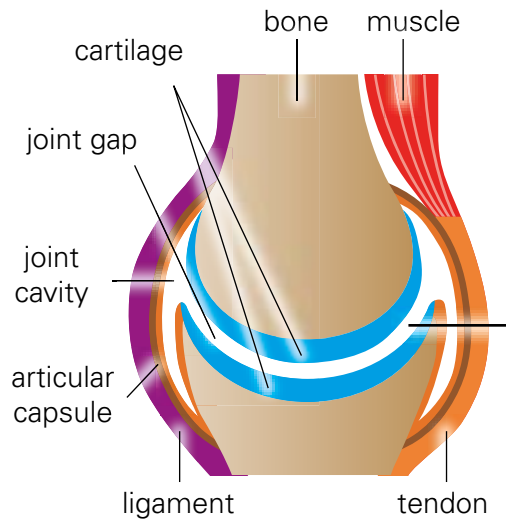


# Osteoarthritis – Development

## Healthy joint

A

Joints enable movement and the transmission of power. Cartilage serves as a shock absorber and ensures low-friction sliding.



The synovial fluid supplies nutrients and lubricates the cartilage surfaces

## Osteoarthritis

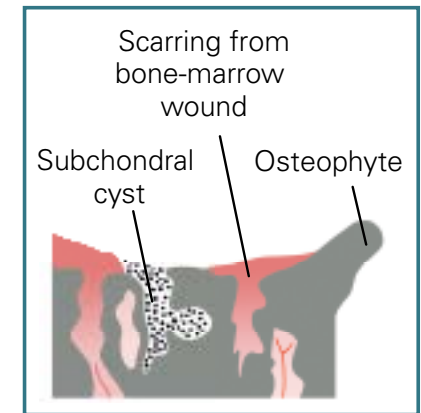
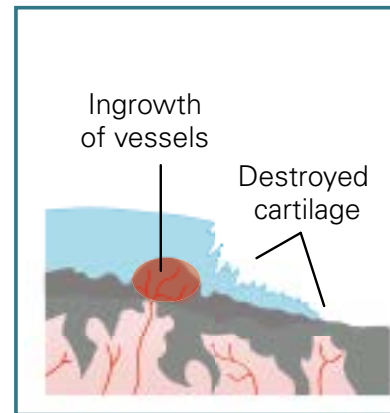
B

Misalignments, overloading, obesity, ageing, genetic factors

Initially **superficial damage to cartilage**

Later the **whole joint** can be damaged

In the advanced stage severe **joint destruction** is possible



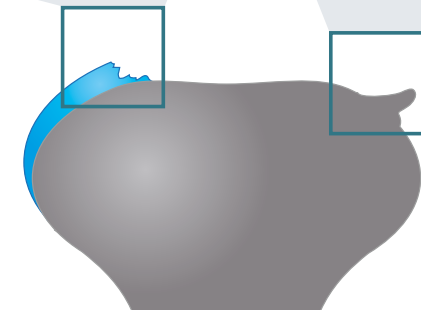
Healthy knee joint



Knee joint with advanced osteoarthritis



Misalignment  
Narrow joint gap  
Osteophyte  
Increased bone density (sclerosis)



# Osteoarthritis – Development

## A Healthy joint

The role of the joints is to facilitate movement and power transmission.

The cartilage acts as a shock absorber and load transmitter, and ensures low-friction sliding of the joint components.

All the functional parts of the joint such as cartilage surfaces, joint cavity and stabilising ligaments are in the articular capsule.

The inner layer of the articular capsule, the synovial membrane (synovium), is rich in blood vessels and nerves, and produces the synovial fluid (synovia).

The synovial fluid provides nutrition to the cartilage tissue and lubricates the cartilaginous articular surfaces.

Cartilage receives nutrients principally through diffusion, which only takes place if there is adequate regular movement (biomechanical stress and relaxation).

## B Osteoarthritis [1, 2]

Osteoarthritis has numerous causes such as misalignment, overloading, obesity, ageing and genetic factors.

Starting with superficial damage to the articular cartilage, the whole joint may become affected and show characteristic changes. Severe joint destruction is possible in the advanced stages.

Characteristic changes are visible on the X-ray in advanced osteoarthritis:

- Misalignment and narrowed joint space, due to loss of cartilage;
- Osteophyte formation and increased bone density (sclerosis), due to increased pressure on the bone.

[1] Burnett BP et al. J Knee Surg (2006) 19: 191- 197.

[2] Goldring SR, Goldring MB. J Musculoskelet Neuronal Interact (2006) 6(4): 376- 378.