Osteoarthritis
Osteoarthritis:

• Degenerative joint disease that develops as a result of normal aging and wear & tear on the joints
• Causes breakdown and/or loss of cartilage in synovial joints, especially those of the knee, hip, & hands.
Osteoarthritis:

Prevalence / Populations

• Most common form of arthritis (over 100 different types)

• OA affects > 20 million in the U.S. alone

• Leading cause of chronic pain & disability in the U.S.

• Most prevalent in the elderly population (85% of U.S. population has evidence of the disease by age 75.)

• Women are more commonly affected than men
Osteoarthritis:

**Etiology**

- Exact cause of OA is unknown
- Development involves multiple factors that contribute to excessive joint loading & inflammation

**Most Common Risk Factors**

- Heredity (tends to run in families)
- Mechanical stress
- Obesity
- Trauma
- Previous joint injury
- Joint misalignment
- Decreased estrogen levels
- Vocational & recreational activities that involve prolonged high impact & repetitive motion, kneeling, squatting, or heavy lifting
Osteoarthritis:

**Diagnosis**
- Diagnosis of OA can be made clinically & confirmed by radiography

**Signs / Symptoms**
- Pain with movement
- Stiffness
- Crepitation (cracking sound)
- Synovial swelling
- Joint instability & muscle weakness
- Limited ROM
- Bony proliferation
- Osteophytes
- Loss of cartilage
Osteoarthritis:

Heberden’s & Bouchard’s Nodes

Node = bony protrusion caused by progression of cartilage loss, bone inflammation, & formation of bone spurs (osteophytes)

Heberden’s Nodes:
- nodes present on distal interphalangeal (DIP) joints of hand

Bouchard’s Nodes:
- nodes present on proximal interphalangeal (PIP) joints of hand

Nodes are not always painful, but cause limited joint motion (ROM).
Motor & Praxis:
• Pain, stiffness, swelling, & loss of joint movement can cause varying degrees of physical dysfunction.
• Negatively impacts patient’s ability to perform activities of daily living (ADL’s).
• Fine motor skills are greatly reduced in individuals who suffer from OA of the interphalangeal joints of the hand.

Communication & Social Skills:
• Pain & physical dysfunction can cause social isolation.
• Individuals with OA are more susceptible to increased anxiety & depression.
There is no cure for OA, so treatment is symptomatic.

Treatment focuses on:
- controlling pain & inflammation
- preventing disease progression
- Maintaining joint function

Medical treatment options vary depending on the severity of symptoms:
- NSAIDS & analgesics to reduce pain and inflammation
- intra-articular injections of steroids or hyaluronic acid
- surgical techniques
  - debridement (removal of damaged tissue)
  - osteotomy (removal of pieces of bone)
  - total joint replacement

OA is the biggest cause of knee & hip replacement.
Osteoarthritis:

Related Disorders

* Many individuals with OA also suffer from comorbidities

- hypertension
- cardiovascular disease
- peripheral vascular disease
- congestive heart failure
- renal function impairment
- diabetes
- respiratory disease

Precautions

- Gastrointestinal & renal toxicity of non-steroidal anti-inflammatory drugs (NSAIDS)
- Side effects and/or addiction from long-term opioid use
- Surgical complications
Osteoarthritis: Occupational Therapy Interventions

Therapeutic Exercise:

- Normal joint loading is necessary for the maintenance of healthy cartilage.

  Regular exercise can increase the strength & flexibility of joints.

  This further improves joint function.

- Therapeutic exercise programs should focus on activities that:
  - increase muscle strength & range of motion (ROM)
  - minimize or alleviate pain in & around the affected joint(s)
Osteoarthritis:

Occupational Therapy Interventions

Therapeutic Exercise:

• Aerobic exercise such as walking, biking, & swimming can effectively increase muscular strength.

• Swimming & aerobic pool exercises cause less stress on the affected joints.

• Isometric exercises can improve strength without exacerbating the condition of the joint.

• Quadriceps-strengthening exercises can increase function & reduce pain in patients with OA of the knee (Barnes & Edwards, 2005).

• Range-of-motion exercises should be carried out daily, using a slow motion, with the joint as close to full ROM as possible (Clark, 2000).

➢ Combining low level laser therapy with exercise can lead to a greater level of pain reduction and function in patients suffering from OA of the knee (Alfredo, et al., 2012).
Rest & Activity Pacing:

- Joint pain related to OA is typically exacerbated by activity & alleviated or diminished by rest.

- Rest is often used as a coping strategy to deal with symptoms of pain related to OA.

- Study of women with knee & hip OA revealed that rest is more than just a passive strategy used to reduce pain by offsetting periods of productive activity (Gibbs & Klinger, 2011).
  
  • Study participants actively used rest as a behavioral strategy to conserve energy for future participation in meaningful activities & to prevent physical harm.
  
  • Used rest as a strategy to adapt to their OA symptoms, rather than trying to control them, which allowed them to obtain a greater lifestyle balance.
  
  • Were also able to engage in other passive, yet equally meaningful, occupations while resting.
Osteoarthritis:

Occupational Therapy Interventions

Rest & Activity Pacing:

- In the advanced stages of OA, pain can persist even during times of rest.

**Activity Pacing** = performing a task at a slower pace, breaking the task into smaller pieces, or taking breaks

- Study of individuals with OA in at least one knee or hip revealed:
  - Those who paced their activities had a decrease in pain at the end of the day
  - Those who did not pace their activities suffered from escalating pain

(Murphy, Smith, & Alexander, 2008)
Osteoarthritis (OA):
• normal aging / wear & tear
• over 20 million in U.S. affected
• affects mostly knee, hip, & hands
• Heberden's & Bouchard's nodes
• Inflammation of bones & synovial joints only

Rheumatoid Arthritis (RA):
• autoimmune disease
• 1.5 million in U.S. affected
• affects mostly hands & feet
• Swan neck & Boutonniere's deformities
• Systemic inflammation
• Symmetrical (bilateral) affliction
Osteoarthritis:

References


Gibbs, L. B., & Klinger, L. (2011). Rest is a meaningful occupation for women with hip and knee osteoarthritis. OTJR, 31(3), 143-150. doi:http://dx.doi.org/10.3928/15394492-20101122-01


Questions

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The Academic Support Center @ Daytona State College
http://www.daytonastate.edu/asc/ascsciencehandouts.html