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- Safdarjung Hospital, New Delhi
- AIIMS, New Delhi
- The Rizzoli Orthopaedics Institute, Italy
- GELENKPUNKT FIFA Medical Centre of Excellence, Austria
- Western University, London, Ontario, Canada

Exercise for Healthy Aging

Introduction

As you get older, your body goes through a number of natural degenerative musculoskeletal processes that can be countered with exercises to invigorate your functionality, mobility, and overall health. Although it may be more difficult to engage in the same sports and training regimens as were possible in youthful days, there are many ways to keep fit. The bottom line is that you are never too old to exercise.

The Effects of Aging

As you age, your muscles, bones, and joints go through a number of changes that will lead to decreased mobility and functionality without a proper exercise regimen. These changes include:

Muscle

- Muscle shrinkage and loss of mass
- Decrease in number of muscle fibers
- Decrease in muscle size
- Decrease in water content around muscle tendon = increased stiffness
- Loss in ability of heart muscle to propel blood quickly to the body
- Decrease in metabolism

Bone

- Loss of bone tissue
- Decrease in mineral content of bone = increased fragility
- Risk of fracture
- Degeneration of cartilage = arthritis
- Decrease elasticity of ligaments and connective tissue = reduced flexibility

Joints

- Inflammation
- Arthritis
- Decreased elasticity and flexibility = loss of motion

Benefits of Exercise

Whether or not you suffer from the effects detailed above, it is never too early or too late to start exercising. Although it's best to exercise throughout your life, you can still counteract the effects of aging if you've had no prior exercise experience.

The benefits of a consistent exercise regimen go beyond musculoskeletal improvement. Your overall health stands to benefit from physical activity and can manifest itself in the following ways:

- Increased energy level



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- Improved self esteem
- Improved muscle tone
- Improved posture
- Enhanced cardiovascular health
- Decreased risk of falls
- Improved quality of sleep
- Deterred effects of chronic conditions such as:
 - Diabetes
 - High blood pressure
 - [Arthritis](#)
 - [Osteoporosis](#)

Types of exercise

There are four main types of exercise: flexibility, strength, balance, and endurance. Using a balanced combination of these methods, you will receive an all-encompassing workout that will benefit your entire musculoskeletal system.

If necessary, a gym trainer or physical therapist can design a program that's right for you. In any case, if you aren't familiar with the equipment you'll be using, always begin your training regimen under professional supervision.

Flexibility

No matter what kind of training you'll be engaging in, it's important to prepare your body for the workout it'll receive. You should always stretch before and after exercising, as it warms up and cools down the muscles, tendons, and ligaments, as well as the cardiovascular system.

Flexibility methods should target the following muscle groups:

- Neck and low back
- Shoulders
- Chest (pectoralis muscles)
- Calves
- Thighs (hamstrings/quadriceps)

How to start:

- Do each stretch 3-5 times
- Hold stretch for 10-30 seconds
- Move slowly into position
- DO NOT do jerky movements
- DO NOT bounce
- It should cause mild discomfort, but it should NEVER be painful

Endurance

Endurance training focuses on cardiovascular activities in which your body is in constant motion. Examples of endurance training include walking, jogging, biking, swimming, and other forms of aerobic activity, such as sessions on rowing and elliptical machines.



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The benefits of endurance exercise are far-reaching. Endurance and cardiovascular physical activity increases breathing and heart rate and improves stamina and energy, and it is a successful way to lose excess weight.

How to start:

- Build up time
- Start with 5 minutes or more
- Work up to 30 minutes
- Exercise at least 3-4 times a week
- Does not have to be vigorous activity
- You should be able to talk without much effort while doing your activity

Strength

Strength training, or weight-lifting (using either freeweights or machines such as Nautilus), is beneficial to the strength of your entire musculoskeletal system. The advantages of this type of exercise include increased muscle mass and accelerated metabolism as well as the maintenance of weight and blood sugar levels. Perhaps equally important is its ability to aid in the prevention of osteoporosis.

Strength training should target the following muscle areas:

- Upper back/Shoulders
- Biceps/Triceps (upper arm)
- Abdominals and low back (trunk or core) muscles
- Hip muscles
- Quadriceps/Hamstrings (thighs)
- Calf muscles

How to start:

- Train at least twice a week
- Target all major muscle groups
- Alternate days
- Start with light weight (1-2 lbs) or no weight
- Gradually build up your weight to “challenge” your muscles
- Lift 1-2 sets of 8-12 repetitions with moderate effort
- Lift weight for 3-5 seconds, hold for 3 seconds, then slowly lower weight in 3-5 seconds

Balance

Balance training aids your muscles and how they react to each other, helping to prevent instability and falls. Strength and balance go hand in hand.

How to start:

- Progression of standing leg exercises
 - Begin by holding onto object for balance
 - Hold on with one hand
 - Try holding a position without holding on
 - Alternate with eyes open vs. eyes closed



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Even after you've mastered this exercise, you should practice within an arm's reach of a solid object (such as a stable chair or a table) that you can hold onto should you begin to feel unsteady.

Motivation

In order to motivate yourself to keep your exercise regimen going, you should make an effort to keep it interesting and enjoyable. Most people starting an exercise program will tell you that exercise feels great, but for many people, it's very hard to stay motivated and be consistent.

Tips:

- Include activities that you enjoy
- Maintain the ability to fit exercise into your schedule
- Keep records and note your progress:
 - What kinds of exercise
 - How many repetitions or amount of time
 - How much weight used, if any
- Choose realistic goals
- Recruit an exercise buddy
- Ask for help from a professional at any time if unsure

Safety Tips

At all times, the most important thing is to stay safe. Safe exercise habits are vital to an injury-free regimen of physical activity. Using a few helpful – and easy - guidelines, you'll find yourself feeling better, looking better, and exercising healthier.

How to exercise safely:

- DO NOT hold your breath while doing exercise
- Use smooth, steady movements
- Avoid locking joints at extremes of motion
- Should not cause pain
 - May have soreness when starting out, but it should subside
- STOP if you feel dizzy or short of breath, or if you experience nausea or chest pain. If you do experience these symptoms, CONTACT at KNEECARES.

Conclusion

Although the body begins to lose functionality and mobility in later years due to loss of muscle mass and degenerative agents in the bones and joints, these effects can be aided and counteracted by a healthy – and safe – exercise regimen. There are many ways to enjoy physical activity, and if done the right way, you'll be able to experience the benefits for years to come.



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