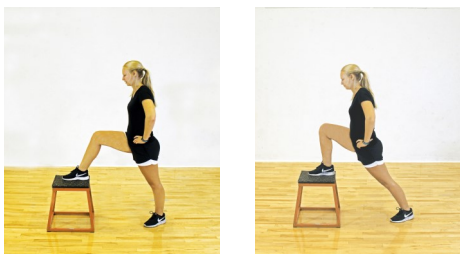
| Sets | Time/Reps |
|------|------------------------|
| 2-3 | 10-15 Seconds each leg |



- Stand facing a stairway or use a small stool/box.
- Place the heel of your left foot on the lowest step resting your hands on your hips.
- Slowly bend forward at your hips until you feel a gentle stretch in the back of your thigh. Hold this position for 10-15 seconds. Repeat 2-3 times
- Change legs and repeat.
- Make sure to keep your back straight and maintain a slight bend in your stance leg. Avoid bouncing during the stretch.

Standing Hip-Flexor Stretch

| Sets | Time/Reps |
|------|------------------------|
| 2-3 | 10-15 Seconds each leg |



- Begin in a standing position with your right foot resting on a box or small stool and the left leg straight and resting on the ground.
- Keeping your back straight and upright, squeeze your buttocks and slowly shift your weight forward until you feel a stretch in the front of your left hip. Hold for 10-15 seconds and repeat 2-3 times, then change legs and repeat the exercise.
- Make sure to keep your hips and shoulders facing forward and do not arch your low back.

Lower Extremity

Warm Up Exercises Kneeling Hip Flexor Stretch

| Sets | Time/Reps |
|------|--------------------|
| 2-3 | 10-15 Seconds hold |



- Begin in a half kneeling position with your right leg bent and foot on the ground.
- Shift your body and hips forward over your right knee until you feel a stretch in the front of left hip.
- Hold this position for 10-15 seconds and return to starting position. Repeat 2-3 times, then change legs.
- Be sure to keep both hips facing forward during the stretch.

Calf Stretch

| Sets | Time/Reps |
|------|-------------------|
| 2-3 | 10-15 Second hold |



- Stand about two feet away from a wall.
- Place your hands on the wall and the ball of your right foot on the wall keeping your right heel on the ground.
- Carefully lean into the wall until you feel a stretch in your calf and hold for 10-15 seconds.
- Repeat 2-3 times, then change legs and repeat the exercise.

For an alternate calf stretch option (lower photo)

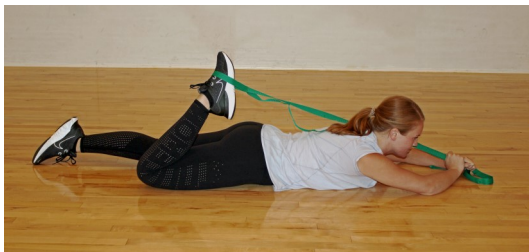
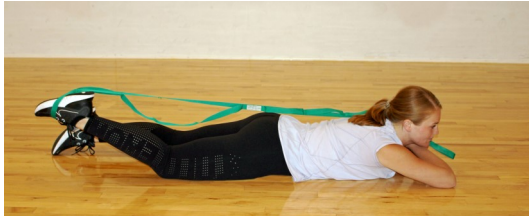
- Place your hands on the wall and your left foot touching the wall with your heel on the ground.
- Extend your right leg backward bending your left leg until you feel a stretch in the calf of your right leg. Hold for 10-15 seconds. Return to starting position and repeat 2-3 times. Change legs and repeat.

Lower Extremity

Warm Up Exercises

Laying Quad Stretch

| Sets | Time/Reps |
|------|-------------------|
| 2-3 | 10-15 Second hold |



- On the floor or a bench, lay on your stomach with your legs straight.
- Place the loop of a strap around one foot and grasp the other end of the strap so it is over the top of your back and the opposite shoulder from the foot in the loop.
- Pull the end of the strap bending your knee until you feel a gentle stretch in your thigh. Hold for 10-15 seconds and then lower your leg to the starting position.
- Repeat 2-3 times, then place the loop over the other foot and repeat the exercise.
- Do not let your low back arch during the stretch.

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Lower Extremity

Strength & Conditioning Exercises

S/L Hip ABD

| Sets | Time/Reps |
|------|-------------------|
| 2-3 | 10 Reps each side |



- Lay on your side on the floor with your legs straight.
- Lift your top leg up toward the ceiling, then slowly lower it back down.
- Repeat the leg lifts 10 times, then switch sides and repeat exercise to complete 2-3 sets for both legs.
- Make sure to keep your leg straight and do not let your hips roll backward or forward during the exercise.

S/L Hip ADD

| Sets | Time/Reps |
|------|-------------------|
| 2-3 | 10 Reps each side |



- Lay on your side on the floor with your bottom leg straight and top leg bent and crossed over the straight leg on the floor.
- Lift your bottom leg up toward the ceiling, then slowly lower it back down.
- Repeat the leg lifts 10 times, then switch sides and repeat exercise and complete 2-3 sets for both legs.
- Make sure to keep your leg straight and do not let your hips roll backward or forward during the exercise.

Lower Extremity

Strength & Conditioning Exercises

Long Arc Quad

| Sets | Time/Reps |
|------|------------------|
| 2-3 | 10 Reps each leg |



- Sit on the edge of a bed or flat surface with your back straight and both legs hanging off the edge.
- Tightening the muscles in your right thigh, slowly lift your right foot to straighten your knee, then return to the starting position.
- Repeat leg lift 10 times, then change legs and repeat. Complete 2-3 sets for each leg.
- Make sure to keep your movements slow and controlled.

Prone Hip Extension

| Sets | Time/Reps |
|------|------------------|
| 2-3 | 10 Reps each leg |



- Using a bench or bed, lay on your stomach with your upper body resting on the edge so your legs touch the ground.
- Keeping your left leg straight, lift it toward the ceiling. Hold for 3 seconds, then lower it back to the floor.
- Repeat the exercise to complete 10 lifts. Switch legs and repeat exercise. Complete 2-3 sets for each leg.
- Make sure to keep your trunk stiff and do not arch your low back as you lift your leg.

Lower Extremity

Strength & Conditioning Exercises

Bridging

| Sets | Time/Reps |
|------|-----------|
| 2-3 | 10 Reps |



- Lay on the floor or bed with your back flat, arms at your sides and knees bent.
- Tighten your abdominals, keep your back straight and slowly lift your hips toward the ceiling into a bridge position.
- Hold for 3 seconds, then lower to the starting position and repeat for 10 repetitions.
- Make sure to keep your trunk stiff throughout the exercise and your arms flat on the floor.

For an alternate option, use a resistance band secured around both legs. Follow the directions above maintaining tension in the resistance band throughout the exercise.

Important Notice

Not all exercises are suitable for everyone. Consult your physician before beginning this or any other exercise program. Also, always warm up for several minutes before beginning a workout and **NEVER** exercise beyond the level at which you feel comfortable. If at any time you feel you are exercising beyond your current fitness abilities, or feel discomfort, discontinue exercise immediately and reconsider your participation in this program.

The *Upper and Lower Body exercise program* provided in this publication should not be attempted by anyone who does not meet minimum fitness requirements, or who has a history of hip, knee, ankle, shoulder, elbow, wrist or spinal (neck or back) problems. **THIS WARNING IS NOT TO BE DISCOUNTED.** There are many other fitness alternatives if you have weaknesses, or are prone to injuries. The user assumes all risks of injury in the use of this program.

Lower Extremity

Strength & Conditioning Exercises

SL Balance

| Set | Time/Reps |
|-----|----------------------|
| 1 | 1-3 Minutes each leg |



- Stand with your feet shoulder-width apart, back straight and hands on your hip.
- Lift your right leg off the ground with your knee straight and toes pointed.
- With your raised right leg, trace capital letters of the alphabet (A to Z) making sure to maintain your balance. When done, change legs and repeat the exercise with your left leg.

For increased difficulty, progress to an unstable surface such as a Bosu® ball or mat (small photo at left.)

Calf Raise

| Sets | Time/Reps |
|------|-----------|
| 2-3 | 10 Reps |



- Begin standing at the edge of a step with your heels hanging off the edge. You may hold onto a stable object for support.
- Raise up onto the balls of your feet, then slowly lower your heels down off the edge of the step and repeat for 10 reps.
- Make sure to maintain your balance during the exercise. Keep your movements slow and controlled.

Lower Extremity

Strength & Conditioning Exercises

Hip Hinge/SL RDL

| Sets | Time/Reps |
|------|-----------|
| 2-3 | 10 Reps |



- Stand with feet shoulder-width apart. Keeping your back straight, stand on one leg and bend at the hips reaching down to the ground.
- Slowly raise up back to standing position, engaging your back and thigh muscles. Hold for 1-2 seconds. You may put your leg down for balance. Repeat 9 more times and change legs to complete one set.
- Make sure to keep abdominal tight during the exercise and have a small bend in your standing leg.
- To decrease difficulty, stand on both legs and hinge at the hips.
- To increase difficulty, grab a light weight to lower and raise as you perform the exercise.

Front Squat

| Sets | Time/Reps |
|------|-----------|
| 2-3 | 10 Reps |



- Stand with your back straight and your arms bent so your thumbs are resting on your shoulders and legs straight and shoulder-width apart.
- Bend your knees and squat, bending at the hips until your knees reach a 90 degree angle, then straighten your legs and repeat.
- Make sure to keep your back straight and do not let your knees bend forward past your toes.
- To help with balance, hold a table or railing.

Core Exercises

Optional

Plank

| Sets | Time/Reps |
|------|-------------------|
| 2-3 | 15-20 Second hold |



- On the floor, lay on your front with your legs straight, hands flat and arms bent at the elbows and in line with your shoulders.
- Engage your abdominal muscles and lift your hips and legs up into a plank position, keeping your elbows directly under your shoulders. Hold this position for 15-20 seconds, then lower back to the starting position.
- Make sure to keep your back straight and maintain a gentle chin tuck during the exercise.
- For increased difficulty, progress placing your feet on an exercise ball.

Side Plank

Do NOT do if you have an upper body injury

| Sets | Time/Reps |
|------|-------------------|
| 2-3 | 10-15 Second hold |



- Lay on your side with your forearm resting on the floor and your elbow directly under your shoulder, legs straight and feet stacked so your body is aligned. Place your top hand on your hip
- Engage your abdominal muscles and raise your hips up into a side plank position, keeping your feet stacked and on the ground. Hold this position for 10-15 seconds then return to the starting position. Complete 2-3 sets for both sides.
- Make sure to keep your core engaged during the exercise. Do not hold your breath or let your hips roll forward, backward, or drop towards the floor.
- To decrease the difficulty, perform half plank with bent knees on the floor. You will be propped up on your forearm and knees/ lower legs rather than your feet.

Core Exercises

Optional

Russian Twist

| Sets | Time/Reps |
|------|-----------|
| 2-3 | 10 Reps |



- Sit on the floor with your knees bent, holding a medicine ball with both hands.
- Lean back and lift your heels off the ground.
- Move the ball to one side of your body, rotating your trunk as you move the ball holding it briefly before moving the ball to your other side, then return to the start position and repeat.
- Make sure to keep your abdominals tight during the exercise and do not let your feet touch the ground.
- To modify the exercise, perform the exercise without the ball and hands together.

Reverse Crunch

| Sets | Time/Reps |
|------|-----------|
| 2-3 | 10 Reps |



- On the floor or a bench, lay on your back with knees bent, feet flat and your arms resting by your side.
- Engage your core muscles and slowly lift one foot off of the ground to a 90/90 position while the other remains on the ground.
- Hold for 2-3 seconds, then lower to the starting position. Then, raise the other leg. Repeat alternating legs for 10 repetitions to complete one set.

Keep Moving: Upper and Lower Body Exercises for Early Arthritis and Joint Replacement

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