

Necrotic tissue & Wound management

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OUTLIN



01

What is necrotic tissue

02

Ethicology of necrotic tissue

03

Management of necrotic tissue



What is necrotic
tissue??

What is the process of wound healing

Wound healing is a complex **process** in which the skin, and the tissues under it, repair themselves after injury. ...

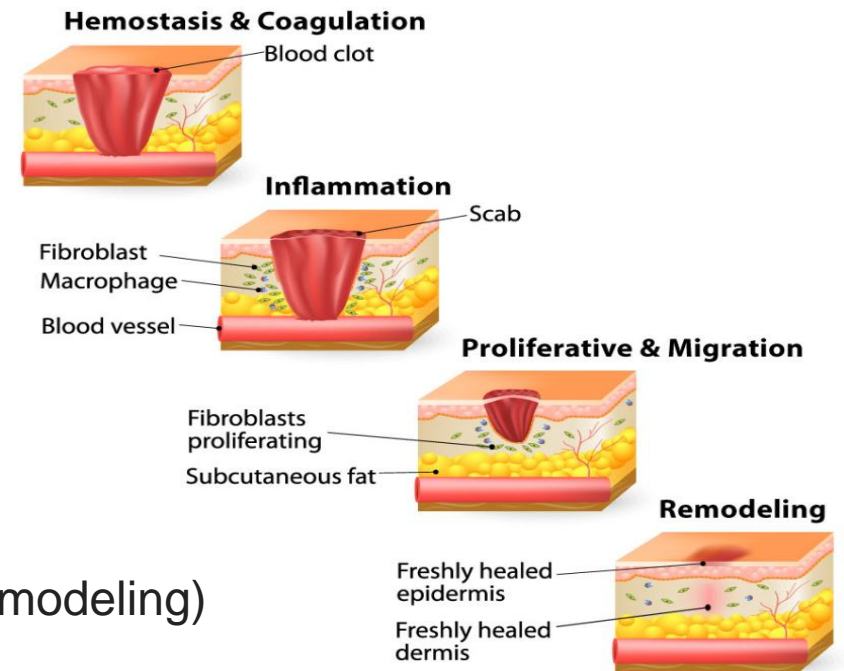
Phase 1 : Hemostasis Phase. blood clotting (hemostasis)

Phase 2 : Defensive/Inflammatory Phase.

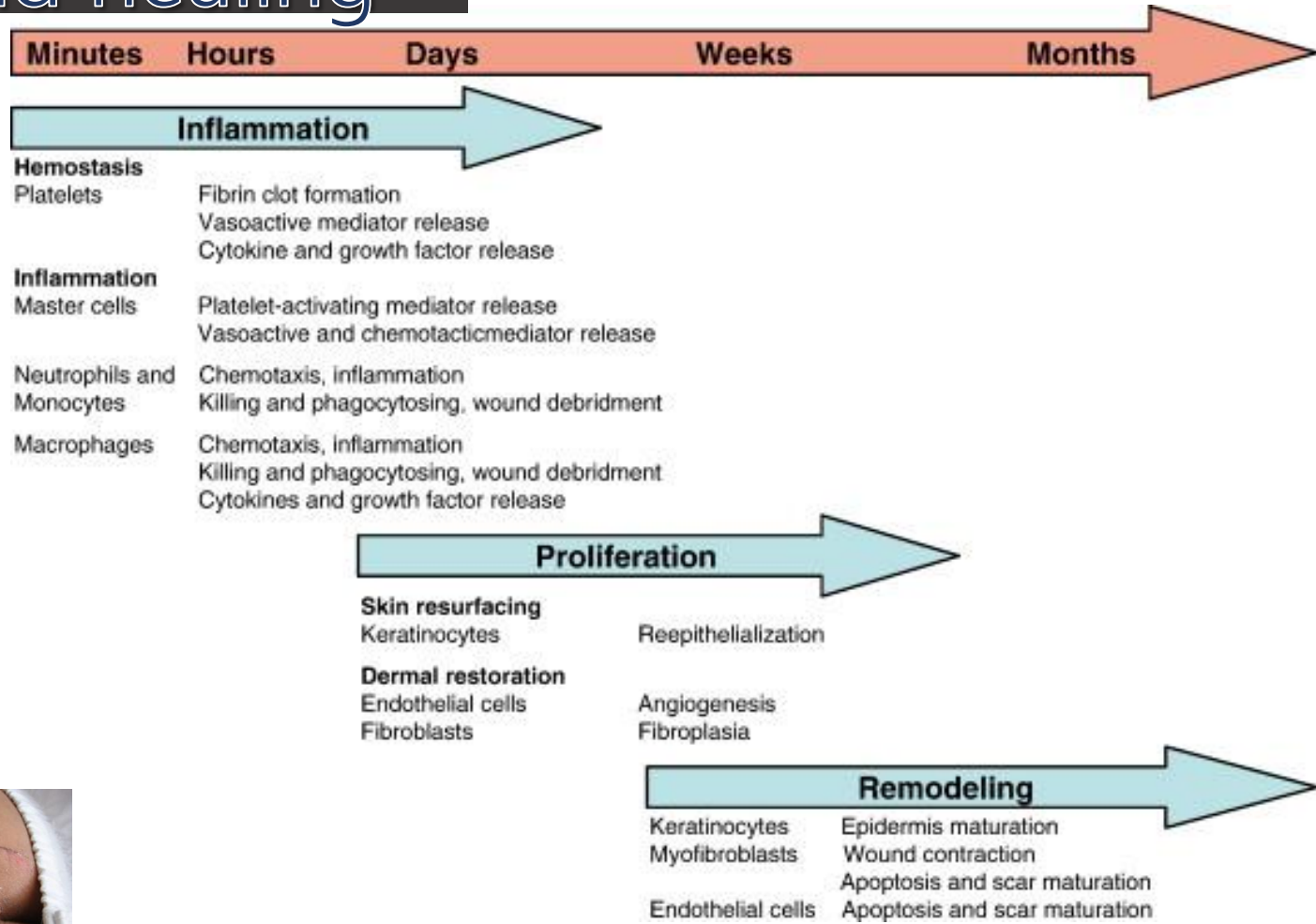
Phase 3 : Proliferative Phase. (tissue growth)

Phase 4 : Maturation Phase.(tissue remodeling)

WOUND HEALING



Stage of wound healing



Li, J., Chen, J., & Kirsner, R. (2007). Pathophysiology of acute wound healing. *Clinics in dermatology*, 25(1), 9-18.

Factors delay wound healing

Local Factors

- **Slough**
- **Necrosis**
- **Oedema**
- **Infection**
- **Biofilm**
- **Ischaemia**
- **Excess exudate**
- **Low oxygen levels**
- **Elevated proteases**
- **Neuropathy**
- **Venous insufficiency**



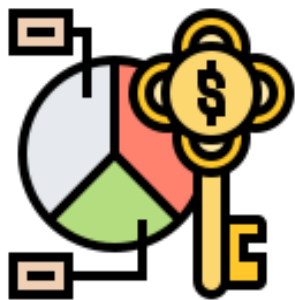
Systemic Factors

- ✓ Inadequate perfusion
- ✓ Elevated inflammation
- ✓ Poor diet
- ✓ Co-morbidities e.g. diabetes
- ✓ Obesity
- ✓ Polypharmacy/medication
- ✓ Stress
- ✓ Immunosuppression



WOUND COMPLEXITY AND HEALING PROGRESSION

- patient-related factors
- wound-related factors
- skill and knowledge of the healthcare professional
- resources and treatment-related factors



What is necrotic tissue

death of cells in living tissue



Two main types of necrotic tissue present in wounds:

- ✓ Eschar
- ✓ Slough





PROGRESSION

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Wound appearance the color model

□ 1980 Lars Hellgrens
(Sweeden dermatologist)

Categorized according to the color of the wound surface

- ✓ **red-granulation**
- ✓ **yellow – slough**
- ✓ **pink-epithelialization**
- ✓ **black – necrotic**





Etiology

Etiology



Necrosis can be caused by a number of external sources

including :

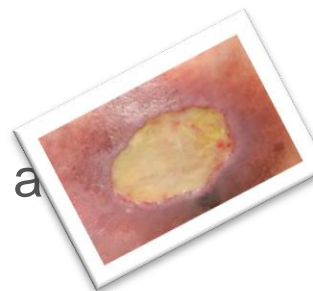
injury, infection, cancer, infarction, poisons, and inflammation



Eschar presents as dry, thick, leathery tissue that is often tan, brown or black.



Black necrotic tissue is formed when healthy tissue dies and becomes dehydrated, typically as a result of **local ischemia**.



Slough is characterized as being yellow, tan, green or brown in color and may be moist, loose and stringy in appearance composed of pus and fibrin containing leukocytes and bacteria



Management

Managing necrotic tissue

All wounds with necrotic tissue should be debrided (except eschar on heels)
necrotic tissue delays wound healing and predisposes to infection.

Debridement Techniques

- Autolytic debridement
- Mechanical debridement
- Sharp debridement
- Enzymatic debridement
- Larval (maggot) therapy



Autolytic debridement



- ❑ uses the body's own processes (**enzymes and moisture**) to break down tough eschar and slough.
- ❑ not damage healthy skin, but **breaks down dead and devitalized tissue** over time quite effectively.
- ❑ keep wound fluids in constant contact with the wound.
- ❑ use of semi-occlusive or occlusive dressings such as transparent films, hydrogels and hydrocolloids.
- ❑ can be used on stage II or III wounds that are not heavily exudative.



Autolytic debridement



Advantages

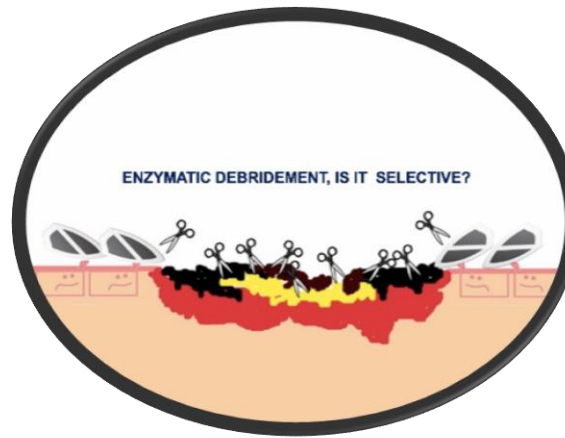
- ✓ No damage to surrounding skin; is selective for necrotic tissue
- ✓ The process is safe because it uses the body's natural processes to rid the wound of necrotic tissue
- ✓ Easy to perform
- ✓ Very effective
- ✓ Not painful for the patient

Disadvantages

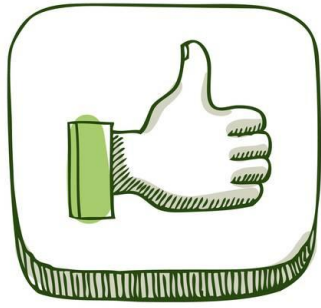
- X The process takes time (may take days to weeks)
- X The wound must be routinely monitored for signs of infection
- X Anaerobic growth may occur when an occlusive dressing is chosen

Enzymatic debridement

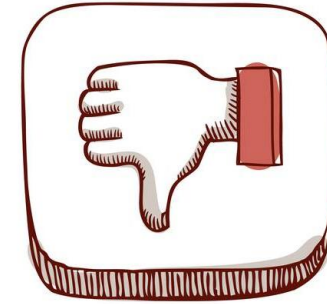
utilizes chemical agents to break down *necrotic* tissue.
most useful for debriding wounds with a large amount of necrotic or eschar formation.



Reference: https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.elenaconde.com%2Fen%2Fenzymatic-debridement-to-what-extent-is-it-selective%2F&psig=AOvVaw0vMdsK1cTtUMjL_QrFV_s&ust=1637050996637000&source=images&cd=vfe&ved=0CAsQjRxqFwoTCNCiq7H4mfQCFQAAAAAAdAAAAABAO



Enzymatic debridement



Advantages

- ✓ Works faster than autolytic debridement
- ✓ If properly applied, there is little risk to healthy tissue

Disadvantages

- X The patient must have the chemical agent prescribed and it may be fairly expensive
- X Care must be taken to ensure healthy tissue does not come in contact with the chemical agent
- X A secondary dressing may be required to absorb exudate
- X Chemical debridement may cause some discomfort to the patient (i.e., burning sensation, increased wound pain)

Enzymatic debridement

Three main types of exogenous enzymes are available for enzymatic debridement; namely,
proteolytic, fibrinolytics, and collagenases.



Papain – urea

Papain – urea- chlorophyllin
collagenase

Surgical debridement

uses sharp instruments (such as a scalpel) or a laser to remove necrotic tissue

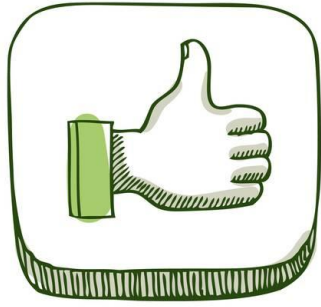
best for very large wounds with a lot of necrotic material and infected material.



Reference:
<https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.shutterstock.com%2Fsearch%2Fdebridement&psig=AOvWaw10tsXeRgd8NylLW39YmPuj&ust=1637052481315000&source=images&cd=vfe&ved=0CAsQjRxqFwoTCOIe3fX9mfQCFQAAAAAdAAAAABAD>



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Surgical debridement



Advantages

- ✓ Excellent control over what and how much tissue is removed
- ✓ Fastest way to achieve a clean wound bed
- ✓ Can speed the healing process

Disadvantages

- X Not cost-effective if an operating room is required
- X General anesthesia carries its own risks
- X Painful for the patient

Biological debridement

two factors;

- I. The excretion of enzymes that degrade and liquefy necrotic tissue, and the physical removal of necrotic tissue and bacteria from the wound bed by ingestion.
- II. Biological debridement has been shown to decrease wound odor as well as increase the amount of granulation tissue; but increased pain can sometimes be reported among patients.



MAGGOTS





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Fungating mass



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Extravasation



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How to management???





Critical limb ischemia

How to manage this wound?

Revascularization

Must Debridement



Neuropathic ulcer



NOTES

SCIENCE



**Take home message*



1



Moist wound healing



2



Assessment very important



3



Teamwork

MATH

BIOLOGY

HISTORY

EXTRAS

**YOUR
QUESTION
&
TIME**



THANKS

