THE NAIL = Onyx

- An appendage of the skin, this horny, translucent plate protects the tips of fingers and toes.
- The nail is composed mainly of keratin.
- A healthy nail should be whitish and translucent in appearance, with the pinkish color of the nail bed below showing through.

NAIL POROSITY

- Water can pass through more easily than normal skin.
- Water content of the nail is related to the humidity of the surrounding environment.
- The nail has 10 to 30% water content.
- Water content affects the nail's flexibility.
- The less water content, the more brittle the nail,
- Ointment-based conditioner reduces the loss of water in the nail.

NAIL ANATOMY

- Horny nail plate or nail body
  - rests on the nail bed
  - is formed by matrix cells
  - is the most visible part of the nail
  - is constructed in layers (layers are visible when nail splits)
- Free edge extends over tip of finger or toe.

NAIL PLATE

- Lunula
- Free edge
- Eponychium
- Nail plate
- Nail fold
- Hyponychium
- Matrix bed (nail root)
- Nail bed
- Bone

http://www.nail-solutions.co.uk/acatalog/Nail_Anatomy.html
**NAIL BED**

- Skin on which the nail plate rests
- Extends from lunula to just before free edge
- Attached to nail plate by a thin layer of tissue called the bed epithelium
- Supplied with many nerves

**MATRIX BED**

- Where the nail is formed
- Composed of matrix cells that produce the nail plate
- Contains nerves, lymph, and blood vessels to nourish nails
- Extends from under nail fold at base of nail plate
- Visible portion called lunula or half moon
- Growth affected by poor health, nail disorders or diseases, or injury to nail matrix

**SPECIALIZED LIGAMENTS**

- **Cuticle**
  - Crescent of toughened skin around the base of the nail.
  - A normal cuticle is loose and flexible.
  - Seals area against foreign material and microorganisms, prevent injury and infection.
- **Eponychium** is the extension of the cuticle at the base of the nail body that partly overlaps the lunula.
- **Hyponychium** is the thickened stratum corneum of the epidermis that lies beneath the free edge.

**NAIL FOLDS**

- Folds of normal skin surround the nail plate.
- These folds form the nail grooves, the slits or furrows on the sides of the nail on which it moves as it grows.
- The mantle is the deep fold of skin in which the matrix bed (nail root) is lodged.

**NAIL ANATOMY**

![Nail Anatomy Diagram](http://www.nail-solutions.co.uk/acatalog/Nail_Anatomy.html)

**NAIL GROWTH**

- Nail growth is influenced by nutrition, general health, and disease.
- Nail grows forward, starting at the matrix and extending over the digit tip.
- Nails grow in a variety of shapes.
- Average growth is 1/8” per month.
- Growth is faster in summer than in winter.
- Children’s nails grow faster than adults’ nails
- Middle fingernail grows fastest.
- Thumbnail grows slowest.
- Toenails grow slower than fingernails, but are harder and thicker.
NAIL SHAPES

ACORN, FLAT OR ARCHED
ROOFED
TRAPEZOID
OLIVE
DATE
CONCAVE
CONVEX
SQUARE
NARROW
FAN
CIRCUMFLEX
ARCHED
TUBULAR

http://www.nail-solutions.co.uk/

NAIL MALFORMATION

• Injury—Nail can separate from nail bed.
• Nail bed injury—New nail will be badly formed.
• Infection or disease—New nail will be badly formed due to interference at the base of nail. Nails are replaced as long as matrix remains in good condition.
• Replacement takes about four to six months.

BLUE NAIL

• Cause – poor blood circulation or heart disorder.
• Client can receive regular manicures.

www.beautyweb.com/Ask_the_Experts/Nails/nail_disorders.htm

CORRUGATIONS

• Wavy ridges are caused by uneven growth of nails due to injury or illness
• Treat nails with buffing block or pumice abrasive powder, and use ridge filler and colored nail polish

www.beautyweb.com/Ask_the_Experts/Nails/nail_disorders.htm

EGGSHELL NAILS

• Thin, white nail plate; too flexible
• Cause—chronic illness of systemic or nervous origin
• Treatment—by physician

www.beautyweb.com/Ask_the_Experts/Nails/nail_disorders.htm

FURROWS

• Depressions in the nail
• Cause—illness/injury due to matrix, pregnancy, stress. They are fragile.
• Treatment—avoid metal pusher; use cotton tip orangewood stick to push back cuticle area.

www.beautyweb.com/Ask_the_Experts/Nails/nail_disorders.htm
HANGNAIL / AGNAIL

- Cuticle splits around nail.
- Cause—dryness of cuticle, cutting off too much cuticle, or carelessness in removing cuticle.
- Treatment—advise client in proper nail care; recommend regular hot oil manicures.

Leukonychia

- Whitish discoloration of nails, usually caused by injury to base of nail; eventually grows off

MELANONYCHIA

- Indicated by darkening of nails
- May be seen as a black band under or within the nail plate
- Caused by a localized area of increased pigment cells with the matrix bed

ONYCHATROPHIA

- Atrophy or wasting away
- Cause— injury/disease
- Treatment—nail filed smooth
- No strong soaps

ONYCHAUXIS

- Hypertrophy
- Overgrowth of the nail caused by a local infection, or can be heredity
- Treatment - if no infection, file nail smooth and buff.

ONYCHOPHAGY

- Bitten nails
- Cause—nervous habit
- Treatment—frequent manicures, and care of hardened cuticle; also artificial nails a help
ONYCHORRHEXIS

- Split or brittle nails
- Cause— injury to finger, careless filing, vitamin deficiencies, strong soaps, excessive polish removers
- Treatment— oil manicures

PTERYGIUM

- Forward growth of cuticle
- Cause— cirulatory problems
- Treatment— use nippers to carefully remove growth; oil manicures

TILE-SHAPED NAILS

- Increased crosswise curvature throughout nail plate
- Caused by an increased curvature of the matrix bed
- No discomfort to the person

CUTS

- Wavy ridges are caused by uneven growth of nails due to injury or illness
- Treat nails with buffing block or pumice abrasive powder, and use ridge filler and colored nail polish

NAIL FUNGUS

- Vegetable parasites including all types of fungus or mold
- Highly contagious
- Transmitted through unsanitary implements and work conditions
- Can be spread from nail to nail or person to person
- Avoid by proper disinfection and sanitation
- Appears under nails as cheesy, sticky residue

“NAIL MOLD” IS NOT MOLD

- Discoloration between nail plate and artificial enhancements were thought to be mold; it is actually a bacterial infection caused by *Pseudomonas aeruginosa*.
- Can grow out of control and cause infection under certain conditions.
- Moisture produces the anerobic (no oxygen) condition.
- Cause - contaminated implements or moisture trapped between unsanitized natural nail and artificial enhancements.
**INDICATIONS OF INFECTION**

- Yellow-green spot that becomes darker in advanced stages
- Yellow-green spot changes from yellow to green to brown to black
- Bad odor if infected for a long period of time
- Nail plate sensitive to touch

**TREATMENT OF MOLD**

- Remove any artificial nail covering.
- Wear gloves during the removal process.
- File around stain, soak off, use alcohol to remove, and dry contaminated moisture from nail surface.
- Wear gloves; discard orangewood sticks, abrasives, and any porous product used.
- Sanitize all other implements, linens, and table surface before and after procedure.
- Refer client to physician.

**PREVENTION OF MOLD**

- Follow sanitary precautions.
- Do not perform services if mold is present.
- Do not take shortcuts in procedures.
- Do not omit sanitary steps, especially in artificial nail services.

**ONYCHOSIS**

- The technical term applied to any deformity or disease of the nails
- Medical treatment is required for all nail diseases

**ONYCHOCRYPTOSIS**

- Ingrown nails
- Cause—filing nails too much in corners and failing to correct hangnails; ill-fitting shoes
- Symptoms—nail growing into sides of flesh and causing infection
- Referral to a physician

**ONYCHOGRYPOSIS**

- Also called “ram’s horn nail”
- Cause—usually results from injury to the matrix; may be hereditary and can occur from long-term neglect
- Symptoms—thickening and increased curvature of the nails over the toe or finger
ONYCHOLYSIS

- Loosening of the nail without shedding, usually begins at the free edge continuing to the lunula
- Cause—internal disorder, trauma, infection, nail fungi, and allergy to nail enhancements or certain drug treatments
- Symptoms—loosening of the nail without shedding

ONYCHOMADESIS

- Separation and falling off of a nail from the nail bed; can occur on both the fingers and toes
- Causes—local infection, minor injury to the matrix, or severe systemic illness; chemotherapy or cancer X-ray treatments
- Do not apply enhancements
- Basic manicure or pedicure if no infection present

ONYCHOPHOSIS

- Growth of horny epithelium or thickened layers of skin under the nail, raising it from the nail bed

ONYCHOPHYMA

- Commonly known as onychauxis
- Cause—local infection or can be hereditary
- Symptoms—overgrowth or swelling of the nail

ONYCHOPTOSIS

- Periodic shedding of the nail, either in whole or in part.
- Causes—syphilis, fever, trauma, system upsets, or a reaction to prescription drugs

PARONYCHIA

- Cause—bacterial infection; can become chronic and often caused by yeast infection of the soft tissue.
- Symptoms—pus is usually present, along with a gradual thickening and brownish discoloration of nail plate.
PYOGENIC GRANULOMA

- Severe inflammation of the nail in which a lump of red tissue grows up from the nail bed to the nail plate

TINEA—RINGWORM OF THE HANDS

- Cause—vegetable parasite or fungus
- Symptoms—itching, scales, or red lesions occurring in patches or rings

TINEA PEDIS

- Athlete’s foot or ringworm of the foot
- Cause—vegetable parasite or fungus
- Symptoms—deep, itchy, colorless vesicles or blisters between toes, over soles
- Can be chronic

ONYCHOMYCOSIS

- Tinea vaguum - Ringworm
- Cause—fungus or parasite
- Symptoms—whitish patches, long yellowish streaks, thick and discolored, deeper layers invaded, thin peeling, and showing parts of nail bed

SUMMARY

- Important to remember that nails originate in the epidermal layer of the skin; like hair, their condition is dependent on the individual’s overall health.
- Nails contain the chemical substance called keratin, and can be cut without pain.
- A balanced diet filled with daily required vitamins and nutrients will help produce healthy, disorder-free nails.
- In providing quality nail services, a thorough knowledge and awareness of the structure and physiology of the nails is essential.
- Learn to identify unhealthy nail conditions; refer your clients to their physician.