

# Chapter 10: Tissue Response to Injury

What is the difference between acute inflammation and chronic inflammation?

- Acute inflammation has a short onset and a short duration. Chronic inflammation has a long onset and a long duration

# What are the five signs of inflammation?

- Redness
- Heat
- Swelling
- Pain
- Loss of function

Acute musculoskeletal injuries fall into what three phases?

- Acute (reactive or substrate) inflammatory phase
- Repair and regeneration phase
- Remodeling phase

What is the acute phase of inflammation?

- The initial reaction of the body tissue to an irritant or injury and is characteristic of the first three or four days after injury

In an acute phase, what occurs from the actual trauma?

- Cellular death

After trauma, how may cellular death continue?

- As a result of a lack of oxygen or when the digestive enzymes of engulfing phagocytes spill over and kill normal cells.

Because of this continuation of cell death, what is the proper immediate care?

- R.I.C.E.
  - Rest
  - Ice
  - Compression
  - Elevation



What is the repair and regeneration phase?

- It's the actual healing phase which extends from the inflammatory phase (48 to 72 hours to approximately six weeks).
- It occurs when the area has become clean through the removal of cellular debris, erythrocytes, and the fibrin clot

What three processes are used for tissue repair?

- Resolution – in which there is little damage and normal restoration
- Formation of granulation tissue – occurring if resolution is delayed
- Regeneration – replacement of tissue by the same tissue

# Why is less scarring better?

- Scar tissue is less viable (elastic) than normal tissue

Remodeling overlaps with what phase?

- Repair and regeneration

What happens in the first three to six weeks of an acute injury?

- Increased production of scar tissue and increased strength of its fibers

How long does the strength of scar tissue continue to increased?

- From 3 months to 2 years after injury

How long does ligamentous tissue take to become completely remodeled?

- One year

How is a rigid, non-yielding scar avoided?

- By maintaining a physiological balance between synthesis (process of forming or building) and lysis (process of breaking down)



# What is subacute inflammation?

- When an acute inflammation reaction fails to be resolved in one month

What is it called if this inflammation lasts for months or even years?

- Chronic

# How does chronic inflammation result?

- From repeated acute microtraumas and overuse

# What are the methods to modify soft-tissue healing?

- Drugs to treat inflammation
- Superficial thermal agents
- Therapeutic modalities
- Exercise and rehabilitation

Acute fracture healing falls into what three phases?

- Acute phase
- Repair and regeneration phase
- Remodeling phase

# What is involved in the acute phase of fracture healing?

- Trauma
- Hemorrhage
- Bone death

What is involved in the repair and regeneration phase of fracture healing?

- Granulation
- Woven bone
- Soft callus
- Hard callus

# What is involved in the remodeling phase of fracture healing?

- Resorption of the callus
- Trabecular bone
- Bone



What are conditions that interfere with fracture healing?

- Poor blood supply
- Poor immobilization