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Aging, Physical Activity and Arthritis Part 1

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Aging, Physical Activity and Arthritis

Living a Quality Lifestyle with Osteoarthritis, through Active Living

Taryn-Lise Taylor, Catherine E. Casey, Edward Todd Taylor and Albert W. Taylor

Presented by : AW Taylor



Presentation Overview

- What is Arthritis?
- 5 Major Types of Arthritis
- In-Depth Look at Osteoarthritis
- Medical Management of OA
- Healthy Aging with Arthritis through P.A.





Arthritis

- Group of disorders affecting components of the musculoskeletal system
- Term meaning inflammation of the joint
- More than 100 different conditions
- Influenced by genetic factors





Arthritis

Affects men and women equally however it affects them differently

Men	•	Hips, wrists, and spines
Women	•	Hands, knees, ankles, and feet Experience symptoms in more than one joint





Risk Factors

Along with natural aging

- Excess weight
- Injury and complications from diseases
- Genetic/Heredity
- Immune system abnormalities
- Lack of physical activity





Major Types of Arthritis

- Osteoarthritis (OA) → most common
- 2. Rheumatoid Arthritis (RA)
- Systemic Lupus Erythematosus (SLE)
- 4. Ankylosing Spondylitis (AS)
- 5. Gout



Rheumatoid Arthritis





Rheumatoid Arthritis

- Body's immune system attacking the body joints
- Leads to pain and inflammation and joint damage
- 1% of Canadian adults







Systemic Lupus Erythematosus

- Connective tissue disorder causing skin rashes, joint and muscle swelling and pain
- Affects 0.05% of adults
- 10x more likely in women







Ankylosing Spondylitis

- Inflammatory arthritis of spine
- Causing pain and stiffness in the back and bent posture
- Affects 1% of Canadian adults
- Exercise is cornerstone of AS management





Gout

- Caused by too much uric acid in the body
- Most often affects the big toe
- 3% of Canadian adults
- 4x more likely in men







Visits to Physicians

Condition	Persons per 1,000 Population	Sex Ratio (Women: Men)	Estimated Total Visits	Average Visits per Person
Arthritis & Other Related Conditions	162.7	1.3:1	8,800,000	2.3
OA	40.7	1.6:1	2,000,000	2.1
RA	7.4	2.4:1	540,000	3.1
SLE	1.9	3.1:1	110.000	2.5
AS	1.1	1:1	40,000	1.8
Gout	5.2	0.3:1	200,000	1.6





Osteoarthritis

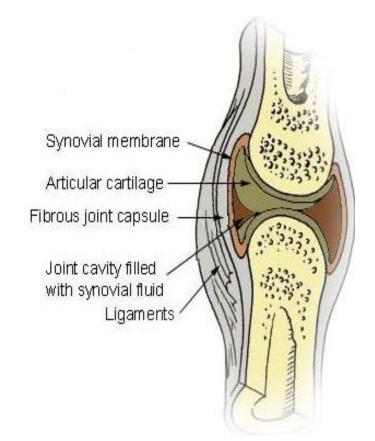
- Affects 10% of Canadian adults
- General wearing down of cartilage leading to joint damage, pain and stiffness
- Treatments exist to decrease pain and improve joint mobility





Osteoarthritis

- Joint: where two bones meet
- Articular cartilage: acts as protective cushion and allows smooth movement of bones
- Synovial membrane: produces fluid to nourish the cartilage







Osteoarthritis

- Articular Cartilage
 - Becomes rough and fragmented
 - Leads to sclerosis and narrow joint space
- Synovial Membrane
 - Becomes inflamed and thickened
 - Lead to osteophytes which leads to wearing away of cartilage

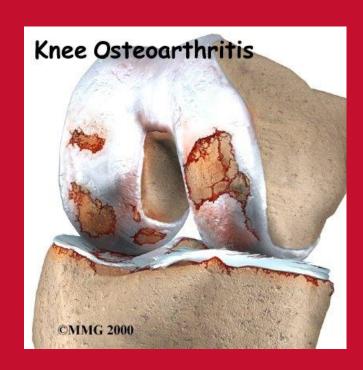




Osteoarthritis

Joints affected:

- End/Middle joints of fingers
- Joint at base of the thumb
- Hips
- Knees
- Joints at base of the big toe
- Neck (cervical spine)
- Low back (lumbar spine)







Types of Osteoarthritis

Primary OA

- Wear and tear aspect of the disease
- Intrinsic defect, excessive weight, occupational overuse

Secondary OA

- Defects in joint structure
- Disease/inflammation





Osteoarthritis Symptoms

- Aching/ throbbing pain
- Varied pain correlation with weather and atmospheric pressure
- Pain and discomfort gets worse as the day progresses
- Pain is usually relieved with rest





Osteoarthritis Symptoms

- Movement of joints can sometimes cause a creaking sound
- Stiffness and pain results in joints being used less and surrounding muscles being weakened
- Problems with gait lead to sedentary lifestyle
- Diagnosed by x-rays





Medical Management of OA

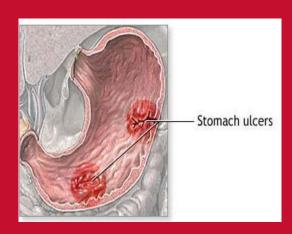
- Acetaminophen (Tylenol)
 - First choice for treating OA
 - Max dose 4000mg
 - No Anti-Inflammatory effects
- Ibuprofen and ASA (Aspirin)
 - Analgesic and Anti –inflammatory
 - Max dose 800mg daily





Medical Management of OA

- Non-Steroidal Anti-Inflammatory Drugs (NSAIDS)
 - ↓ pain, swelling of joints, stiffness
 - They do not prevent further joint damage
 - Taken on an as needed basis
 - Have some serious side effects







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Medical Management of OA

- COX-2 selective inhibitors (COXIBs)
 - Target enzyme causing inflammation and pain
 - Custom designed to reduce risks of NSAIDS
- Topical Medications
 - Over-the counter creams and rubs
 - Active ingredient to relieve pain (NSAIDS)
 - Less side effects than when taken orally





Medical Management of OA

- Narcotic Analgesics
 - Powerful medication to enhance pain control
 - After 3 months, may ↓ joint pain and stiffness and ↑ overall function
- Hyaluronan Injections (Viscosupplementation)
 - Aids synovial fluid in regaining ability to lubricate joint cartilage and allow joint to absorb mechanical shock





Medical Management of OA

- Corticosteroid Injections
 - Injected into affected area to provide instant relief
 - Limit frequency to 3-4 times/year for each joint
 - Can damage the cartilage and weaken the bone resulting in further joint problems







Medical Management of OA

Complementary Therapy

- Glucosamine & Chondroitin
 - Components of articular cartilage
- Surgery
 - Arthroscopy
 - Osteotomy
 - Total joint replacement/ Arthroplasty





Teamwork Approach

- HCPs not adequately prepared to design & prescribe exercise programs
- Emergence of team concept
- Goal: alleviate concerns of patients (e.g RA stats)





Benefits of Physical Activity

Increase	Decrease
Body composition	Falls
Strength	Functional dependency
Longevity	Arthritis Pain
Physiologic reserve	Risk for diabetes
	Risk for coronary arteries





Exercise Program

- Goals
 - † range of motion by normalizing gait
 - † muscle strength around affected joints
 - ↑ QOL by being able to perform ADLs
 - ↓ pain
- Not possible to prevent onset but can change factors that can be partially controlled
- Should cater to individual needs





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General Principles for the treatment of Osteoarthritis

- 1. Both strengthening and aerobic exercise can reduce pain and improve function and health status in patients with knee and hip osteoarthritis.
- 2. There are few contraindications to the prescription of strengthening or aerobic exercise in patients with hip or knee osteoarthritis.
- 3. Prescription of both general (aerobic fitness training) and local (strengthening) exercises is an essential, core aspect of management for every patient with hip or knee osteoarthritis.





General Principles for the treatment of Osteoarthritis

- 4. Exercise therapy for osteoarthritis of the hip and knee should be individualized and patient-centered taking into account factors such as age, co-morbidity and overall mobility.
- 5. To be effective, exercise programs should include advice with education to promote a positive lifestyle change with an increase in physical activity.
- 6. Group exercise and home exercise are equally effective and patient preference should be considered.





General Principles for the treatment of Osteoarthritis

- Adherence is the principle predictor of long-term outcome from exercise in patients with knee or hip osteoarthritis.
- 8. Strategies to improve and maintain adherence should be adopted, e.g. long-term monitoring/review and inclusion of spouse/family in exercise.
- 9. The effectiveness of exercise is independent of the presence or severity of radiographic findings





General Principles for the treatment of Osteoarthritis

10. Improvements in muscle strength and proprioception gained from exercise programs may reduce the progression of hip and knee OA.

NB. It should be noted that the above recommendations are based on both rigorous scientific research and expert opinion (Roddy et al, 2005 #17 68-70)





Physical Activity Prescription

- Primary prevention is key
- OA not necessarily part of the aging process
- Risk factors: obesity, muscle weakness, joint injury, occupational stress







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Physical Activity Prescription

Obesity

Healthy body weight is key

Muscle Weakness

Muscular strengthening is a strong preventer

Joint Injury

Acute injuries are risk factors

Occupational Stresses

Those requiring kneeling and squatting will ↑ risk





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Physical Activity Prescription

"Failure to recommend exercise to our patients is a professional negligence" – Hurley

The entire lower kinetic chain should be examined to better determine the underlying biomechanical mechanisms that may be contributing to the presence of particular symptoms

Analogy: a car's steering alignment





Physical Activity Prescription

Aerobic/Strengthening Exercises

- ↓ ADL disability
- ↓ pain and disability
- Aerobic → long term; Strengthening → short term

Resistance training

- Developing fitness and health
- Prevention/rehabilitation of orthopedic injuries





Physical Activity Prescription

Manual Physical Therapy

- Combined with exercise programs
- † pain, stiffness, function
- \(\) need for surgical intervention
- Less likely to be taking medication after one year vs. home- based







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Physical Activity Prescription

Recommended Program

- Single set programs up to 15 repetitions
- Performed a min of two days per week
- 8-10 different exercises that train major muscle groups
- Contribute to overall fitness





Physical Activity Prescription

Adherence

- Organized exercise
- Efficacy/outcome expectations
- Motivation from social support
- Experience with exercise task







Physical Activity Prescription

- Strengthening and aerobic exercises can reduce pain and improve function
- 2. Few contraindications to the prescriptions of strengthening or aerobic exercise in patients with OA





Physical Activity Prescription

- 3. Prescription of both types of exercises is an essential aspect of OA
- 4. Exercise therapy for OA should be individualized







Physical Activity Prescription

- 5. Should include advice and education to promote a shift to a more physically active lifestyle
- 6. Group exercises and home exercises are equally effective





Physical Activity Prescription

- 7. Adherence is principle predictor of long-term outcome
- 8. Strategies to improve adherence should be adopted e.g family in exercise
- Improvement in muscle strength may reduce progression of OA





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Taylor, Taryn-Lise, Catherine E. Casey, Edward Todd Taylor, and Albert W. Taylor. "Aging, Physical Activity and, Arthritis." *Arthritis Society*. Print. [References of 100+ sources]

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