

## The Basics

- Evaluate the patient and the lesion
- Determine if the process is involving the epidermis, dermis and/or subcutis
- It is recommended each exam room be stocked with biopsy instruments (shave blades, scalpels, and punches), alcohol swabs, prepared syringe with anesthetic, a hemostatic agent (aluminum chloride) and band-aids
- Regardless of the technique always clean the biopsy site using an alcohol swab
- Anesthesia is given with 1% lidocaine epinephrine using a 30 gauge needle
- Biopsy enough of the lesion so an accurate diagnosis can be made
- A simple band-aid is used to cover the biopsy site (aluminum chloride should be used to stop any bleeding)
- The average wound healing time is 8-12 days

## Shave Biopsy

### • Application:

- Verruca vulgaris, seborrheic keratosis, actinic keratosis, basal cell carcinoma, squamous cell carcinoma
- Melanocytic lesions (nevi and malignant melanoma)
- Some inflammatory diseases (contact dermatitis)
- Useful for lesions elevated in relation to the surrounding skin and superficial lesions without a dermal component

### • Advantage:

- Quick
- Low cost
- Reasonable cosmetic result depending on depth of shave
- Ease of wound care
- No suture to be removed

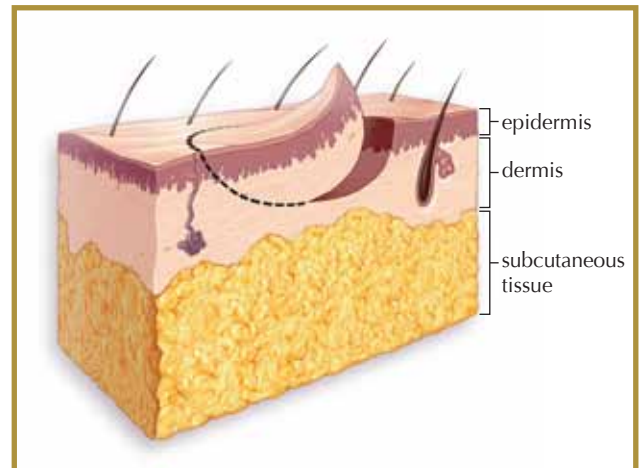
### • Disadvantage:

- Not adequate for some inflammatory diseases, (arthropod bite reactions, panniculitis (Erythema nodosum)
- Uneven specimen and depth
- Difficult to maneuver in some anatomic locations

### • Technique:

- Clean the biopsy site using an alcohol swab
- Anesthesia is given with 1% lidocaine epinephrine using a 30 gauge needle
- Use fingers to pinch lesion upward
- Papules should be shaved to the plane of the skin surface
- Macules and patches of pigmented (melanocytic) lesions should be removed entirely with a 1-2mm margin
- Place long shaves on a piece of paper and then place the specimen in the formalin bottle to prevent curling
- Apply aluminum chloride to stop any bleeding

- The biopsy is now ready to be placed in fixative and sent to your dermatopathologist for diagnostic evaluation



Images courtesy of Arthur Segall, DPM

# Punch Biopsy

(Punch technique is used when more than superficial dermis is needed)

- **Application:**

- Lesions with a dermal and subcutaneous component
- Excellent for inflammatory diseases including panniculitis (Erythema nodosum)
- Not recommended for melanocytic lesions unless the entire lesion can be removed

- **Advantage:**

- Disposable and non-disposable
- Good cosmetic result if sutured
- Ease of wound care

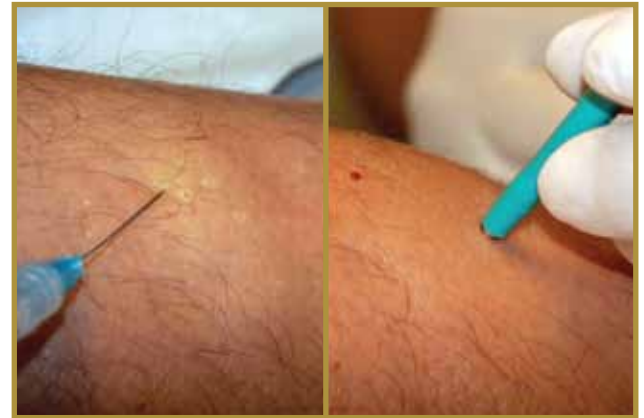
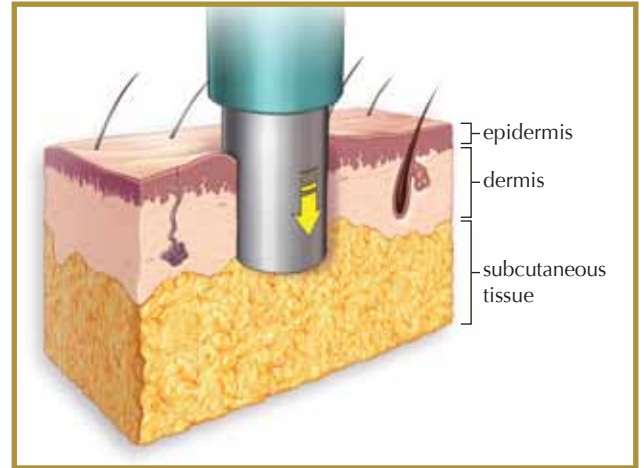
- **Disadvantage:**

- Require more healing time
- More costly if suture is used
- Suture removal

- **Technique:**

- Clean the biopsy site with an alcohol swab
- Anesthesia is given with 1% lidocaine epinephrine using a 30 gauge needle
- A 3 mm punch or greater is recommended to perform the biopsy
  - When taking a biopsy for panniculitis, use an 8 mm punch and optimize fat retrieval
- Stretch the skin opposite to skin tension lines so the defect will be oval in shape
- Using a punch, apply pressure and twist in a drilling motion
- Make sure the punch includes subcutaneous tissue
- Do not squeeze the forceps too hard when picking up the tissue
- Apply aluminum chloride to stop the bleeding
- Suture with Prolene or Nylon if needed (Vicryl for deeper dissolving)

- The biopsy is now ready to be placed in fixative and sent to your dermatopathologist for diagnostic evaluation



Images courtesy of Arthur Segall, DPM

# Punch Biopsy for Epidermal Nerve Fiber Density testing

- Epidermal Nerve Fiber Density testing allows for quantification and qualification of small fiber peripheral neuropathy through immunohistochemical staining

- Perform the punch biopsy as instructed above keeping in mind the below exceptions:

- One 3mm punch biopsy is taken from the distal calf (10 cm proximal to the lateral malleolus)
- Handle the tissue gently by the reticular dermis only. Forceps should never contact the upper layers of the skin as this may cause crush artifact and damage the nerve fibers
- The specimen must be submerged in **Zamboni's fixative** immediately after the biopsy is taken
- The specimen must never be allowed to air dry on gauze
- Never use formalin fixative when performing epidermal nerve fiber density testing

- Refer to our complete *Tissue collection, fixation and shipping instructions* online at [PodiatricPathology.com](http://PodiatricPathology.com)

Contact us at 866-369-6071 to request a kit and to find out more about Epidermal Nerve Fiber Density testing.