subcutaneous tissue (see Fig. 13-4). Nerve endings, sweat glands, and hair follicles are destroyed. The burn varies in color from red to tan, waxy white, brown, or black. It is distinguished by a dry, leathery appearance and texture since the elasticity of the dermis is compromised (Fig. 13-6). Normally, full-thickness burns lack sensation in the area of injury because of the destruction of nerve endings. However, most full-thickness burns have superficial and partial-thickness burned areas at the periphery of the burn, where nerve endings are intact and exposed. As the peripheral fibers regenerate, painful sensations return. Consequently, children often experience severe pain related to the size and depth of the burn. Full-thickness wounds are not capable of re-epithelialization and require surgical excision and grafting to close the wound.

FIG 13-6 *Bottom to top:* Deep partial-thickness burn *(red area)*, full-thickness burn *(white area)*, and full-thickness burn with eschar *(brown area)*. (Courtesy of Hillcrest Medical Center, Tulsa, OK.)

Fourth-degree burns are full-thickness burns that involve underlying structures, such as muscle, fascia, and bone. The wound appears dull and dry, and ligaments, tendons, and bone may be exposed (Fig. 13-7).