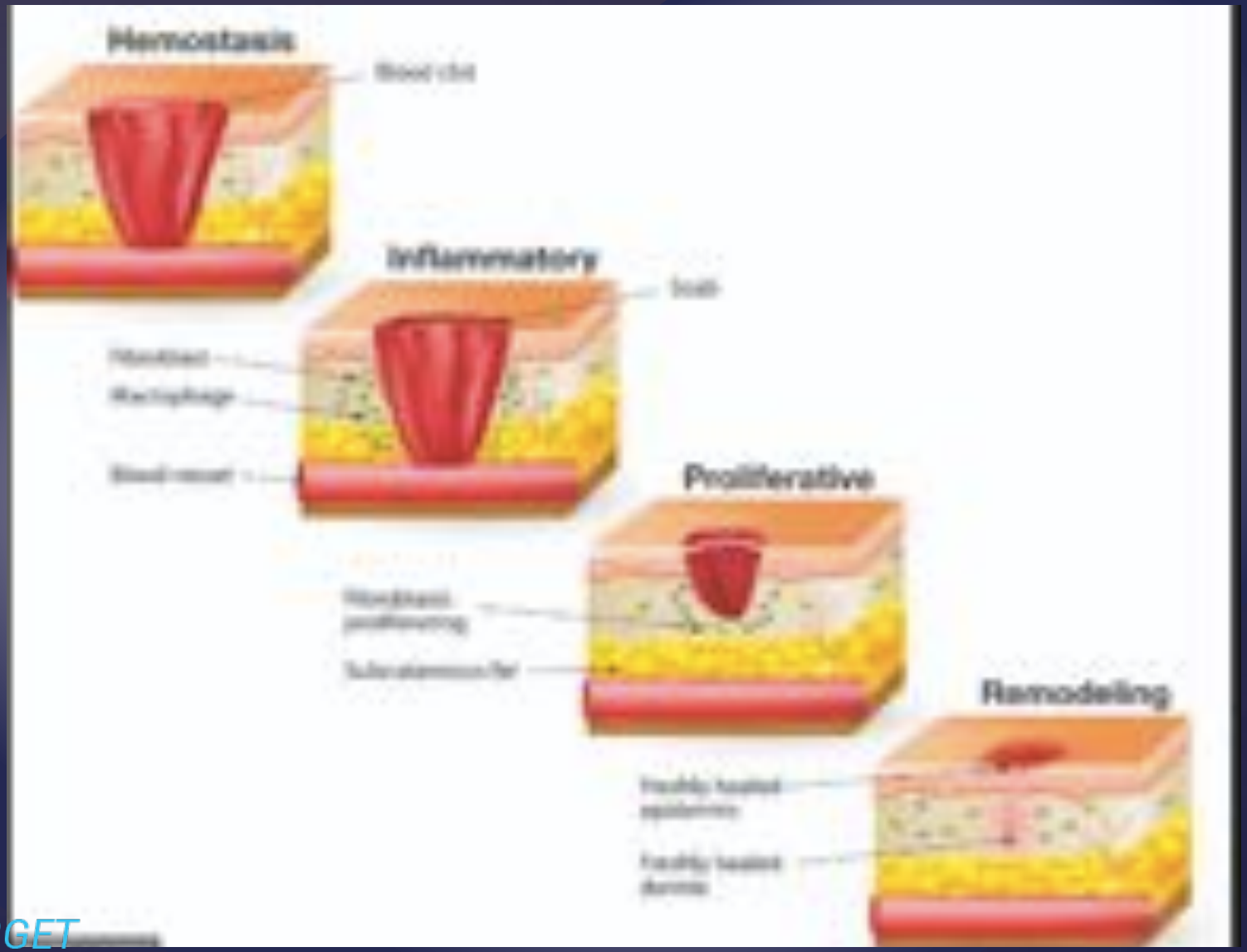
WOUND HEALING
PATHOGENESIS
CLASSIFICATION OF ULCERS

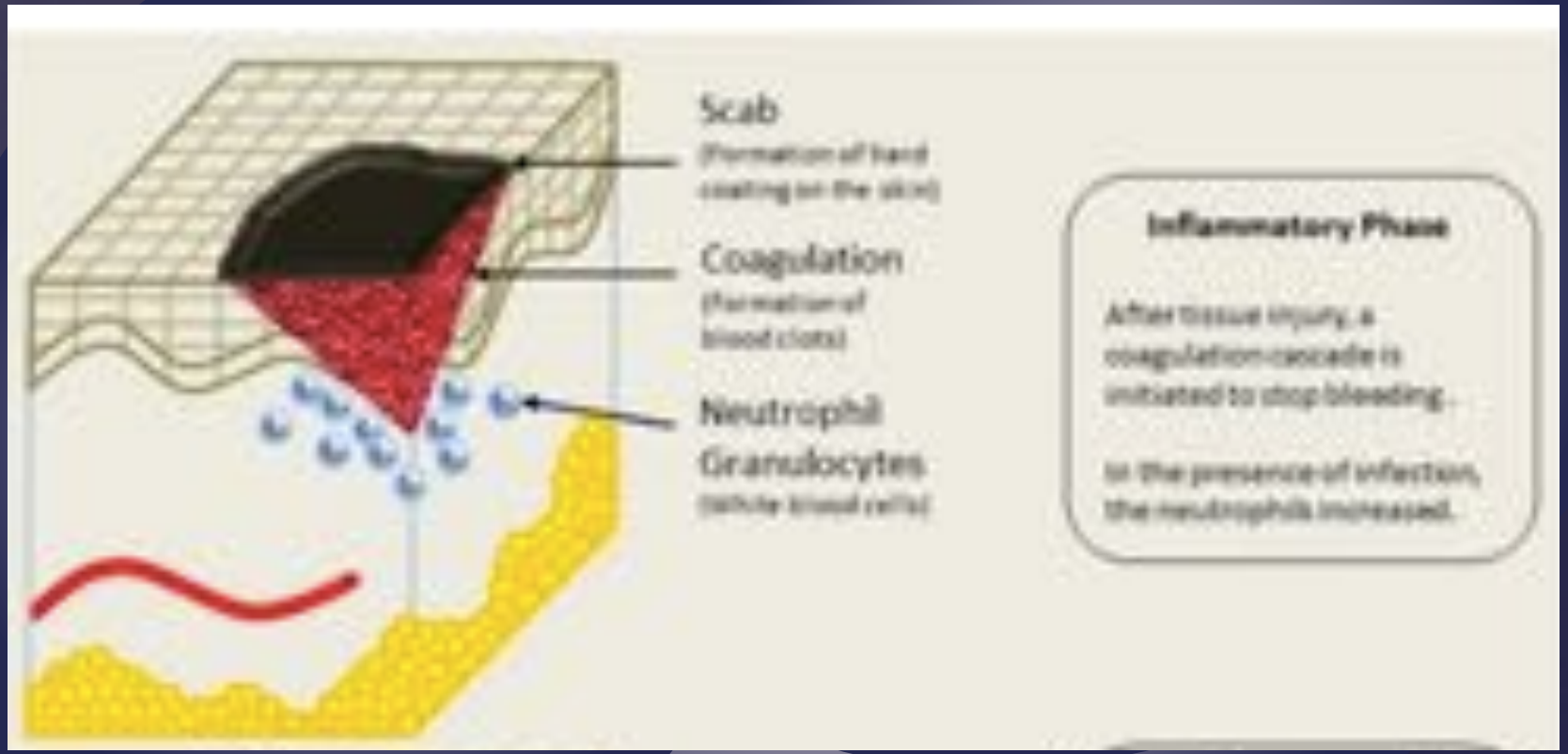
Dr.PRIYANKA SHARMA
Reconstructive and plastic surgeon, DNB
RIGHT Hospitals, Chennai
Associate consultant, Max Saket, Delhi
SR Oncoplasty, Tata Memorial, Mumbai

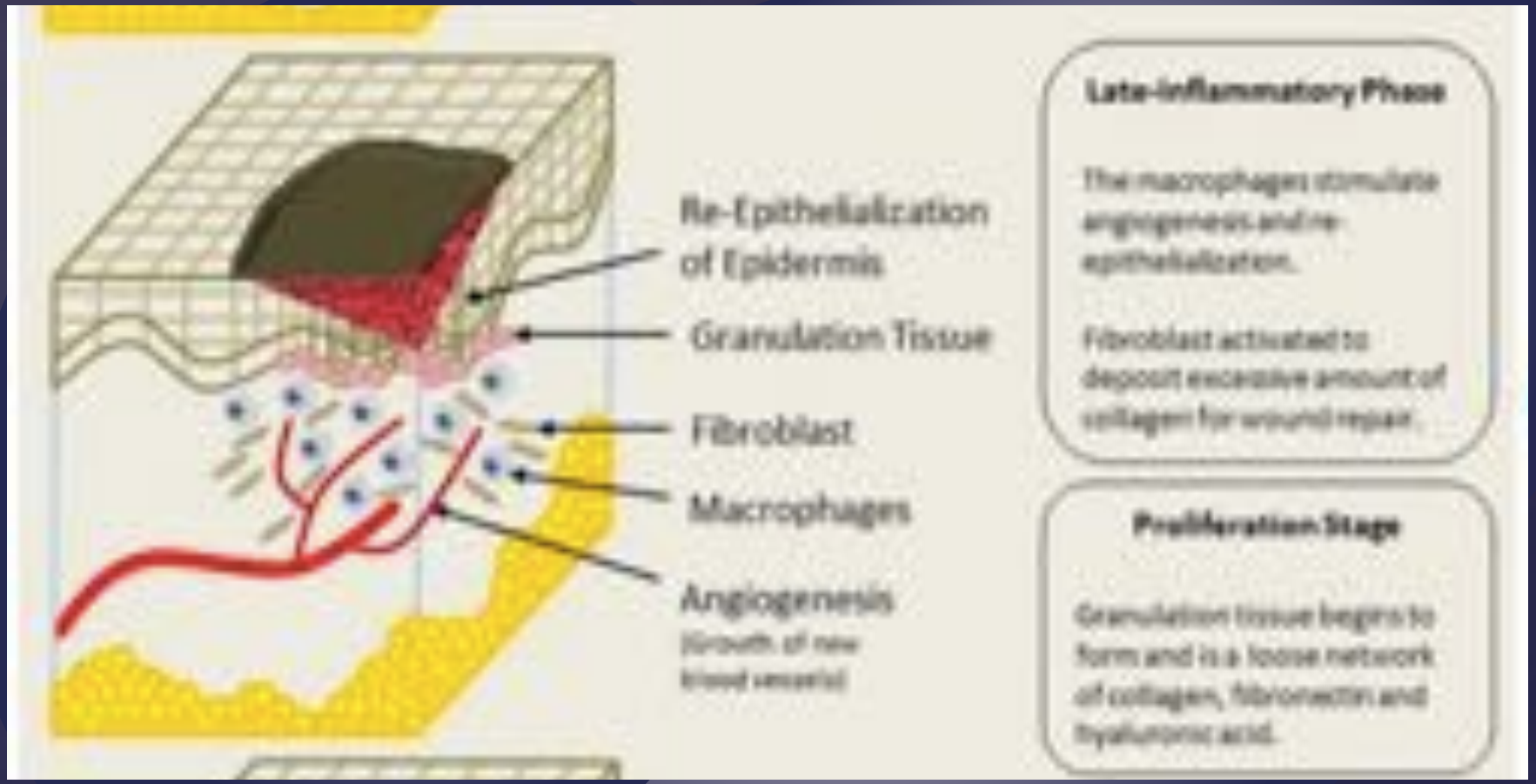
WOUND:

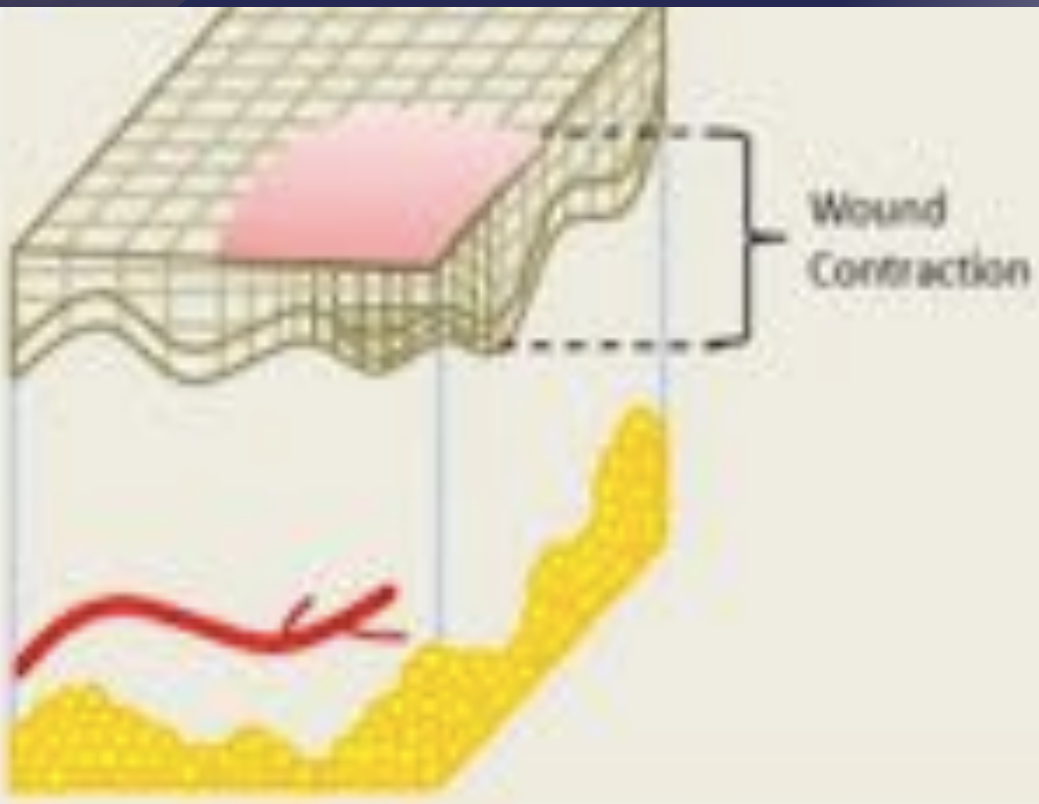
-A break in the continuity of the skin or the mucous membrane. (ulcer)

- Pathogenesis
- Types of healing
- Types of scars





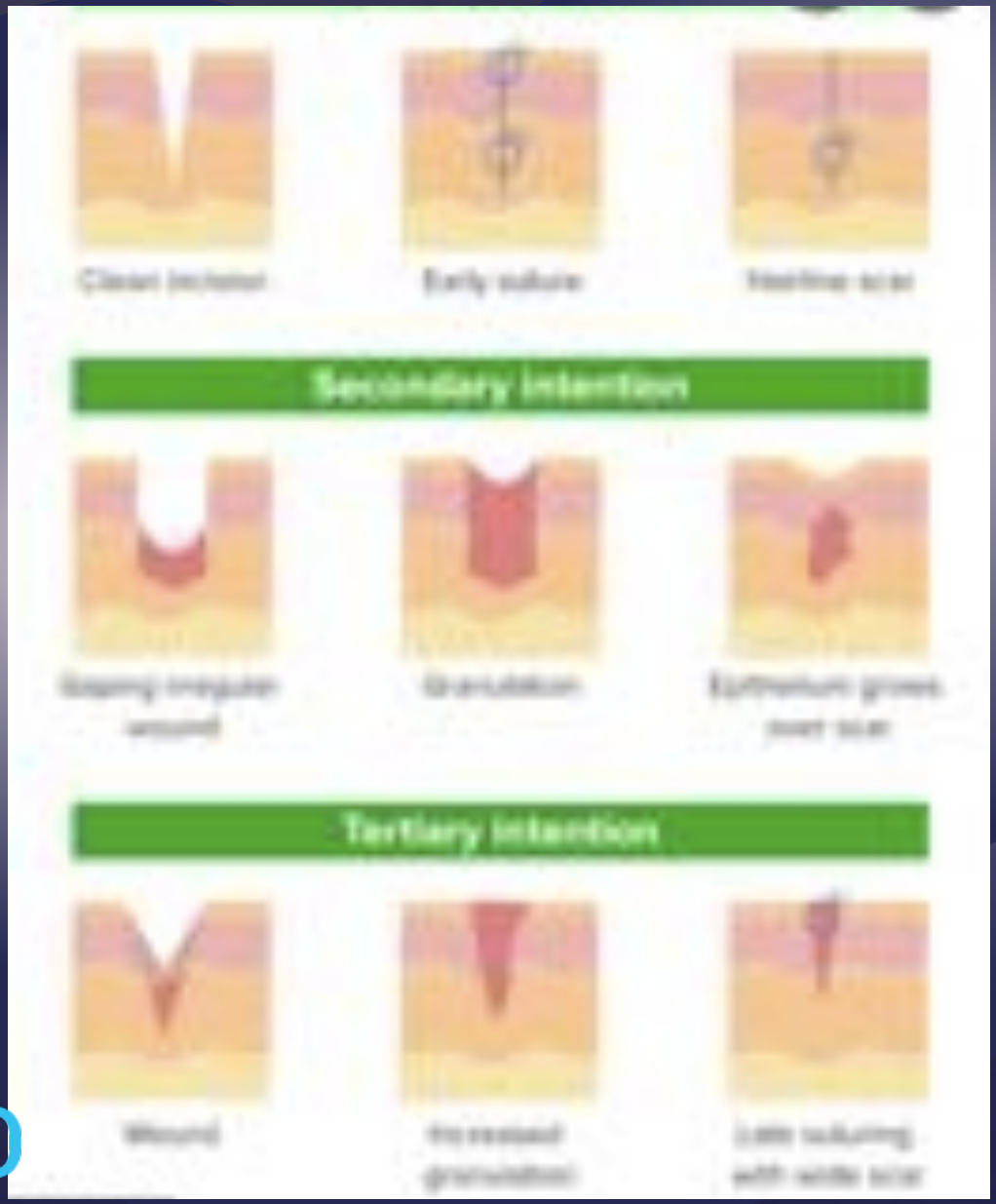




Maturation Phase

Further collagen deposition and cross linking of extracellular matrix will occur therefore the scar tissue gains tensile strength.

PRIMARY INTENTION



Hypertrophic Scar

Distinguishing features

- Appear as red raised scar tissue
- Scarring does not extend beyond boundary of original wound
- Nodular structures containing α-SMA-producing myofibroblasts
- Promote scar contractures
- Can regress with time

Keloid

Distinguishing features

- Often appear as shiny rounded protuberances, color ranges from pink to purple
- Scarring extends beyond boundaries of original wound
- Rarely nodular, no α-SMA producing myofibroblasts
- Do not promote scar contractures
- Do not regress with time

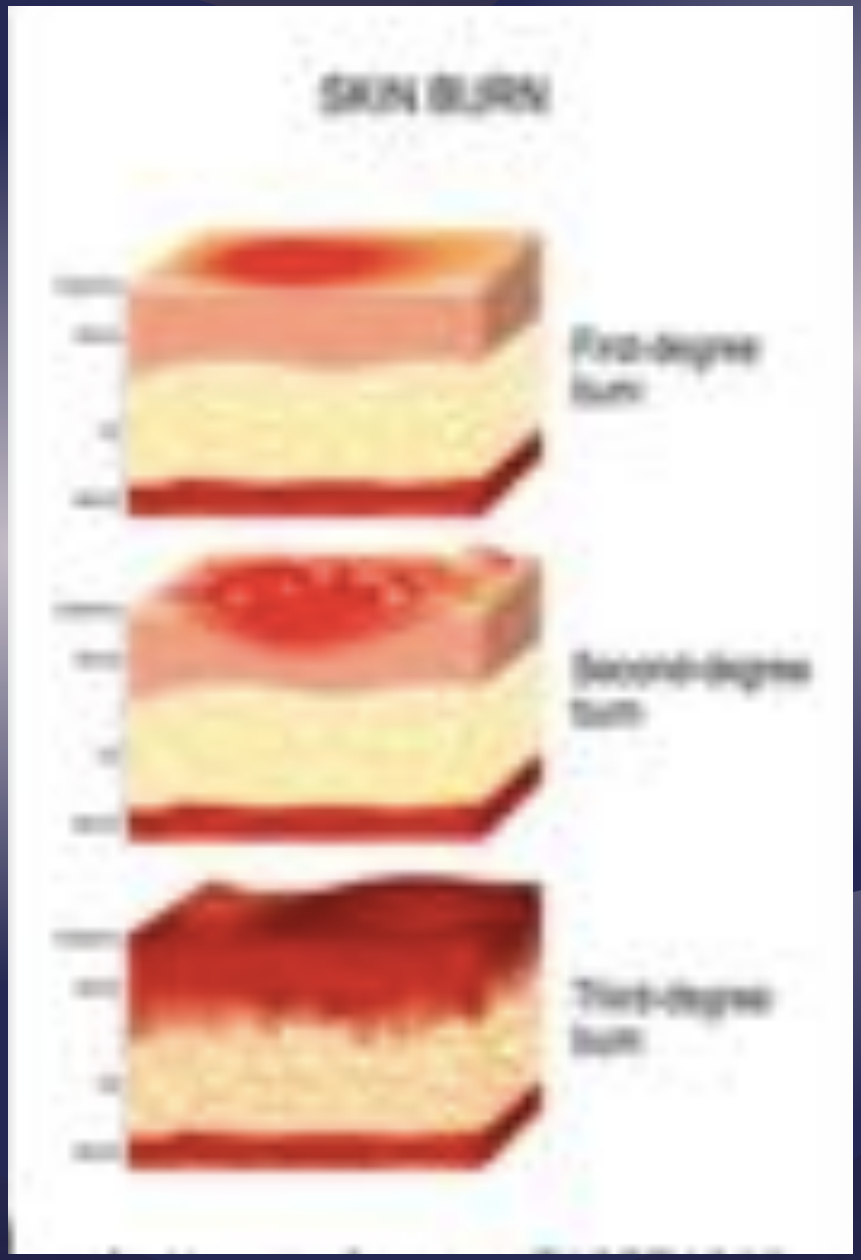
Late wound healing events

- Type 1 collagen most common (80-90% of skin collagen)
- Type 3- seen in early phases of wound healing

GRANULATION TISSUE: good or bad??

- Beefy red in appearance
- Perfused with capillary loops
- Needed for epithelialization to occur

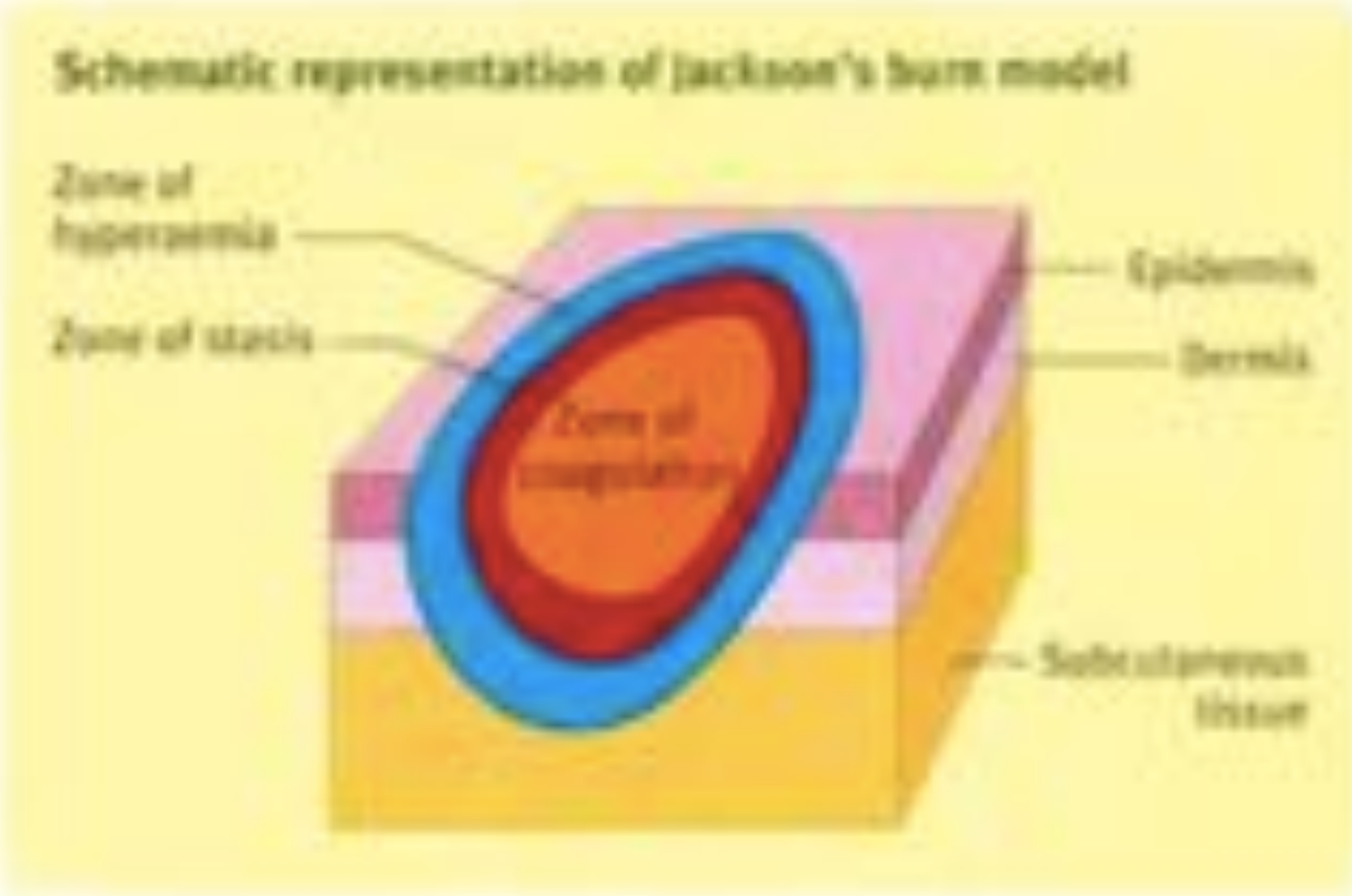
BURN



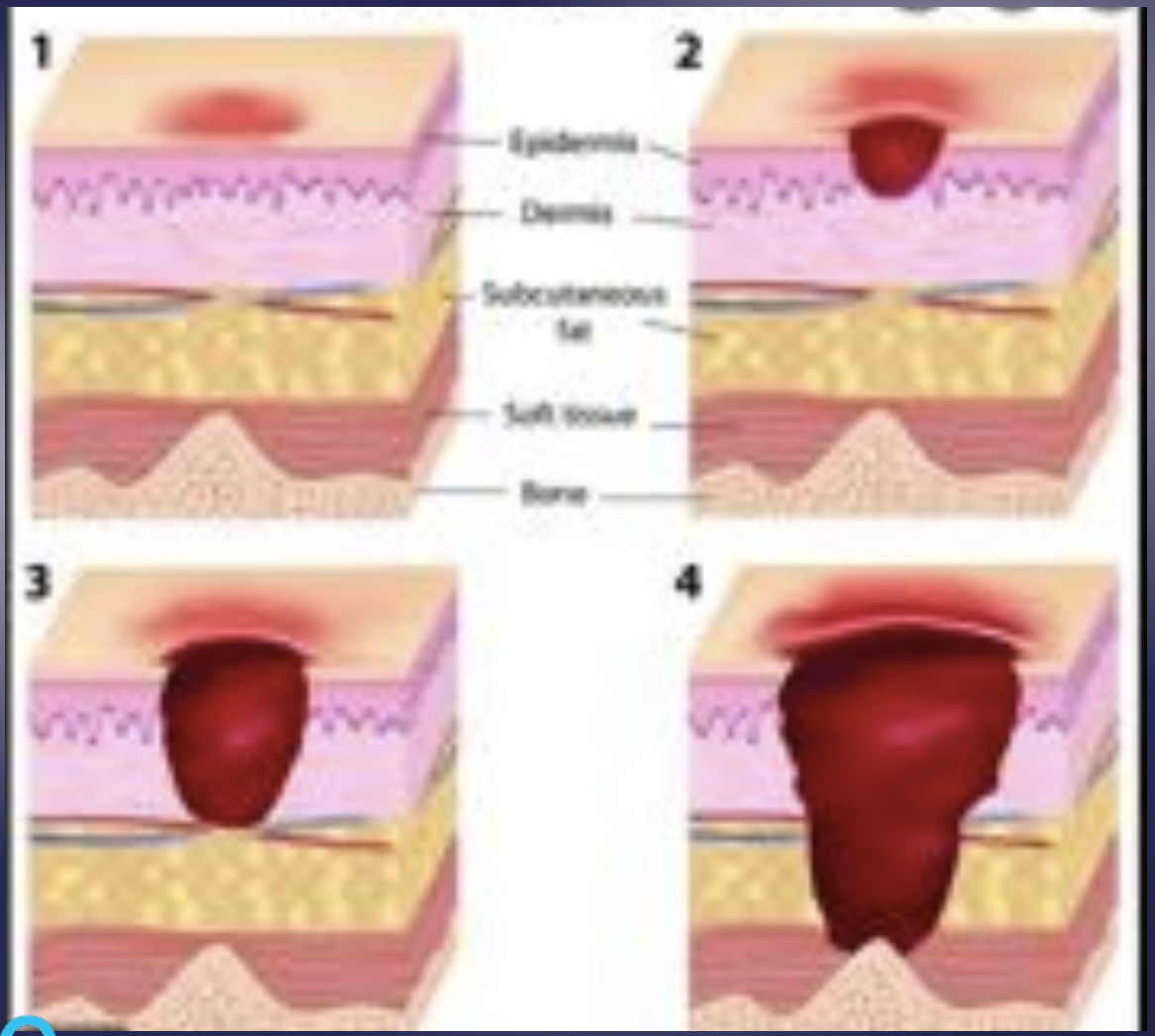
BURN

To identify the degree of burns :

DEGREE	EXTENT	COLOUR	BLISTERS	PAIN/SENSATION	HAIR/GLANDS
First	Epidermis	Pinkish Blanching +	NO	YES	YES
Second Superficial	* and papillary dermis	Pinkish Blanching +	YES	YES	YES
Second Deep	Full dermis	Pale Pink peeling Blanching -	NO/ Late	Decreased	MAYBE SEEN
Third	Subcutaneous tissue	Pale Thrombosed veins	NO	Decreased	NO
Fourth	Muscle/tendon/bone	Black, charred	NO	NO	NO



PRESSURE SORES



GRADES

The degree of pressure sores varies and are graded depending on their severity

- Grade I – reddening of the skin
- Grade II – blister and abrasion
- Grade III – full skin loss in which depth of the ulcer is obscured by slough
- Grade IV – the sore now exposes bone and tendon

BRADEN SCORE:

- Sensory perception
- Nutrition
- Moisture
- Activity
- Mobility
- Friction and shear

MANAGEMENT:

- Mobilisation
- Nutrition
- Alpha bed
- VAC
- Debridement
- Flaps

VASCULAR ULCERS

Lower Limb Ulcers

Arterial
Sites of trauma Pressure areas (e.g. heel)
• Hypertension • Diabetes • Smoking • Hyperlipidaemia • Family history
• Severe pain • Limb may be cold and have reduced/ absent pulses
Well-defined and regular Punched out
Deep, sloughing (green) or necrotic (black)
History of intermittent claudication or critical limb ischemia
Ankle Brachial Pressure Index (ABPI) to [illegible] peripheral vascular disease

Site
Risk factors
Clinical features
Border
Base
Associated features
Investigation

	Venous
Site	Most commonly found in gaiter region
Risk factors	• Increasing age • Varicose veins • Venous thromboembolism • Pregnancy • Obesity
Clinical features	• Can be painful, particularly towards end of the day • On examination, may have varicose veins with ankle/ leg oedema
Border	Shallow with irregular borders
Base	Pink, granulating
Associated features	Signs of venous insufficiency e.g. varicose eczema, lipodermatosclerosis
Investigation	Duplex ultrasound to confirm diagnosis. ABPI to assess any arterial component and suitability of compression therapy

NEUROPATHIC ULCER

DIABETIC, weight bearing areas, callous, iceberg phenomenon

THANK YOU!

Linkedin – Dr.Priyanka Sharma

Instagram – drps_plastics

Youtube – DrPS