

Chapter 9: Nail Growth and Structure

Cosmetologists should study nail structure and growth because *understanding the structure and growth of natural nails allows you to expertly groom, strengthen, and beautify nails.*

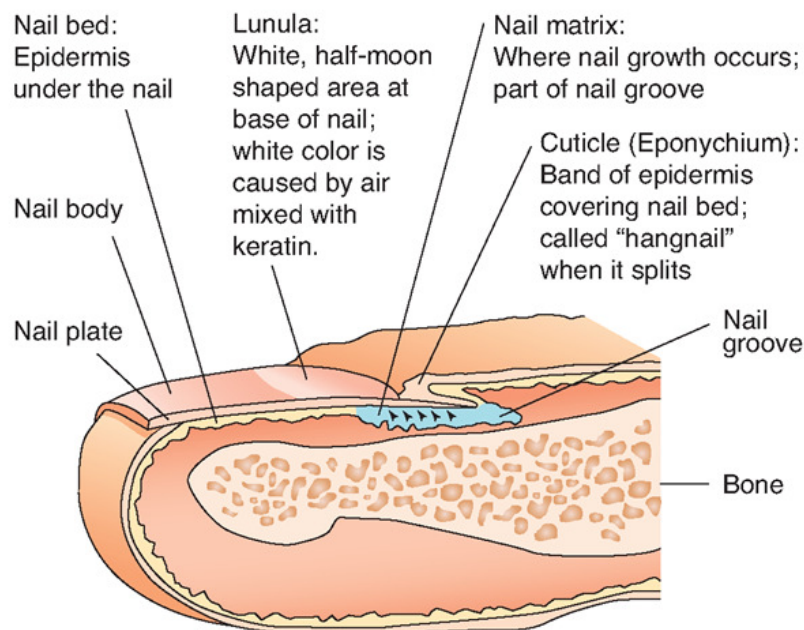
The Natural Nail

- **natural nail (onyx)**- the hard protective plate composed mainly of keratin (the same protein found in skin and hair-only it is harder)
- **Water content** affects the nail's flexibility (lower water content leads to more rigid nails)

How a normal nail looks:

- Firm but flexible
- Shiny, smooth surface (no wavy ridges, pits, or splits)
- Whitish and translucent with pink nail bed showing through

Nail Anatomy



- **nail plate**- hardened keratin plate that sits on and covers the nail bed; the most visible and functional part of the nail unit; composed of about 100 layers of nail cells
- **free edge**- part of the nail plate that extends over the tip of the finger or toe
- **nail bed**- the portion of living skin that supports the nail plate as it grows towards the free edge
- **bed epithelium**- thin layer of tissue that attaches the nail plate and the nail bed
- **matrix**- area where nail plate cells are formed
- **lunula**- visible part of the matrix that extends from underneath the living skin (the whitish half-moon shape at the base of the nail)
- **cuticle**- dead, colorless tissue attached to the natural nail plate (seals the space between that natural nail plate and living skin)
- **eponychium**- living skin at the base of the natural nail that covers the matrix area
- **hyponychium**- slightly thickened layer of skin that lies between the fingertip and the free edge of the natural nail plate
- **ligament**- tough band of fibrous tissue that holds nail bed and matrix to the underlying bone
- **nail folds**- folds of normal skin that surround the nail plate
 - nail folds form the **nail grooves** which are slits or furrows on the sidewall
 - the sidewall is also known as the **lateral fold** which is the skin overlapping the side of the nail

Nail Growth

**normal healthy nails grow in a variety of shapes depending on the shape of the matrix.*

- **Average rate of growth**- 1/10 an inch per month
- **What affects nail growth**: age (nail growth slows as you age), seasons (nails grow faster in the summer), nail position (middle fingernail grows fastest-thumb nail grows the slowest)

Nail Malformation

**If disease, injury, or infection occurs in the matrix, the thickness of the nail plate can change.*

If nail is lost because of disease, injury, or infection, it can return to its healthy growth if the matrix is healthy. It takes about 4-6 months for a fingernail and up to a year for a toenail.