Figure 1

MEN

Prevalence of osteoarthritis, %

WOMEN

Age (years)
Figure 2

MEN

WOMEN

Incidence (per 10^5 p-y)

Age (years)
Normal articular cartilage

- Chondrocytes
- Tidemark
- Calcified cartilage
- Subchondral cortical bone
- Subchondral trabecular bone
Osteoarthritis

- Surface fibrillation fissuring
- Chondrocyte proliferation
- Chondrocyte hypertrophy
- Tidemark duplication
- Subchondral cortical bone
- Vascular invasion

Figure 4
Mechanical load

- Decreased sclerostin → Increased osteoblast bone formation
  → Increased bone mass

Figure 5A
Figure 5B
Peri-articular bone changes in OA: cellular mechanisms of adaptation

• Increased cortical plate thickness
• Flattening and deformation of articular contour
• Decreased subchondral trabecular bone mass
• Osteophyte formation

Figure 6

Osteophyte

increased mechanical load

• Modeling and remodeling
• Remodeling
• Remodeling
• Endochondral bone formation

Decreased load
Figure 8

ABNORMAL LOADING
OBESITY
(Mechanical Stress + Adipokines)

CYTOKINES
CHEMOKINES
TLR/RAGE Ligands
ADIPOKINES

ECM DEGRADATION
PRODUCTS

Cartilage

Chondrocyte

NO
PGE2

ADAMTS

MMPs

NOS2

COX2

Chondrocyte

Synovium