WORKING WITH FEET

We do not do routine hoof trimming. We will treat seriously overgrown feet, injuries to the coronary band/foot etc... Because many of our patients are not trained it may be necessary to treat/trim some horses under anesthesia. Though this is not a standard technique for handling horse’s feet, it does give students a good opportunity to learn how to trim without having to also hold the hoof up. As always: record as much information about the work performed as possible.

Equine Foot Basics
The Anatomy is affected by
- Conformation
- Nutrition
- Environment – especially moisture
- Injury
  - To coronary band/foot
  - To limb resulting in increased load on contralateral limb

The front foot is generally wider and slightly shorter than the hind foot

In a horse with “normal” confirmation
1. In the standing horse, the dorsal hoof wall should be parallel to the dorsal aspect of the pastern as well as the line of the heel
2. A line running straight down the cannon bone should hit the ground at the heel
3. A line bisecting the limb/hoof should create two mirror images
4. A line drawn across the coronary band or the palmar hoof should be perpendicular to the line bisecting the limb
5. The frog width is 50 – 65% of the length
6. The weight bearing heel falls at the widest part of the frog

While “unbalanced” the hooves pictured may have grown to “fit” the horse’s limb conformation. Trimming needs to take this into consideration.
The distance from the line of the heel to the widest part of the foot should be 2/3 the total distance between the line of the heel and the breakover point.

Breakover point is the area at the front of the foot which is touching the ground when the heel leaves the ground.

The distance from the widest part of the foot to breakover should be 1/3 of the total distance between the line of the heel and breakover.

Break-over point = area of hoof that is in contact with the ground just as the heels come off as the horse moves forward.

Approaching the horse (un-anesthetized)

- **Basic horsemanship**
  - Quiet
  - Slow
  - Confident

- **Do not go immediately for the leg**
  - Start at the shoulder
  - Or to the left of the side of the head and allow the horse to investigate you
  - Take plenty of time to make physical contact and “easy conversation”
    - Run your hands over the body
    - Run your hands over the belly and flank from a safe position
    - Approach the forelimb from the shoulder
    - Approach the hindlimb from the croup
    - Face the rear and always maintain contact

- **Check how horse is tied**
  - Quick release knot
  - 18” to 2’ of rope
    - Horse should be able to move head
    - Should not be able to lower muzzle below the knee
  - If the horse objects, is unsafe, or the rope is not strong enough get someone to hold them.
  - The ground should be level
  - Watch the reaction when you are trying to pick up a foot and do not try to pick up the foot if the rope is tight
  - Do not pick up the foot if the horse’s contralateral limb is against a fence or object

- **Holding a horse for a hoof trim**
  - A good holder can make a difficult horse much easier to work with
  - Holder should stand on the same side of the horse that the farrier is working on
    - If the horse wants to turn, proper head restraint will alleviate the problem
    - Standing on contralateral side is potentially dangerous and at best will throw their weight onto the farrier
The holder should engage the horse by talking, rubbing, etc
- Do not twitch horses to work on their feet
- Turn the head slightly to the ipsilateral side
- Do not let the horse graze

Approaching the recumbent horse
- Stay away from in front of the chest and legs, and between the front and hind legs
- Work on the legs in complete extension

Holding the foot
- Standing –
  Takes practice and some muscle development
  Exact stance will depend on horse and the farrier
  Hoof Stand offers some advantages, especially for those who do not trim hooves frequently
- Recumbent
  - Hold hoof between knees facing away from the horse
  - Lean forward so that if horse moves you go away from the hooves

Trimming

The majority of the work that we do involves overgrown feet, with long toes. These may or may not involve chronic laminitis.

It can be difficult to decide what you need to remove on seriously overgrown feet

The second most common foot issue that we see involves a prior injury to the foot/coronary band, resulting in abnormal growth.

What to trim
- Balance –
  - the definition of “hoof balance” varies from farrier to farrier and is NOT standardized
  - Generally: the hoof viewed from the front or back should be symmetrical around a line drawn down the axis of the phalangeal bones (from the fetlock to the ground)
  - HOWEVER, this is dependant on the horse’s conformation and can be difficult to evaluate in the recumbent horse
  - Attempts to “balance” or “straighten” the hooves of adult horses will result in abnormal loading of the ‘hinge’ joints of the legs and their supporting ligaments: When in doubt ask for help from experienced farrier

- Toe/Heel length (wall)
  - Toe and heel should be trimmed to achieve normal hoof/pastern alignment as shown above
  - Err on the side of making the hoof/pastern “broken forward” a little. This is easier on flexor/suspensory soft tissue and the dorsal surfaces of phalangeal joints
  - Optimal heel/toe length depends on horse’s confirmation AND differs between horses and burros (and mules)

- Excess hoof – rule of thumb: don’t trim more than you have to!
  - Frog –
    - excess frog that covers the lateral sulci of the frog traps dirt and anaerobes – this should be removed to open the sulci
    - frog confirmation is very different between horses and burros
  - Sole,
    - The most recently secreted sole (sometimes called ‘live sole’) will be shiny/smooth.
If you trim the sole too much your patient may need shoes or be sore. To avoid this:
- Trim away the flakey older cornified sole until you can see smooth newer sole
- Concentrate on making an arc at the toe, where the sole is the widest until you can clearly see the ‘white line’ that separates the hoof wall from the sole
- Press on the new sole with a metal instrument (back of a hoof knife or a hoof pick) – if you can depress the sole with your instrument, you should not trip any more, unless you plan to put a shoe on the hoof.
- Bonus: because you have identified the “white line” by creating this “Rookie Ridge” you can nip off the hoof wall abaxial to the white line (outside of it) without worrying about cutting sensitive tissue with your nippers.

- Quarter – the hoof wall is much thinner at the quarters than at the toe. Try to leave enough sole to support the wall and do not over-rasp the quarters. This will result in a bearing surface that is not level.
- Toe – thickest part of the hoof wall. Should be rounded to allow easy ‘break-over’, but leave enough of the tough material to support and protect the sole.
- Heel – do not over-trim! Better to leave a larger hoof angle than one that is too acute.
- White line and its significance – The white line is the most distal expression of the junction between the dermal and epidermal laminae. It is the “target” when driving nails to hold a horse shoe in place. Its recognition is essential for the diagnosis of chronic laminitis, “white line disease”, and most hoof abscesses.
- Bars – Do not trim the bars beyond what is necessary to remove excess horn that folds over and traps dirt in the crus of the sole.

Pathology
- Thrush/canker – Infection of the cornified tissues of the hoof that ranges from bad smelling exudate in the collateral sulci of the frog (thrush) to a proliferative lesion (canker). Both can deform the hoof and cause lameness. Removal of diseased tissue, with and treatment with local antimicrobials is required. Worse in draft horses and animals kept in wet corrals. Much rarer in range horses.
- Dirt – Long hooves allow the trapping of dirt, which provides an excellent environment for anaerobic growth. Sand and gravel can also damage the sole and wall, contributing to the development of abscesses.
- Laminitis – In our environment this is usually seen in the context of chronic founder in horses prone to equine metabolic syndrome (mainly ponies). Trimming of “curly toes” is complicated by anatomical distortions in the hoof.
- Abscess – Development of bacterial growth between the wall or sole and the under-lying sensitive structures occurs as a result of dirt getting through the hoof capsule. The condition is acutely painful and requires the establishment of drainage by removing cornified structures that trap the dirt and anaerobes. Certain soil types and hoof confirmations predispose a horse to abscesses.

Characteristics of good tools
- Nippers
  - Flat
    - Hand made and tempered quality steel (you get what you pay for!)
    - Very sharp and designed to maintain the cutting edge
    - Handles can range from 10” to 14”, with longer handles increasing leverage and cutting power (often necessary in draft cross horses on the range)
    - This tool is the most important of the trimmer’s kit
  - ½ round
    - A very handy additional tool that allows easy paring of the sole and grooving of the wall
    - Especially handy for dealing with abscesses and hoof cracks
• BE CARFUL: these can be dangerous in the hands of the unskilled!
  o Knives – both left and right handed versions
    ▪ Handle – Should allow a ‘two hand grip’
    ▪ Blade length –
      • Shorter blades allow more leverage in paring and can get into tighter places when opening an abscess.
      • “Loop knives” have become popular and have the advantage of having both a “left handed” and a “right handed” blade on the same knife.
    ▪ Care – buy good quality knives and keep them sharp. A ‘diamond hone’ made for hoof knives is a must.
    ▪ Safety – because hoof trimming takes force it is easy to slip and cause serious lacerations to the operator and the patient. Think about how you are pointing the blade before you use it!
    ▪ Hold – hoof knives are held so that the blade is exiting the fist by the little finger and the butt of the handle is under the thumb. When possible hold the handle with two hands.
    ▪ Hand motion – efficient trimming takes practice and requires wrist action. This will be demonstrated during clinics.

  o Rasp
    ▪ Do not skimp on rasp quality. When they wear out, get a new one.
    ▪ Farrier’s rasps only cut one way (away from the handle). Attempting to rasp the other direction is wasted effort.
    ▪ Pressure is applied to the end of the rasp away from the handle and this end is used to “pull” the rasp across the hoof. The other hand “steers” the rasp with the handle.
    ▪ Two handed rasping is much more efficient and will save your knuckles!

  o Pull offs – look like nippers but are a cheap dull tool for removing horseshoes. “Crease pullers” do the same thing but just one nail at a time. These are particularly useful in shod horses that have laminitis or cracked hooves.

  o Clinch cutter – Before a shoe is pulled the clinches that hold it in place should be cut.
A basic introduction to the hoof trim

Typical overgrown & cracked Hoof

Clean and examine

Using hoof knife, held as shown here, pare out excess sole and frog.

Create a flat surface inside the ‘white line’. Note: handler is holding hoof for demonstration. Normally, paring would be done with hoof held by handler’s legs or on hoof stand.

Foot properly held by farrier’s legs. Both hands are now available.

Using the flat surface as a guide to nip excess hoof wall.

Once the white line has been identified this can be done safely and accurately. Generally, start at one heel and nip around to hoof until all excess wall has been removed. Overlap each nip to make a nice smooth surface. When this is done properly there will not be few uneven areas that require rasping. (See below)
Once the bearing surface is smooth, flat, and balanced, the edge of the wall is rasped to remove flares.

Using the flat surface as a guide to nip excess hoof wall.

Once the white line has been identified this can be done safely and accurately. Generally, start at one heel and nip around to hoof until all excess wall has been removed. Overlap each nip to make a nice smooth surface. When this is done properly there will not be few uneven areas that require rasping. (see below)

As a general principle, most of the work should be done with the knife and nippers. This is more efficient and will result in a flatter bearing surface.