

Normal Wound Healing



OBJECTIVES

- Identify the important aspects associated with the 4 phases of normal wound healing, including wound closure and ultimate healing.
- List the phases of normal wound healing and their time frames.
- List the 6 processes occurring in a healing wound.
- Describe events of the inflammatory (lag) phase, including hemostasis and roles of immune cells.
- Describe the events of granulation tissue formation.
- Describe the need for coordination of granulation tissue formation and re-epithelialization.
- Describe the events of the remodeling phases and factors determining wound strength.
- Contrast the injury and healing of superficial, partial-thickness, and full-thickness wounds with subcutaneous tissue involvement.
- Discuss the roles of oxygen in wound healing.
- Describe features distinguishing fetal wound healing from adult wound healing.

NORMAL TISSUE HEALING

Upon injury, a stereotypical sequence of events occurs, leading to the bridging of the defect and resurfacing. The depth of injury to the skin determines the sequence of events. Wounds may be limited to the epidermis (superficial), some of the depth of dermis (partial-thickness), or the wound may involve the complete thickness of the wound (full-thickness) and even extend into subcutaneous tissue. Most, but not all, of the wounds referred to individuals reading this text will involve full-thickness with

subcutaneous involvement and healing by the secondary intent. The bulk of this chapter is a discussion of secondary intent. Following a full-thickness injury, a programmed sequence of events unfolds, which the clinician may either facilitate or disturb with interventions. In this chapter, a description of these events is given. In subsequent chapters, the ways we can facilitate and avoid interfering with the processes will be described. In sequence, these phases of normal wound healing by secondary intent are hemostasis, inflammation, proliferation, and remodeling (Figure 2-1). During these phases an overlapping, orderly sequence of