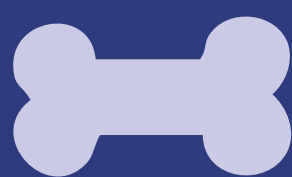


# FRACTURE HEALING



1

## ACUTE INFLAMMATION

Blood is rushed to the fracture site carrying an inflammatory soup of different molecules crucial for healing. These cells call upon other helpers to kickstart other factors of bone growth.

The inflammatory period peaks at 24 hours and lasts 7 days.

2

## CELL SPECIFIC BONE REPAIR

Special mesenchymal stem cells are brought to the area. These cells may develop to become different cells like osteoblasts, neurons or chondrocytes, all of which are crucial to building up the framework of the bone later!

3

## CARTILAGE AND PERISOTEUM

7 - 9 days later, the fracture needs a basic structure. This is the wooden beams within a house. Setting up the framework for future mineralisation.

4

## REVASCULARIZATION

When the wooden beams are up, revascularisation is required to give a fresh transport of blood to speed up healing but also to flush out other debris that occurs within this process (apoptosis). Just like building a house, the site has to be relatively tidy

5

## MINERALIZATION AND RESORPTION

The wooden beams are taken down to be replaced with hard brick. As woven bone is slowly integrated, the soft callus becomes more hard, solid and mechanically rigid.

6

## REMODELING

Rinse and repeat of the above process. The bricky hard callus is slowly absorbed to be replaced by steel beams. Callus is replaced by compact bone (haversian system) which may take months to years for full integration