

Action Against Arthritis



Dr. Marcia Lee
Dow Chemical
Health Services
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Today's Session

- **Learn about**
 - **Disease Facts**
 - **Risks**
 - **Symptoms and Treatment**
- **Understand how to reduce the impact**
- **Learn about helpful resources**

A Common Condition

- ❑ Arthritis and chronic joint disease affected 46 Million persons in the US in 2006
- ❑ Arthritis and musculoskeletal disorders are the leading cause of disability in persons 18-65 years old.
- ❑ Age is a major risk factor ; prevalence increases with age with more than 60% of those 65 years and older being affected

Common Types of Arthritis

- ❑ **Osteoarthritis** – affects 27 million Americans
- ❑ **Crystal-induced joint disease (Gout)**- affects 2-3 million Americans
- ❑ **Rheumatoid Arthritis** – affects 1.3 million Americans

Most common type of arthritis is

Osteoarthritis

The most common cause of disability in older people in the U.S.

Osteoarthritis

□ What is it?

- gradual loss of cartilage overlying the bone in the joint space
- Gradual growth of bone in the joint space
- Gradual loosening of the ligaments that hold the bones together
- Gradual weakening of the muscles around the joint
- Most commonly affects the knees, hips, neck, lower back, the joint at the base of the thumb and the small joints of the fingers

Risk Factors for Osteoarthritis (OA)

□ Who is at Risk?

- **Age**- affects 50% by age 65 and 85% at age 75 and older
- **Gender** – women > men
 - onset is at a younger age in women (40) vs. men (50)
- **Inheritance** – family history of osteoarthritis



Risk Factors for Osteoarthritis

□ Who is at Risk?

- **History of Trauma**- fractures, dislocations
- **Joint laxity** – hypermobility of joints
- **Joint misalignment** (bow legged or knock kneed)
- **Heavy physical activity**- carrying heavy objects, competitive sports
- **Reduced joint proprioception** (sense of joint position and movement)- age, diabetes, strokes

Risk Factors... (cont.)

□ Who is at Risk?

- **Inactivity** – muscle weakness
- **Obesity** – increased body fat (single most important modifiable risk factor for knee OA)
- **Muscle weakness**- especially quadriceps muscle

Symptoms of Osteoarthritis

- ❑ Joint pain
- ❑ Joint stiffness after inactivity
- ❑ Joint swelling
- ❑ Joint instability or laxity
- ❑ Decreased joint range of motion
- ❑ Bony enlargement of the joint
- ❑ Intermittent pain may become constant

Treatment and prevention of progression of Osteoarthritis

- Patient education
- **Exercise**-strengthening, balance, range of motion
- Weight Loss or maintain normal weight-
- Adequate calcium, vitamin D and C
- Well cushioned shoes/laterally wedged insoles
- Splints or braces for specific joints
- Canes for assistance in walking

Treatment of Osteoarthritis

- Oral Medications - acetaminophen, NSAID*, tramadol
- Topical Medications- capsaicin or ketoprofen gel
- Corticosteroid injections – for acute pain and inflammation
- Hyaluronic acid injections- to decrease pain
- Surgery- joint replacement
- Acupuncture

****NSAID - Non-Steroidal Anti-Inflammatory Drug***

Crystal-induced joint disease

□ **Gout**

□ **What is it?**

- Deposition of monosodium urate crystals (uric acid) in the joint lining or joint fluid or tendon sheaths
- Intermittent attacks-next attack may be several years later or may never occur (78% within 2 years/ 93% in 10 years with out treatment)
- After second attack, if uric acid levels are not reduced, intervals between attacks become shorter and involve more joints
- Chronic joint inflammation and disability may occur after 10-20 years and skin nodules called "tophi" appear

Gout

□ **Who is at risk?**

- Those with high uric acid levels in their blood
 - Greater than 9mg/dL have a cumulative incidence over 5 years of 22%
 - Inherited factors- 90% don't excrete enough in their urine/ 10% produce too much
 - Medications- diuretics (water pills); low dose aspirin; cyclosporine; urate lowering medications
- Middle-aged men
- Post menopausal women

Gout

□ **Who is at risk?**

- Those with diseases that affect the kidneys-
hypertension and diabetes
- High intake of alcoholic beverages especially
beer
- After a joint injury
- Surgical or medical illness stressors
- Fasting and Dehydration
- Long term overexposure to Lead
- Lower body temperatures in the extremities

Gout

□ Symptoms

- Sudden onset of pain and swelling in a single joint usually in the lower extremities
- 50% of first attacks affect the joint at the base of the great toe.
- After first attack symptoms resolve with out treatment in two weeks or less, more quickly with treatment
- Subsequent attacks involve more joints including the upper extremities

Treatment of Gout

- Patient education
- **Exercise when not painful**
- Medications during acute stage- NSAIDs, colchicine, corticosteroids
- Medications for prevention of attacks- colchicine, probenecid, allopurinol
- Diet - purine restriction (organ meats/seafood), reducing alcohol intake, saturated fats
- Attain/maintain normal weight

Crystal-induced joint disease, cont.

□ **Pseudogout**

- Deposition of calcium pyrophosphate dihydrate crystals in and around the joints
- Calcification of cartilage in the joint
- Average age of onset 70
- Effects men and women equally
- Sudden onset of pain and swelling in a single joint (50% knee, wrist, ankle)

Treatment of Pseudogout

- Patient education
- **Exercise** when not in painful episode
- Weight loss or maintain normal weight
- Assistive devices- cane, splints
- Medications for pain relief: NSAID*s, corticosteroid, low dose colchicine
- Corticosteroid injections
- Surgery – joint replacement, fusion, debridement

***NSAID - Non-Steroidal Anti-Inflammatory Drug**

Rheumatoid Arthritis (RA)

□ **What is it?**

- Inflammation of the synovium or lining of the joint- may affect any joint but usually not the spine- often symmetrical joints
- Can affect other organs in the body not just the joints (skin nodules, lungs, eyes, blood)

□ **Who is at risk?**

- Onset usually between 30-50 years of age but may occur in childhood
- Women -70% of people with rheumatoid arthritis
- Inherited predisposition

Rheumatoid Arthritis

□ Symptoms

- Most commonly affects the small joints of the hands and feet initially
- Usually gradual progressive joint involvement
- Prominent morning joint stiffness longer than 30 min
- Joint pain and swelling
- Symmetrical joint involvement
- 10% progressive/unremitting; 75% waxes and wanes over years; 15% complete remissions

Treatment of Rheumatoid Arthritis

- Patient Education
- **Physical therapy or exercise**
- Medications-
 - NSAIDs*
 - Corticosteroids or prednisone
 - Disease modifying antirheumatic drugs- (DMARDs) methotrexate
 - Biologic response modifiers- anti TNF alpha therapy
- Surgery- to relieve intractable pain and restore function

***NSAID - Non-Steroidal Anti-Inflammatory Drug**

Exercise

- ❑ **Recommended for the treatment of all types of arthritis**
- ❑ **Recommended for the prevention of osteoarthritis**

Why a person with arthritis might be afraid to exercise...

□ They fear it

- will make my arthritis worse
- will make the pain in my joints worse
- will do damage to my joints



Why a person with arthritis should exercise...

Exercise

- ❑ does not produce or exacerbate joint symptoms
- ❑ reduces pain in joints
- ❑ reduces joint stiffness
- ❑ reduces disability
- ❑ increases joint range of motion
- ❑ improves flexibility
- ❑ increases joint stability

Why a person with arthritis should exercise... (cont.)

- may prevent knee osteoarthritis
- strengthens muscles supporting joints
- improves body composition
 - Decreasing body fat
 - Increasing lean muscle mass
- improves balance to help reduce risk of falling and improves proprioception

Exercise Assessment

- ❑ Arthritis related factors- joint pain, joint stability, joint range of motion, muscle weakness
- ❑ Assessment for health problems that may be exacerbated by exercise - evaluation for significant cardiovascular diseases

Contraindications to exercise



Significant Cardiovascular Diseases

- Uncontrolled arrhythmias
- Third degree heart block
- Recent EKG changes
- Unstable angina
- Recent heart attack
- Congestive heart failure

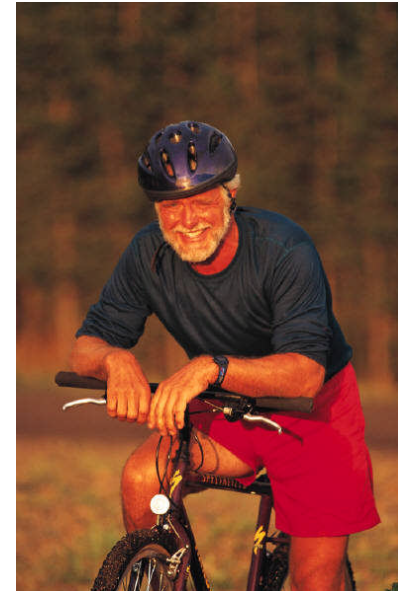
**Absolute
Contraindications**

Relative contraindications

- Cardiomyopathy
- Valvular heart disease
- Poorly controlled blood pressure
- Uncontrolled metabolic disease (thyroid disease, diabetes mellitus)

Exercise Prescription

- Flexibility (range of motion and stretching exercises)
- Strength (resistance exercises)
- Endurance (aerobic exercises)
 - Frequency
 - Duration or volume
 - Intensity
 - Progression



General Exercise Guidelines

- ❑ Start slowly
- ❑ Gradually increase frequency, duration and intensity of activity
- ❑ Variety of activities
- ❑ Reduce activity when joints are inflamed but continue with some activity

Precautions

- Signs of excessive activity
 - Joint pain during the activity
 - Joint pain lasting up to 1-2 hours after activity
 - Joint swelling after activity
 - Fatigue
 - Weakness
- Listen to your body
- Adjust exercise routine
- Keep moving – avoid complete inactivity

Resources

Health Services

- Information on Fitness Facilities and/or fitness consult

Community

- Community resources

Internet

- Arthritis Foundation – www.arthritis.org
- American College of Sports Medicine- www.acsm.org
- National Institute of Arthritis and Musculoskeletal and Skin Diseases – www.niams.nih.gov

Questions?
Email: LSoosebee@dow.com
Phone: 281-966-2839





Flexibility

□ Range of Motion and Stretching

□ Why?

- improves joint range of motion
- Improves joint function
- Reduces risk of injury during physical activities
- Decreases stiffness

□ How

- Initially
 - Daily
 - 1 stretch per muscle group hold for 5-15 seconds
- Goal
 - 3-5 times per week
 - 3-5 stretches per muscle group hold for 20-30 seconds
- To the point of sensation of resistance but NOT pain

Appendix

Major Muscle Groups Targeted for Stretching and Strengthening Exercise

- Head, neck
- Shoulders
- Elbows
- Forearms, wrist
- Hand
- Trunk, low back
- Hips
- Knees
- Ankles, feet

General Principles for Flexibility Exercises

- ❑ Exercise daily when pain and stiffness are minimal
- ❑ Exercises may be preceded by a warm shower or moist heat
- ❑ Relax before starting
- ❑ Perform movements slowly gradually increasing range of motion
- ❑ Modify exercises to avoid pain and during flares of joint pain (decrease extent and duration)

Strengthening

□ Why?

- Quadriceps weakness is a risk factor for knee OA
- Improved muscle support of the joint
- Improved muscle function
- Decreases disability
- Decreases joint pain
- Improved body composition

How

Isometric exercises- involves major muscle groups (muscle force unable to overcome external resistance)

- for inflamed or unstable joints
 - Does not move the joint or lengthen the muscle
 - Improves muscle strength
- Contraction of the muscle around the joint
 - Low intensity
 - Held for only 6 seconds

Isometric exercises

Frequency

- Initially
 - twice daily
 - one contraction per major muscle group
- Goal
 - up to 5-10X/day
 - 8-10 contractions per major muscle group

Strengthening

Isotonic exercises (variable joint speed exerted against a constant resistance)

- Moves the joint and lengthens the muscle
- Involve 8-10 exercises of major muscle groups

- Frequency – 2-3 X/week

- Repetitions – depends on the intensity or resistance
 - Initially one set of 4-6 repetitions
 - Gradually increase to 8-15 repetitions if staying at the same resistance
 - If resistance increases then repetitions decrease

General Principles of Strengthening

- ❑ Do not exercise muscles to fatigue
- ❑ Goal is Submaximal resistance
- ❑ Only Isometric exercises for inflamed joints



Aerobic exercise

Why?

- Improves muscle function
- Improves heart and lung function
- Weight control
- Improves mood and sleep patterns
- Improves body composition- reduces body fat
- Improves balance

How

- Start at current level of activity or fitness
- Maybe as little as 2-10 minutes 3X/day
- Gradually increase to 20-30 minutes 3-5X/week

General Principles for Aerobic Exercise

Low to moderate intensity

- ❑ Use the Talk Test to determine level of intensity
- ❑ Should be able to converse comfortably during the exercise without becoming short of breath

If older, best choices are a variety of low impact activities

- Bicycling
- Swimming
- Water aerobics or aquatic exercises
- Walking
- Tai Chi
- Elliptical trainers
- Dancing

Tendonitis

Pain in or near a joint

- Inflammation of the tendon – attaches the muscle to the bone
- Commonly elbows, shoulders, wrists, posterior heel area
- Risk increases with age

Prevention of Tendonitis

- ❑ Do a variety of activities
- ❑ Warm up before activity
- ❑ Regularly perform stretching exercises
- ❑ Use proper technique –consult with fitness specialist
- ❑ Prepare your muscles with strengthening exercises
- ❑ Cool down after activity

Frequently Asked Questions

- **Cardiovascular risks with NSAIDs***
 - All NSAIDs may have some risk
 - Principle use the lowest dose for the shortest amount of time
- **Acetaminophen is preferred for pain relief**

****NSAID - Non-Steroidal Anti-Inflammatory Drug***

Frequently Asked Questions

- ❑ Glucosamine (amino sugar plays role in formation and repair of cartilage) and Chondroitin (protein gives cartilage elasticity)
 - effect equal to placebo
 - some contraindications
 - ❑ Shellfish allergies (glucosamine)
 - ❑ Blood thinner medications (chondroitin)
 - Lack of standardization of available preparations
 - Variable doses recommended
 - Side effects – increased intestinal gas and softened stools

Spondyloarthropathies

□ What is it?

- A group of inflammatory diseases that primarily affects the spine, the sacroiliac joints, and a few peripheral joints
- Also may involve inflammation of ligaments and tendons (enthesitis)
- May involve the eye, skin, heart, or gastrointestinal tract
- Onset usually in young adulthood
- Strong inherited predisposition

Ankylosising Spondylitis

- Primarily affects the spine and large joints (hips and shoulders)
 - Low back pain and stiffness longer than 3 months
 - Worse with inactivity/ relieved with activity
 - Primarily affects lower extremities (heel pain)
 - Asymmetrical
- Inherited predisposition
- More common in men - onset age 20-30 years
- May affect other organs - eyes, heart, lungs

Reactive Arthritis

- 10-30 days after a bacterial infection (gastrointestinal or genitourinary)
- Usually a single joint, asymmetrical, in lower extremities (knees, ankles, feet)
- Often associated with low back pain
- Associated with skin rashes
- Painful swelling of joint and local tendonitis
- Inherited predisposition
- More common in men

Psoriatic Arthritis

- Affects 5-7% of those with the skin disease of psoriasis
- Inherited predisposition
- Affects women slightly more than men
- Onset early to mid-adulthood
- Most commonly asymmetrical involvement of large and small joints
- Often distal small joints of the hands

Enteropathic Arthritis

- Affects 20% of patients with inflammatory bowel diseases- ulcerative colitis and Crohn's disease
 - Symmetrical joint involvement peripheral joints
 - Joint symptoms improved with treatment of underlying inflammatory bowel disease

Treatment of Spondyloarthropathies

- Patient education
- **Exercise**
- Medications- NSAIDs*, corticosteroids, DMARDs*, Biologic response modifiers (anti-TNF alpha therapy)
- Medications appropriate to treat inflammatory bowel disease

**NSAID - Non-Steroidal Anti-Inflammatory Drug*

**DMARD - Disease-Modifying Antirheumatic Drug*

Treatment of the most types of Arthritis

- Patient Education
- Non-drug treatments (physical therapy, occupational therapy, weight loss, dietary measures, braces, orthotics)
- Exercise
- Medications
- Surgery



Exercise Stress Test

- ❑ For patients with significant risk factors for coronary artery disease
- ❑ For older patients prior to starting a vigorous or high intensity physical activity
- ❑ Patients without significant risk factors can generally start a low to moderate intensity exercise program without an exercise stress test