

## MODULE II: WOUNDS: PRINCIPLES OF WOUND HEALING

**Angiogenesis** – formation of new capillaries

**Acute Wound** – Disruptions in the skin integrity and underlying tissues that progress through the healing process in a timely manner without complications.

**Autolysis** - disintegration or liquefaction of tissue or of cells by the body's own mechanism, such as leukocytes and enzymes.

**Avascular** – lacking blood supply; synonym are dead, devitalized, necrotic, and non-viable.

**Chronic wound** – Disruptions in the skin integrity and underlying tissues that deviate from the expected sequence of repair in terms of time, appearance, and response to appropriate treatment.

**Collagen** – major structural protein found in the dermis and is secreted by dermal cells; main protein of connective tissue makes up to 25%-35% of the whole body's protein content.

**Connective tissue** – a form of fibrous tissue; tissue that supports and connects other tissue and parts of the body.

**Contact inhibition** – occurs when new epithelial cells cover the wound, signaling that epidermal resurfacing is complete.

**Contraction** – the pulling together of wound edges in the healing process.

**Debridement** – removal of devitalized tissue.

**Debris** – remains of broken down or damaged cells or tissue.

**Dehisce** – to rupture or break open, as a surgical wound.

**Dermis** – inner layer of the skin that lies under the epidermis; contains blood vessels, lymph vessels, hair follicles, glands and nerves.

**Edema** – presence of abnormally large amounts of fluid in the interstitial space.

**Epidermis** – outermost layer of the skin.

**Epithelialization** - regeneration of the epidermis across a wound surface.

**Epithelial migration** – the movement of epithelial cells in the resurfacing or repair process.

**Erythema** – a redness of the skin due to dilation of the superficial capillaries.

**Extracellular matrix** – (ECM) connective tissue proteins that play important roles in the wound healing process by providing both scaffold support and signaling roles to the cells; they promote cell adhesion and migration.

**Fascia** - a sheet or band of fibrous tissue that lies deep below the skin or encloses muscles and various organs of the body.

**Fibroblast** – a cell or corpuscle from which connective tissue develops.

**Full-thickness** - tissue destruction extending through the dermis to involve the subcutaneous tissue and possibly muscle and bone.

**Granulation tissue** – pink to red, moist tissue that contains new blood vessels, collagen, fibroblasts, and inflammatory cells that fills an open, previously deep wound when it begins to heal; typically appears deep pink or red with an irregular, granular surface.

**Growth factors** - proteins that stimulate the deposition of collagen and matrix formation in a wound; called cytokines, stimulate cell-activity.

- Platelet Derived Growth Factor (PDGF)
- Epidermal Growth Factor (EGF)
- Keratinocyte Growth Factor (KGF)
- Fibroblast Growth Factor (FGF)
- Transforming Growth Factor (TGF)

**Hemostasis** – state of equilibrium of the internal environment; initiates the healing process.

**Hypodermis** – superficial fascia forms a subcutaneous layer beneath the dermis.

**Infection** – the presence and growth of a microorganism that produces tissue damage.

**Inflammation** – tissue reaction to an injury; a localized protective response elicited by injury or destruction of tissues that serves to destroy, dilute, or wall off both the injurious agent and the injured tissue.

**Keloid** – a red, raised, smooth scar containing blood vessels.

**Macrophage** – cell that has the ability to destroy bacteria and devitalized tissue.

**MMPs** – (matrix metalloproteases) stimulate proteases which are responsible for protein degradation and are a benefit during the developmental and remodeling processes.

**Myofibroblasts** - muscle fibroblasts that contracts the wound, by pulling the edges together to close the wound.

**Neutrophil** – a type of inflammatory white blood cell that is involved in fighting infection.

**Phagocytosis** – ingestion and digestion of bacteria by phagocytic cells.

**Partial-thickness** – tissue destruction into or through the epidermis, and possibly the extending into but not through the dermis.

**Primary Intention** - occurs when the wound edges are approximated and secured such as after surgery when an incision is closed with sutures or staples.

**Proliferation** – rapid and repeated reproduction of new parts, as by cell division.

**Remodeling Phase** – also referred to as the maturation phase; collagen matrix becomes more organized and realigns through a process of synthesis and degradation to form a stronger, permanent scar and complete the healing cascade

**Scab** – dried exudates covering superficial wounds.

**Scar** – a mark left in the skin by the healing of a wound or injury because of replacement connective tissue

**Secondary Intention**- occur when the wound edges are not approximated but rather left open. Healing occurs by formation of granulation tissue followed by epithelialization and wound contraction.

**Subcutaneous tissue** – same as hypodermis; superficial fascia, forms a subcutaneous layer beneath the dermis.

**Tensile Strength** – the stress at which a material (skin) breaks or permanently deforms; measures the force required to pull something to the point when it breaks.

**Tertiary Intention** - referred to as delayed primary closure. Tertiary Intention is a combination of Primary and Secondary Intentions. Healing is allowed to occur via Secondary Intention so that the wound can contract and create healthy granulation tissue before the wound is closed via Primary Intention.

**Wound** - a disruption or injury to the skin which may be caused by trauma, surgical interventions, mechanical insult, systemic diseases/disorders.

Sources:

Taber's Cyclopedic Medical Dictionary

Acute & Chronic Wounds: Bryant and Nix, 3rd edition

WOCN Clinical Practice guidelines: Volume 2

Wound Care Essentials: Practice Principles, Baranoski, Ayello, 2nd edition