

of the functions of the integument are immature. The outer two layers of the skin, the epidermis and dermis, are loosely bound to each other and very thin. **Rete pegs**, which later in life anchor the epidermis to the dermis, are not developed. Slight friction across the epidermis, such as from rapid removal of adhesive tape, can cause separation of these layers and blister formation. The transitional zone between the cornified and living layers of the epidermis is effective in preventing fluid from reaching the skin surface.

The **sebaceous glands** are active late in fetal life and in early infancy because of the high levels of maternal androgens. They are most densely located on the scalp, face, and genitalia and produce the greasy vernix caseosa that covers infants at birth. Plugging of the sebaceous glands causes **milia**.

The **eccrine glands**, which produce sweat in response to heat or emotional stimuli, are functional at birth, and by 3 weeks of age palmar sweating on crying reaches levels equivalent to those of anxious adults. The eccrine glands produce sweat in response to higher temperatures than those required in adults, and the retention of sweat may result in milia. The **apocrine glands** remain small and nonfunctional until puberty.

The growth phases of hair follicles usually occur simultaneously at birth. During the first few months, the synchrony between hair loss and regrowth is disrupted, and there may be overgrowth of hair or temporary alopecia.

Because the amount of melanin is low at birth, newborns are lighter skinned than they will be as children. Consequently, they are more susceptible to the harmful effects of the sun.

Musculoskeletal System

At birth, the skeletal system contains more cartilage than ossified bone, although the process of ossification is fairly rapid during the first year. The nose, for example, is predominantly cartilage at birth and may be temporarily flattened or asymmetric because of the force of delivery. The six skull bones are relatively soft and are separated only by membranous seams. The sinuses are incompletely formed in newborns.

Unlike the skeletal system, the muscular system is almost completely formed at birth. Growth in size of muscular tissue is