Osteoarthritis
A Common Degenerative Disease of the Elderly

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Topics of Discussion

- Symptoms
- Cause
- Treatments
- Continuing Research
Introduction

- Osteoarthritis is a degenerative disease of the joints.

- It affects more than _ of the world’s population over the age of 65
Symptoms of Osteoarthritis

- Degeneration of articular cartilage
- Narrowing of space between joints
- Formation of peripheral osteophytes and cysts
Affected Tissues

- Cartilage
- Muscle
- Ligaments
- Bone
- Synovium
Causes of Osteoarthritis

- Three Causes
  - Biomechanical
  - Genetic
  - Biochemical

- Theories on disease progression
Catabolic Response

- Catabolic Program (IL-1)

  + MMP synthesis
  + Plasmin synthesis
  + Collagen type I–III
  + COX-2 (PGE$_2$)
  + iNOS (NO)
  + Apoptosis

- Chondrocyte

  + Collagen II–IX synthesis
  + Proteoglycan synthesis
  + Cell proliferation
  + TIMP and PAI-1 synthesis
Comparison of Osteoblasts

Osteoblast Phenotypes

Normal
- cAMP
- ALPase
- IGF-I
- uPA
- Osteocalcin

Osteoarthritic
- cAMP
- ALPase
- IGF-I
- uPA
- Osteocalcin
Factors in Disease Progression
Treatments of Osteoarthritis

- Analgesics
  - Aspirin, Acetaminophen, etc.
  - Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)
  - Narcotics

- Preventative Medicine
  - Physical Stress Reduction
Where the Research is Going

- Decade of the Bone and Joint
- Research Controversy
- New Focuses
  - Bone vs. Cartilage
  - Biochemical vs. Biomechanical
Summary

- Osteoarthritis is a degenerative disease of the joints.
- It is caused by both biochemical and biomechanical factors.
- Treatments include pharmaceuticals and physical stress reduction.
- Although split on focuses, research is vigorous.


References (Cont’d)


