

Exercise for Arthritis

***Decrease joint pain and stiffness,
improve flexibility and mobility,
and improve your overall wellness
through physical activity.***

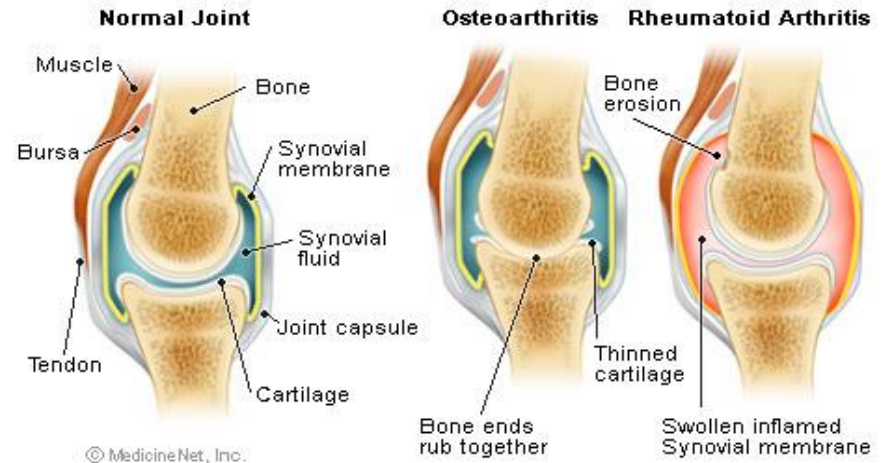
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What is Arthritis?

- “Joint Inflammation”
- While often referred to as if it were a single disease, arthritis is actually an umbrella term used for a group of more than 100 medical conditions.
- Although the most common form of arthritis - **osteoarthritis** (OA) - is most prevalent in people over 55, arthritis in its various forms can start as early as infancy.

The common thread among these 100-plus conditions is that they all affect the musculoskeletal system and specifically the joints - where two or more bones meet. Arthritis-related joint problems include :

- Pain
- Stiffness
- inflammation and damage to joint cartilage (the tough, smooth tissue that covers the ends of the bones, enabling them to glide against one another).



Normal and Arthritic Joints

Different forms of Arthritis- Juvenile

- **Juvenile Arthritis:** Juvenile arthritis (JA) is an umbrella term used to describe the many autoimmune and inflammatory conditions that can develop in children ages 16 and younger.
 - There is no known cause of JA, nor is there evidence to suggest that toxins, foods, or allergies can cause it.
 - **Treatment?** The goal of treatment for JA is to relieve inflammation, control pain, and improve your child's quality of life. Most treatment plans involve a combination of medication, physical activity, eye care and healthy eating.

Different forms of Arthritis- Rheumatoid

- **Rheumatoid Arthritis:** Rheumatoid arthritis (RA), the most crippling and second most common form of arthritis affects approximately 2.1 million Americans and two to three times more women than men. It is an autoimmune disease in which your body's immune system mistakenly attacks your joints. The abnormal immune response causes inflammation that can damage joints and organs, such as the heart.
 - **Symptoms:** The severity of the disease can vary from person to person, and differ day to day. Sudden increases in symptoms and illness are called flares. Symptoms include:

Rheumatoid Arthritis



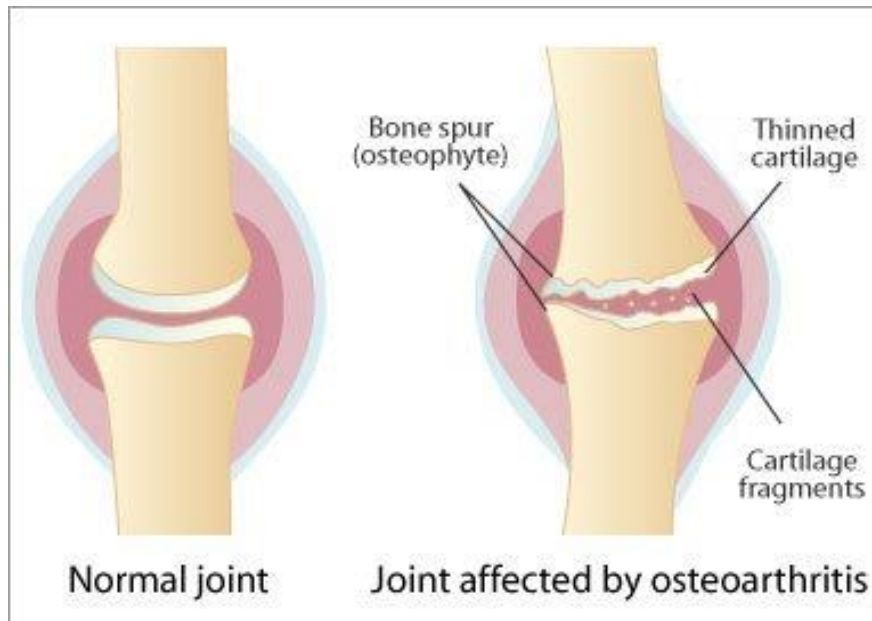
- Pain
- Fatigue
- Warm, swollen, reddish joints
- Long periods of joint stiffness in the morning are common
- Inflammation in the small joints of the wrist and hand is typical
- If a joint on one side of the body is affected, the same one on the other side is usually affected

- **What are the treatment options?** There is no cure for RA, but there are a number of medications available to help ease symptoms, reduce inflammation, and slow the progression of the disease. No one drug works for everyone but many people find treatments that are very effective. The goal of treatment is remission, a state when inflammation is gone or is very low. Self-management is an important part of rheumatoid arthritis care.

Staying physically active is the key to keeping joints flexible. Too little movement can lead to joint stiffness. Strong muscles protect joints. Overall fitness improves health in many ways. Managing your weight, eating a nutritious diet and getting a good balance of rest and activity each day are important, too.

Different forms of Arthritis- Osteoarthritis

- **Osteoarthritis:** Osteoarthritis is the most common forms of arthritis. It is a chronic condition, affecting age 55 and above, in which the material that cushions the joints, called cartilage, breaks down. This causes the bones to rub against each other, causing stiffness, pain and loss of joint movement. About 27 million people in America have osteoarthritis. Common risk factors include increasing age, obesity, previous joint injury, overuse of the joint, weak thigh muscles, and genetics.



- **Symptoms:** Osteoarthritis symptoms usually develop gradually. At first, there may be soreness or stiffness that seems more like a nuisance than a medical concern.
- Common symptoms include:
 - Sore or stiff joints – particularly the hips, knees, and lower back -- after inactivity or overuse
 - Stiffness after resting that goes away after movement
 - Pain that is worse after activity or toward the end of the day.
 - Osteoarthritis may also affect the neck, small finger joints, the base of the thumb, ankle, and big toe. The pain may be moderate and come and go, without affecting the ability to perform daily tasks. Some people's OA will never progress past this early stage. Others will have their OA get worse. The pain and stiffness of more severe osteoarthritis may make it difficult to walk, climb stairs, sleep, or perform other daily tasks.



- **What are the treatment options?** There is no cure for osteoarthritis, but there are medications to help relieve pain, when needed. The doctor may recommend physical therapy (PT) or occupational therapy (OT) to help improve strength and function. When pain is severe and frequent or mobility and daily activities become difficult, surgery may be considered.

*Staying physically active and maintaining a healthy weight are the keys to living well with osteoarthritis. Too little movement can lead to stiffness and weak joints. **Losing one pound can take four pounds of pressure off your knee joints.** Overall fitness improves health in many ways and strong muscles protect joints.*

An OA management plan also involves eating a nutritious diet, managing stress and depression, and getting a good balance of rest and activity each day.

Pain Prevention

There are many different ways to prevent arthritis from causing pain. While there is not one answer for everyone, using a combination of different therapies can help to prevent or diminish the effects of arthritis.

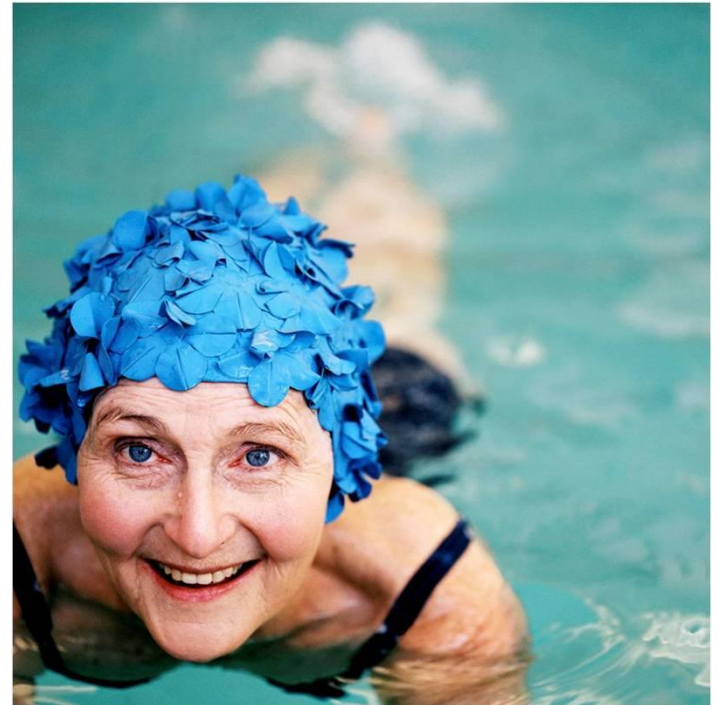
- **Physical Therapy.** Physical therapy is a rehabilitation program focusing largely on exercise to strengthen the muscles in your back. Your doctor may recommend physical therapy to strengthen a bad back, weak knees, painful hips, or a stiff shoulder, which can help prevent the recurrences of pain.
- **Massage therapy.** Massage therapy is one of the most widely used therapies for arthritis pain. Although there are many forms of massage, the type most people are familiar with is Swedish massage, a full-body treatment that involves stroking or kneading the top layers of muscles with oils or lotions. Other forms of massage include:
 - **Deep tissue massage,** in which the massage therapist uses fingers, thumbs and even elbows to put strong pressure on deep muscle or tissue layers to relieve chronic tension.
 - **Neuromuscular massage,** in which the therapist uses his or her fingers to apply pressure to certain spots that can trigger pain in other parts of the body.
 - **Myofascial release,** a type of massage that involves applying slow, steady pressure to relieve tension in the fascia, or thin tissue around the muscles.
- **Heat and Cold.** Using heat and cold treatments, easy relief methods you can do at home, can temporarily reduce stiffness. Cold packs can numb the painful area and reduce inflammation and swelling. They are especially good for pain caused by injuries. Heat on the other hand, relaxes muscles and stimulates blood circulation.

Classification of Functional Status

- Individuals with arthritis can be classified into four categories of functional capacity.
 - Class I: Completely able to perform usual activities of daily living, as well recreational activities.
 - Class II: Able to perform usual self-care and vocational activities, but limited in recreational activities.
 - Class III: Able to perform usual self-care activities, but limited in vocational and recreational activities.
 - Class IV: Limited in ability to perform usual self-care, vocational, and recreational activities.
 - Self-Care: dressing, bathing, grooming, etc.
 - Vocational: work, school, homemaking
 - Recreational: leisure

Why is exercise beneficial?

- Exercise is recommended for individuals with arthritis to help:
 - Preserve muscle strength and joint mobility
 - Improve functional capabilities
 - Relieve pain and stiffness
 - Prevent further deformities
 - Improve overall physical conditioning
 - Reestablish neuromuscular coordination
 - Mobilize stiff or contracted joints



Designing a Fitness Program for You

- **Not one program is best for each individual with arthritis.**
- Programs need to be carefully designed and based on the functional status of each individual.
 - Functional Class I should be able to perform most activities that a typical healthy person can do.
 - Functional Class II should stick to non-weight bearing activities, such as cycling, warm-water exercise, and walking.
 - Functional Class III should benefit from a cycling or warm-water aquatic program.
 - All exercise programs need to consider proper amounts of rest, immobilization of affected joints, and appropriate exercise to reduce the severity of the inflammatory joint disease.



Exercising Safely with Arthritis

- Before beginning any exercise program, talk it over with you physician.
- Start your exercise regimen with a goal to improve **flexibility**.
 - By focusing on flexibility, you reduce the risk of injury and loosen up stiff joints that have been affected by arthritis.
- Progress to **strengthening** exercises to improve muscular endurance.
 - Engage in resistance training 2-3 times per week, and make sure to give yourself a day of rest in between for muscle recovery.
- Once you've developed a flexibility and strength training routine, progress to **aerobic** activity.
 - Aim for participating in cardiovascular activity three to five time per week, starting slowly and progressing gradually.



Basic Exercise Guidelines for Arthritis

- Begin with frequent, low-intensity sessions.
- Reduce exercise intensity and duration during periods of inflammation or pain.
- Engage in longer warm-up and cool-down periods.
- Put all joints through their full range of motion at least once a day to maintain mobility.
- Give yourself a day of rest if you are experiencing pain after an exercise session.
- Make sure to maintain proper posture and body alignment at all times. Poor posture and decreased joint mobility and strength disrupt the performance of efficient, controlled, and integrated movement. Misaligned body positions and awkward movements affect walking gait and increase fatigue.

Flexibility Training

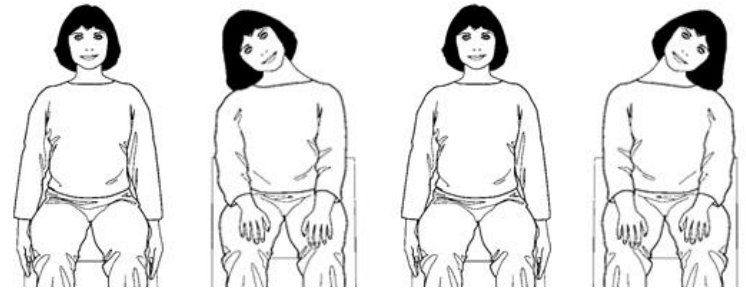
- Flexibility:
 - Stretching every major muscle group daily is important
 - Make sure to work muscles through their full range of motion once a day to keep joints lubricated
 - Engage in static stretching (no bouncing!), and hold each stretch for 30 seconds
 - Stretch your neck, shoulders, chest, back, arms, wrists, fingers, hips, upper and lower legs, ankles, feet and toes



Flexibility Training for the Neck

- **Head Tilt:**

- Sitting up straight, slowly tilt your head to the right, guiding your ear toward your shoulder
- Hold, and return it to center
- Do the same thing on the left side
- Repeat 10-15 times



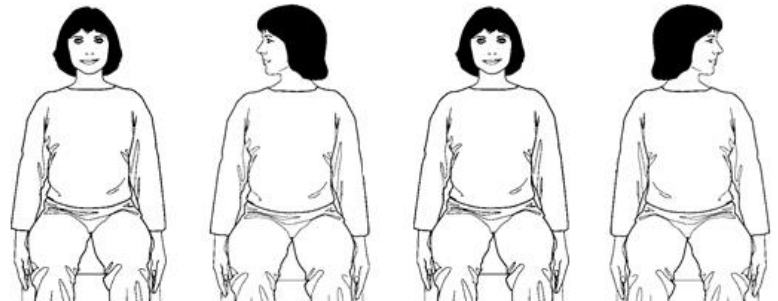
- **Head Extension:**

- Sitting up straight, slowly bring your chin toward your chest
- Hold and return to center
- Repeat 10-15 times



- **Head Rotation:**

- Sitting up straight, slowly turn your head as far as possible to the right, as if you're looking over your shoulder
- Slowly rotate to the opposite side
- Repeat 10-15 times



Flexibility Training for the Hands

- **Wrist extensor stretches**

- Hold one hand at chest level with the elbow bent.
- With the other hand, grasp the thumb side of the hand and bend your wrist downward.
- To increase the stretch, bend your wrist toward your little finger.
- Repeat the same exercise with a straight arm.
- Switch hands and repeat.



- **Wrist flexor stretches**

- Hold one hand at chest level with the elbow bent.
- Grasp the fingers of that hand with the other.
- Pull the hand back gently.
- Repeat the same exercise with a straight arm.
- Switch hands and repeat.



- **Resisted isometrics**

- These exercises work muscles against resistance. Hold each position for 10 seconds. Complete one set of 10 repetitions once or twice a day.

- **Isometric wrist extension**

- Hold one hand palm down on a table or other surface. Put your other hand on top of it.
 - Try to raise the lower hand, but don't allow it to move.
 - Switch hands a repeat.

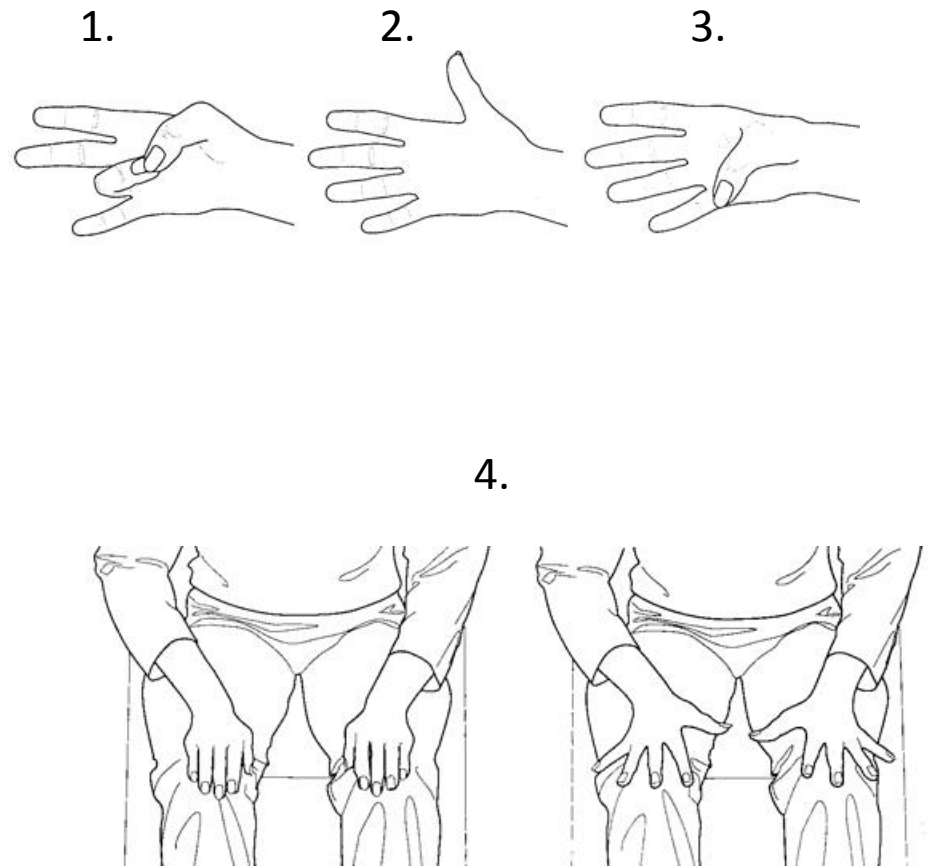
- **Isometric wrist flexion**

- Follow the same steps as above, but with your palm facing up.



Flexibility Training for the Fingers

1. Touch the thumb to the tip of each finger.
2. Bring your thumb across the palm of the hand to the base of the little finger and straighten.
3. Make circles with your thumb.
4. With the palms of your hand flat on your knees, spread the fingers apart, then bring them back together.

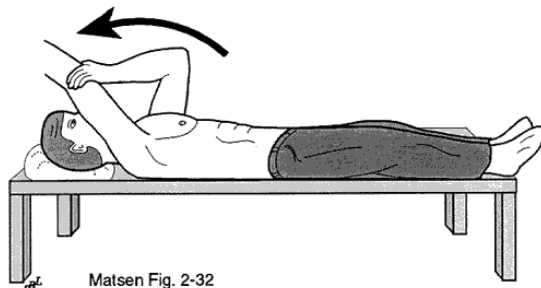


Flexibility Training for the Shoulders

- Stiff shoulders are usually uncomfortable, even if the degree of stiffness is not great. That's the bad news. The good news is that most stiff shoulders can be managed successfully by a simple exercise program conducted at home.
- Your opposite arm is a great therapist for your stiff shoulder. Your "therapist arm" is always available to apply a gentle stretch in any direction of tightness.

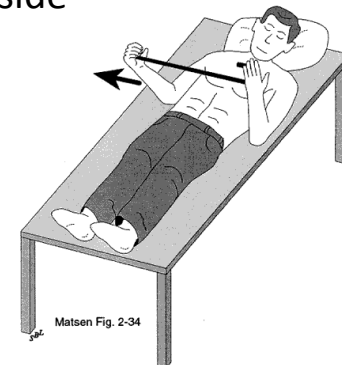
Extending Arm Overhead While Lying Down

- Lay down on a comfortable surface
- Gently extend the right arm up overhead
- Use your left arm to help lift the arm overhead
- Hold for 15-30 seconds and repeat on the other side



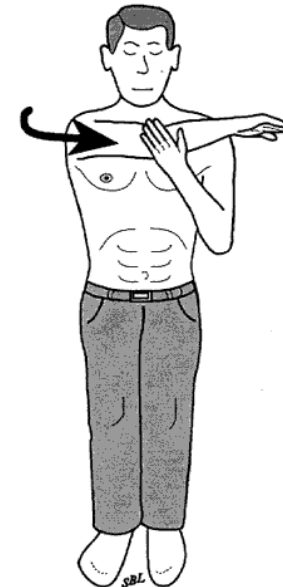
External Rotation of Arm

- Lay down on a comfortable surface
- Using a towel or band, gently rotate the arm to the side allowing it to rest on the surface
- Hold for 15-30 seconds and repeat on the other side



Extending the Arm Across the Body

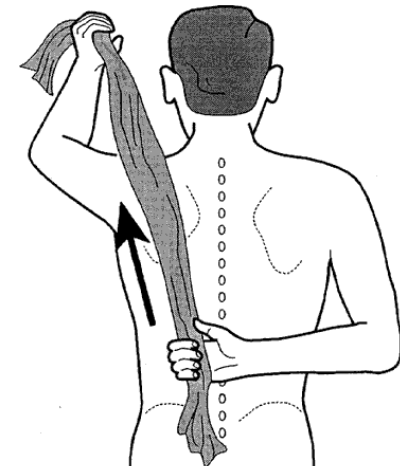
- Gently extend the right arm across the body
- Use your “therapist arm” to help support the extension
- Hold for 15-30 seconds and then repeat on the other side



Matsen Fig. 2-37

Extending the Arm Behind the Back

- Using a towel or band, gently extend the right arm up and bend at the elbow to reach behind the back
- Grab the towel or band with the left arm and hold for 15-30 seconds and then repeat on the other side
- Focus on maintaining good posture and not hyper-extending the back



Matsen Fig. 2-36

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Flexibility Training for the Back

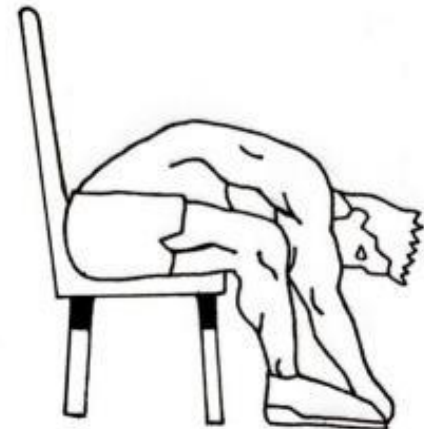
- **Upper Back Stretch**

- Interlace your fingers in front of your chest
- Then turn the palms upward above your head as you slowly straighten your arms
- It may be easier to arch the lower back slightly as the arms become nearly straight.
- Hold for 15-30 seconds



- **Lower Back Stretch**

- Sit on a strong, secure chair
- Lift your arms up in front of you
- Slowly bend down, curling your back
- You should reach for your feet
- If this is easy you can try positioning the feet further away at the start of the stretch. Take care if you have problems with your back. If in doubt, do not try this stretch.



Flexibility Training for the Hips

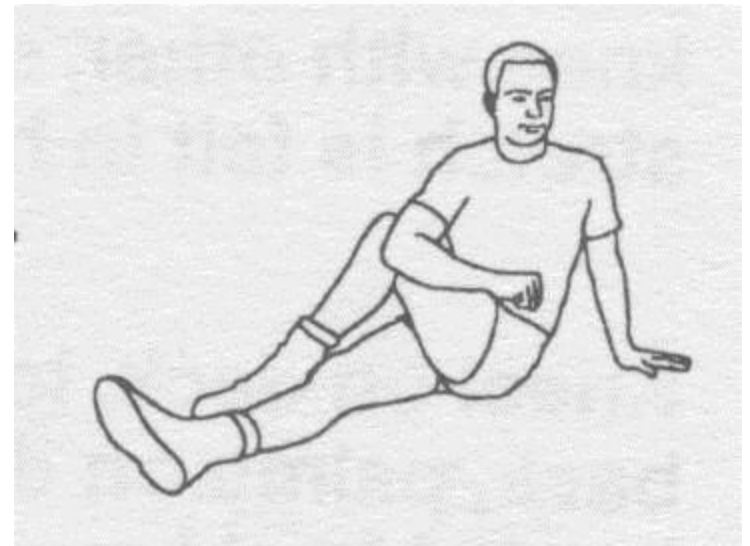
- **Seated Hip Stretch**

- Sit down in a strong, secure chair
- Cross the right leg over the left
- Gently lean forward into the stretch
- Hold for 15-30 seconds
- Repeat on the left side



- **Lying Down Hip Stretch**

- Sit down on a mat and extend the left leg out
- Cross the right leg over the left and place your right hand behind you
- Gently rotate looking over your right shoulder
- Hold for 15-30 seconds
- Repeat on the left side



Flexibility Training for the Knees

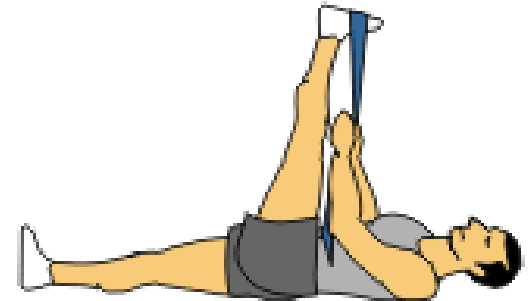
- **Seated Hamstrings Stretch**

- Sit down in a strong, secure chair
- Slide out to the edge of the seat
- Extend the right leg straight out
- Gently reach you right hand down to try and touch the toes
- Hold for 15-30 seconds and repeat on the left



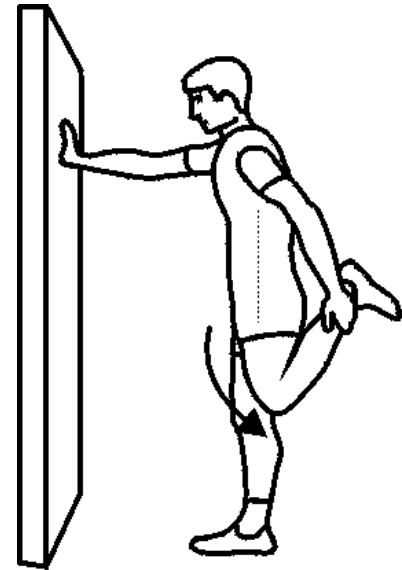
- **Lying Down Hamstrings Stretch**

- Lay down on a mat
- Using a towel or a band, wrap it around your right foot over the balls of the feet
- Extend you left leg out and lift the right let up trying to keep it as straight as possible
- Hold for 15-30 seconds and repeat on the left



- **Standing Quadriceps Stretch**

- Stand facing a wall
- Bend one knee grabbing the ankle or inside of the shoe
- Bring the heel to the buttocks
- Hold for 15-30 seconds and repeat on the other side



- **Lying Down Quadriceps Stretch**

- Lay down on one side
- Bend the top leg and hold ankle/foot
- Bring the heel to the buttocks
- Hold for 15-30 seconds and repeat on the other side



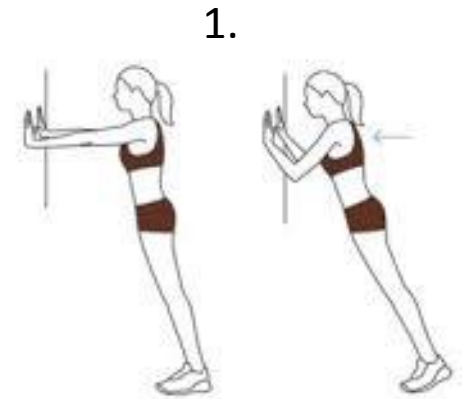
Strength Training

- **How long and how often?** Two or three weekly 20- to 30-minute weight-training sessions are sufficient to start reaping noticeable benefits within four to 12 weeks, such as improved energy and muscle tone. Give your body at least one recovery day between sessions.
- **How much weight?** Start with a pair of light dumbbell hand weights. If you can't do 12 repetitions, the weight is too heavy. If your muscles don't feel tired after 12 reps, it's too light. You can also use home or gym weight machines, or resistance bands.
- **How many exercises?** For general toning and strength, the American College of Rheumatology and American Council on Exercise recommend completing one to two sets of eight to 12 repetitions, working the muscle to the point of fatigue.
- **What kind of exercises?** Work all major muscle groups, starting with the larger muscles. Always include exercises for opposing muscles: for example, work the biceps and triceps of your arms, and the quadriceps and hamstrings of your thighs.
- **How to do it.** Lift slowly and smoothly, counting four counts up and four counts down. Avoid locking (fully straightening) knees or elbows, which stresses joints. Deliberately exhale when lifting, and inhale when lowering.

Strength Training for the Shoulders

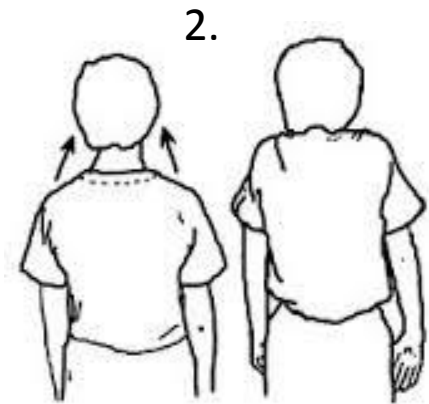
1. Standing Wall Push-ups:

- Stand 1-2 feet from the wall with hands directly under shoulders
- Inhale and lower yourself toward the wall by bending your elbows, keeping the body straight (hips down, core tight)
- Exhale and push the body back to starting position
- Complete one to two sets of 8-12 repetitions



2. Shoulder Shrugs:

- While maintaining good posture, let your hands rest down by your side
- Exhale and gently “shrug” the shoulders up towards the ears, using only the shoulders
- Inhale and slowly lower the shoulders back to starting position
- Complete one to two sets of 8-12 repetitions



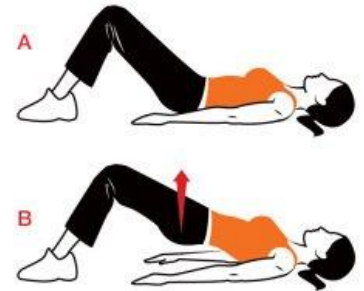
***Avoid:** lifting weights above your shoulders; some yoga poses, such as the Downward Facing Dog, that support weight on the hands, arms and shoulders.

Strength Training for the Back

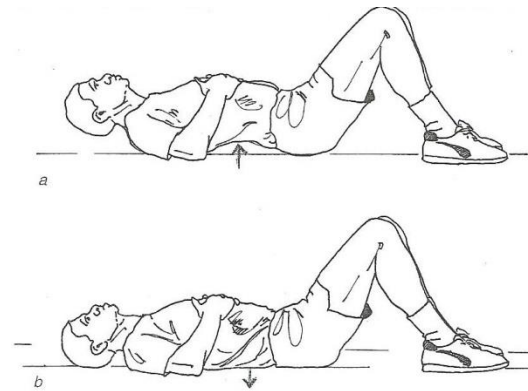
1. Glute Bridge:

- Lie down on your back and relax your head and shoulders
- Tighten your abdominal muscles and your glutes
- Raise your hips so that you form a straight line from your knees to your shoulders
- Hold this position for 5 seconds and then lower your back to the ground
- Complete one to two sets of 8-12 repetitions

1.



2.



2. Pelvic Tilt:

- Lying on your back, inhale and arch the back pushing your pubic bone into the floor
- Hold this for 3 seconds, then relax for 3 seconds
- Next, flatten your back and pull your belly toward the floor (and toward your spine)
- Hold for 3 seconds, then relax for 3 seconds
- Complete one to two sets of 8-12 repetitions

Strength Training for the Back

3. Bird Dog with Arm Elevation (or leg elevation):

- Start on your hands and knees (all fours)
- Position your trunk in one nice, long line (neutral spine)
- Begin by lifting one arm up, but keep your trunk steady. Place it back down again.
- When you're confident you can raise one arm without also moving your trunk, try it with a leg lift instead.
- After you've mastered the leg lift, try lifting one arm and the opposite leg simultaneously, again keeping your trunk stationary.
- Complete one to two sets of 8-12 repetitions

3.



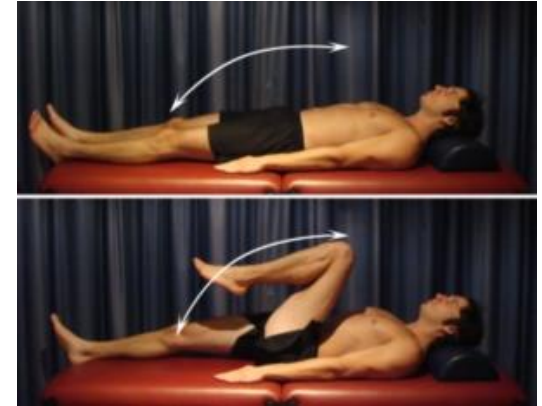
***Avoid:** high-impact activities that involve running and jumping; toe touches; straight-leg sit-ups; double leg lifts; lifting weights above your waist while standing.

Strength Training for the Hips

1. Hip Flexion:

- Begin this exercise lying on your back
- Slowly take your knee to your chest as far as you can go without pain, then lower back down
- Complete one to two sets of 8-12 repetitions

1.



2. Hip Abduction:

- Begin this exercise lying on your back
- Keeping your knee straight, take your leg to the side as far as you can go without pain then return to the starting position
- Keep your knee cap and toes facing the ceiling throughout the exercise.
- Complete one to two sets of 8-12 repetitions

2.



***Avoid:** Running; “abduction” exercises with weights, squats with heavy weights

Strength Training for the Knees

1. Leg Extension

- Sit up straight in a chair and maintain good posture
- Exhale and extend the leg straight out contracting the quadriceps and keeping the foot flexed
- Inhale and return the leg to the ground
- Complete one to two sets of 8-12 repetitions

A)



1.

B)



2. Leg Curl

- Stand up straight (or hold onto a wall or chair for support)
- Exhale and curl the leg towards the glutes contracting the hamstring
- Inhale and return the leg to the ground
- Complete one to two sets of 8-12 repetitions

2.



***Avoid:** Running; squats with heavy weights; high-impact exercise where both feet leave the ground at the same time, like jumping jacks or rope.

Aerobic/ Cardiovascular Training

- Aerobic/ Cardiovascular: Cardiovascular exercise programs reduce pain and morning stiffness and improve walking speed and balance. The best aerobic activity for arthritis is low-impact, such as water aerobics, stationary cycling, or lap swimming. It's also important to do some low-impact weight bearing exercise, like walking, using the elliptical, or dancing.
 - Depending on your current fitness level you may want to start with as little as two minutes of activity a few times per day and gradually work up to 30-minutes a few days per week.



Nutrition

Healthy eating habits and maintaining a healthy weight is extremely important for managing arthritic pain. Eating healthy is important because:

- You need to meet your daily needs for vitamins, minerals and other nutrients for overall health and vitality
- Gives you the energy you need for work and leisure activities
- Reduces your risk of other chronic conditions like type 2 diabetes, heart disease, certain types of cancer and osteoporosis



Maintaining a Healthy Weight

- Being overweight puts an extra burden on your weight-bearing joints (back, hips, knees, ankles and feet) when they are already damaged or under strain. Even a small weight loss can make a big difference to your joints.
 - For every pound of weight loss, the impact on your joints is reduced by 4 pounds!



General Nutritional Guidelines

- Choose nutrient-rich foods such as fruit and vegetables, whole grains, low fat dairy products, and lean sources of protein.
 - **Reduce fat intake:** Limit the amount of saturated and trans-fats, and include a small amount of unsaturated fats. Choosing the right types of fats can lower your risk of developing arthritis, decrease inflammation, and help to achieve a healthy body weight.
 - Guidelines to help you consume less fat:
 - Fill up on vegetables, fruits and whole grain breads and cereals that are naturally lower in fats
 - Eat fish and skinless poultry more often
 - Bake, broil and grill instead of frying foods
 - Pick low fat dairy products (skim milk, 1%, 2%, low fat yogurt, etc.)
 - Chose lean cuts of meat and trim off visible fat before cooking
 - Use oils and soft-tub margarines sparingly
 - Check the food labels and look for “hidden fats” you might consume

- **Eat more vegetables and fruit:** Vegetables and fruit should make up the largest component of your diet. Having at least one vegetable or fruit at every meal and as a snack will help you get the amount of vegetables and fruit you need each day. Fruits are loaded with antioxidants, which can help boost the immune system and may help maintain healthy cartilage.
 - Guidelines on eating vegetables and fruit:
 - Eat at least one dark green (broccoli, romaine lettuce, and spinach) and one orange (carrots, sweet potatoes, and winter squash) vegetable each day
 - Choose vegetables and fruits prepared with little or no added fat, sugar, or salt
 - Enjoy vegetables baked or steamed, instead of fried

- **Reduce sugar intake:** Sugar contains “empty” calories and has no other food value so it can be cut back without losing nutrients. There is little nutritional difference between white table sugar and brown sugar, honey, syrup, cane sugar, raw sugar or any other type of sugar.
 - Guidelines to help you consume less sugar:
 - Limit or avoid adding sugar to drinks and cereals
 - Although artificial sweeteners contain few calories, it is better to get used to food being less sweet
 - Dried fruit like raisins or dates can be used to sweeten cereals
 - Avoid soft drinks and sugary beverages

Current Research in Dietary Recommendations for Arthritis

- **Omega-3 fatty acids:** current evidence suggests that omega 3's are beneficial if you have inflammatory types of arthritis
 - Flax seeds, walnuts, salmon, soy beans, tofu, brussel sprouts, etc.
- **Antioxidants:** can help protect joints and reduce inflammation by neutralizing some of the body's chemicals that cause inflammations
 - Berries (blue, black, ras, straw), kidney beans, artichokes, apples, plums, pecans, etc.
- **Fruit and Vegetables with Vitamin C:** research shows that people who eat plenty of fresh fruits and vegetables have a lower risk of developing inflammatory arthritis
 - Peppers, guavas, kale, kiwi, broccoli, berries, citrus fruits, tomatoes, etc.

Questions?

Need More Information?

For more information on the different forms of arthritis, exercise routines, treatment, and diet and other questions visit www.arthritistoday.org

Sources

- Arthritis Foundation; <https://www.arthritis.org/>
- ACE Fitness; www.acefitness.org
- The Arthritis Society; www.arthritis.ca
- <http://www.weightlossforall.com/stretching-upper-body.htm>
- <http://www.orthop.washington.edu/?q=patient-care/articles/shoulder/home-exercises-for-the-stiff-shoulder.html>
- <http://www.health.harvard.edu/healthbeat/exercises-for-pain-free-hands>
- <http://mda.org/publications/everyday-life-als/chapter-9/stretching-exercises>