E.L.P.O. Protocol Guidelines

Enclosed you will find the various hoof care protocols we currently offer. The printouts are intended as an overview of the guidelines to be used in the field and for reference. It is important to get more information about the protocols by viewing the corresponding videos on the website. It is even more helpful and highly recommended that you further your knowledge and skill with the protocols by attending one or several of the courses we offer through the E.L.P.O. Video and print guidelines are certainly helpful, but nothing beats getting first-hand information and assistance from qualified instructors.

The 4 protocols included in this packet are:
- Hoof Evaluation Protocol
- Live Sole Hoof Mapping Protocol
- Barefoot Trimming Protocol
- Shoeing Protocol

Please note that the beginning step of all the protocol is to evaluate distortions, at which point you would use the Hoof Evaluation Protocol, and any time the trimming or shoeing protocols refer to mapping the foot, you would use the Live Sole Hoof Mapping protocol.

If you have any questions about the protocols, please feel free to e-mail us at:

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Very Sincerely,

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The goal of the E.L.P.O. Hoof Evaluation Protocol is to accurately, consistently and in accordance with an established standard be able to determine the amount and/or location of hoof distortions in individual equine feet. Although an overall rating for each foot may be achieved, individual attention to primary hoof structures is the key. Through the systematic evaluation of the external hoof anatomy, a more accurate and meaningful evaluation of the foot can be achieved, as well as a determination of the overall health and soundness of the horse.

The primary hoof structures that will be specifically evaluated are the: frog, bars, heels, and toe, and will be evaluated from a sole viewpoint.

#0: Considered to be a perfectly natural, normal foot, free of hoof distortions that is expected to be functioning at its optimum efficiency. Hoof structures with this grade would also be representative of a foot that either requires no maintenance or has just been trimmed and/or shod, and again is free of hoof distortions.

#1: Indicative of a natural normal foot that is at the end of a trimming/shoeing period and requires basic maintenance. Minor hoof distortions seen are the result of normal growth and with basic maintenance will be returned to a #0 status. If a #1 status is achieved after trimming/shoeing, then this grade would be representative of hoof structures that possesses only minor hoof distortions that would still allow the foot to function efficiently.

#2: Feet or Hoof Structures with a #2 grade have hoof distortions that can start to affect proper foot function. Although these are commonly seen at the end of a shoeing cycle, this rating is indicative of distortions that generally were not fully dealt with at the beginning of the shoeing/trimming cycle. Feet and structures in this condition can start to negatively affect performance, but may not be recognized as problems by everyone.

#3: Feet or Hoof Structures with a #3 grade have hoof distortions that can cause minor to moderate lameness issues. Foot function is often being compromised and common gait faults such as stumbling, forging and landing toe-first are prevalent, and signs of coffin joint pathology may be recognized and even diagnosed by veterinarians. Feet or Hoof Structures with a #3 rating are challenging the soft tissue around the DIP joint.

#4: Feet or Hoof Structures with a #4 grade have moderate to severe hoof distortions that are often associated with serious lameness issues. Feet or Structures with a #4 rating have been subject to long term hoof distortion and often, irreversible damage can occur. Foot function can be at least somewhat restored with shoes, pads, and detailed hoof trimming.

#5: Feet or Hoof Structures with a #5 grade have the most severe hoof distortions that contribute to both soft tissue and bony damage. Horses are often severely lame or debilitated as a result of the distortions. A #5 rating is sometimes irreversible, but can be improved with the use of various prosthetics and more detailed hoof preparation.

Disclosure: The information presented in this evaluation protocol are only general guidelines designed for equine professionals as a means to have a standardized formula for recognizing common hoof distortions that exist in many feet with basically “normal” conformations. This evaluation protocol is not intended to diagnose any lameness, nor is it intended as instructional guidelines for trimming or shoeing. For details on hoof care guidelines, please look at the “E.L.P.O. Hoof Trimming & Shoeing Protocols” offered by the Equine Lameness Prevention Organization, Inc.
Central Sulcus (CS) is Open, Wide & Round at the Bottom.
Frog Length = CS Length (A)
Frog Width = 1/4" - 1/2" Greater than the CS Length (A)

Central Sulcus (CS) is Open, with a Crease at the Bottom.
Frog Length = Slight Longer than the CS Length (A)
Frog Width = Slightly Greater or (+) to the CS Length (A)

Central Sulcus (CS) is Narrow, with a Crease at the Bottom.
Frog Length = 25% Longer than the CS Length (A)
Frog Width = Slightly Less or Equal (=/-) to the CS Length (A)

Central Sulcus (CS) is mostly Closed with a Deep Crease at the Bottom.
Frog Length = 50% Longer than the CS Length (A)
Frog Width = 10% - 20% Narrower than the CS Length (A)

Central Sulcus (CS) is Closed with No Accessible or Distinguishable Bottom
Frog Length = 75% Longer than the CS Length (A)
Frog Width = 25% - 35% Narrower than the CS Length (A)

Central Sulcus (CS) is Closed, Painful and Possibly Diseased (Thrush)
Frog Length = 100% (2 Times) Longer than the CS Length (A)
Frog Width = 40% or More Narrower than the CS Length (A)
<table>
<thead>
<tr>
<th>Heel End</th>
<th>Midline of Bar</th>
<th>Toe Length</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-15%</td>
<td>3/8” - 1/2”</td>
<td>Equal or 1/4” longer</td>
<td>Includes fractures, black tracts &amp; distorted commissure.</td>
</tr>
<tr>
<td>20%</td>
<td>3/4”</td>
<td>1/2” Longer</td>
<td>Includes fractures, black tracts or bruises.</td>
</tr>
<tr>
<td>40%</td>
<td>1”</td>
<td>3/4” Longer</td>
<td>Includes fractures, black tracts or bruises.</td>
</tr>
<tr>
<td>60%</td>
<td>1 1/4”</td>
<td>1” Longer</td>
<td>Includes fractures, black tracts or bruises.</td>
</tr>
<tr>
<td>80%</td>
<td>Greater than 1.25”</td>
<td>1 1/4” Longer</td>
<td>Includes fractures, black tracts &amp; distorted commissure.</td>
</tr>
<tr>
<td>100%</td>
<td>Greater than 1.25”</td>
<td>More than 1 1/4” Longer</td>
<td>Includes fractures, bruised, black tracts &amp; distorted commissure.</td>
</tr>
</tbody>
</table>

*Automatic Downgrade 1 Point if the Bars contain Fractures, Black Tracts or Bruises.*
Negative Plane Distal Phalanx (Neg. Palmar/Plantar Angle)

Negative Plane Distal Phalanx (NPDP or NPA) has only been talked about over the last 15 or 20 years. This is a condition where the rear of the coffin bone is closer to the ground than the front of the bone. Although there are some feet where the coffin bone sits parallel to the ground, most feet have a slightly positive angle, where the palmar/plantar aspect is raised. At this time, we feel that a negative angle is not normal or desirable and may be a cause or result of pathology in the foot. Most horses with this condition have some lameness, body soreness or performance issues. Some characteristics that are often associated with a Negative Palmar/Plantar Angle are: Bull Nose dorsal wall, prolapsed frog with closed central sulcus, and unstable, trashy heels that grow almost parallel to the ground with severe bar curvature yet a relatively short toe. This condition is also often associated with hock or stifle pain, and an extremely sore back. An NPA foot does not always possess all of these characteristics, so if you have concerns, a radiograph will be the most helpful way to confirm. Again, the numbered foot on the lower right may be representative of a foot that has a Negative Palmar/Plantar Angle.

Club/Upright Feet

Although many people consider Club or Upright feet to be abnormal feet, or at least undesirable, they are in fact quite common and can be very sound and functional feet as long as they are recognized and treated as individuals. To the left is a general overview of the different characteristics of both moderate and severe club feet. Moderate Club/Upright feet are very common and if properly managed tend to be non-problematic. Severe Club Feet are not as common and proper care is necessary in order for these feet to avoid pathology. Being able to recognize these conformational variations is the key to developing a proper management approach, and the E.L.P.O. Evaluation Protocol can give you information that may encourage you to look closer at a foot and be more aware of its classification. Below is an example of a numbered evaluation that may be typical of a club foot.
1. Recognize the Distortions of:
- The Heels (Mark the dimple in the back of the frog to assess heel position relative to the back of the foot)
- The Frog (Narrow, long & stretched, diseased, etc.)
- The Bars (Excessive curve, laid over, etc.)
- The Toe (Pointed on front foot, seems long, etc.)

2. Exfoliate the:
- Frog
  - Identify the true apex.
  - Only loose tags.
  - Clean central sulcus
  - Trim corners so they don't interfere with the rasp when trimming the heels.
- Sole - chalky material
  - Quarters (extremely important!!)
  - Heels (seat of corn or 'v' between hoof wall and bars)
  - Pillars or toe quarters (be very specific as this is your primary M/L balancing structure)
  - Across the toe or top of sole callus (be conservative if a barefoot trim)
- Bars - fractures, excessive curve, laid over, bacteria traps, etc.

3. Mark the:
- True apex of the frog
- Widest part of the foot (use all three methods to locate)
  - From the true apex of the frog, measure back (rearward) about 1" (on a size #0 to #2 foot) and draw a line. This is generally the widest part of the foot.
  - Find the position where the bars terminate into the frog commissures. If you run a hoof pick up the commissures (from the back forward), you will find a raised hump or swell. The center of that hump or swell generally indicates the termination of the bars. A line across the foot at that position generally represents the widest part of the foot.
  - Mark an arc about 2" long in the quarters at the sole/wall junction on both sides of the foot. Slide a straight edge sideways and you should be able to visually see the peak of the arch on one side of the foot. This is the widest part of the sole. Visually see the peak of the arch on one side of the foot, there should be slight edge discrepancies and you should be able to place your finger across the point of discrepancy. They are non-distortions of the foot.
  - Draw a line across the inside, top edge of the sole callus.

4. Evaluate the Ratios:
- From the widest part of the foot to the rear most weight bearing structure (before/current & then for the after/goal mark, use the frog buttress).
- From the widest part of the foot to the point of breakover.
- Do you have attainable goals? 50/50 or slightly more to the back 60/40 (yes or no?)

*This hoof mapping procedure is the initial stage of both the E.L.P.O. barefoot trimming protocol & the E.L.P.O. shoeing protocol. Continued hoof preparation using either of those protocols is recommended!

**DIMPLE**

1.75"
Step E.L.P.O. Hoof Trimming Protocol

1. Recognize the Distortions:
   (Note any distortions or non-distortions you see!)

2. Exfoliate the Foot

3. Map Out the Foot

4. Evaluate the Ratios

5. Trim the Heels:
   A. Start just behind the pillars with half your nipper blade out of the cut. (The starting point will coincide with a line drawn even with the tip of the frog.)
   B. Trim the wall close to the level to the live sole through the quarters at the widest part of the foot.
   C. Once you reach a location that corresponds to the middle of the bars, start to raise your cut line above the sole and continue through the heel, which will lie even with the tip of the coffin bone (draw lines through the bars if necessary).
   D. Your finished heel should be at the level of the frog butress or slightly lower.
   E. Final heel preparation consists of rasping a flattened area at the heel buttress enough to include an ample portion of the bars, and produce a substantial landing.
   F. A small chalky presence can remain in the V of the wall and bar junction if the heel has reached a non-distorted position & the frog takes precedence into the ground.

6. Trim the Toe:
   A. Nip or Rasp the wall about 1/4" above the level of the pillars and across the sole. Make sure you leave the black line that identifies the pillars and the sole/wall junction around the toe.
   B. Produce a rocker ahead of the line drawn that identifies the inside edge of the sole callus (approximately ¼" ahead of the tip of the coffin bone, or 2" ahead of the widest part of the foot).
   C. The rocker is only about 10° to 15° angle from the ground level.
   D. Produce a flattened area of wall about 3/4" to 1" long at the bottom of the hoof wall. Make sure you leave the trim line in the pillars for safety measures.

7. Finish the Dorsal Wall:
   A. Rasp any Flares that Exist
   B. From middle of the hoof wall to the ground from the most prominent flare visible. Make sure you leave the trim line in the pillars for safety measures.
   C. Do Not rasp further than the white zone at the bottom of the hoof wall. The wall should have a uniform wall thickness.
   D. Radius the edge of the hoof wall. (Hold your rasp at about a 45° angle and run it around the ground surface of the hoof wall.)

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13 Step E.L.P.O. Shoeing Protocol
(Steps 1 – 4 are the same as the Live Sole-Hoof Mapping Protocol)

**Hoof Preparation**

1. **Recognize Hoof Distortions**
2. **Exfoliate the Foot**
3. **Map Out the Foot**
4. **Evaluate the Ratio**

### Hoof Preparation

#### Sample Drawings of a Foot with common Toe, Heels, Bars & Frog Distortions. Foot has already been Exfoliated & Marked-Up. Notice the Ratios have more mass ahead of the widest part of the foot than behind.

5. **Trim the Heels**
   A. Start just behind the pillars with half your nipper blade out of the cut. (The starting point will coincide with a line drawing even with the tip of the frog.)
   B. Try to aim or visualize a straight line through the heels, so that the trimmed heel is still about 1/8” to ¼” inch of wall is higher than the exfoliated sole. Because the sole in the quarters generally dips down, your nippers may be more than 1/8” or ¼” from the sole as you cut through that region.
   C. As you pass through the quarters, continue the cut straight through the heel.
      • *Your finished heel should be at the level of the frog buttress or slightly lower, unless the frog is severely atrophied.*
   D. Final heel preparation consists of rasping a flattened area at the heel buttress enough to include an ample portion of the bars, and produce a substantial landing. The finished heel should be about 1/8” higher (or closer to the ground when the foot is on the ground) than the live sole in the V (seat of corn) formed by the heel and bar union.
      • *The heel generally ends close to the back of the frog, which is good rule of thumb; however, use the live sole as the primary guide and the back of frog as a secondary guide.*

6. **Trim the Toe**
   A. Nip or Rasp the wall close to the line drawn around the toe, just above the level of the pillars and across the sole callus. Be aware to **leave the black line** that identifies the pillars and the sole callus/wall junction around the toe. Be aware of the angle of your nipper blade so that you do not trim more outer wall than inner wall. This could lead to needing to over trim the inner wall and sole in order to make a flat landing.
   B. Rasp the wall down close to the level of the exfoliated sole ridge (callus). You might just touch the line with your rasp, but do not rasp so much that you eliminate the line. Leaving the line will ensure you have not gotten too close.
   C. Use your rasp to flatten the wall in the quarter, between the finished toe and heel platforms. Check to see that the wall is flat from front to back and side to side to guarantee a solid base for attaching the shoe.

7. **Pre-Finish the Outer Wall**
   A. Before fitting the shoe, rasp any flares that exist
      • *Rasp from the middle of the hoof wall to the ground from the most prominent growth ring. Your goal is to make the wall straight from the hairline to the ground if possible.*
      • **You should achieve a uniform wall thickness all the way around at the ground level.** (See Illustration on the Back)
      • *Try not to rasp further than the white zone at the bottom of the hoof wall (about ½ the original wall thickness). If you have reached this position but have not eliminated all of the flare, stop anyway. The wall growth and orientation will change over time and you will be able to completely eliminate the flare over the next few shoeings.*
8. Re-Check your Hoof Mapping

A. After trimming and dressing the wall, make sure all your marks are still visible and accurate. If there is a lot of distortion that needed to be removed, occasionally you will need to re-investigate some areas of the sole for additional exfoliating material, and in doing so will inadvertently remove some of your lines. Make sure your widest part of the foot line and your breakover line are clear and accurate, as those lines will help you determine shoe size and fit.
B. Make sure that your shoe surface is flat and that you have sole clearance, especially around the toe.

9. Select the proper shoe size for the foot

A. If using a shoe with a point of breakover built-in behind the leading edge of the shoe, place the shoe on the foot so that the breakover point is directly over the line on the foot you have established as the position for breakover.
   - The shoe should fit in the toe quarters and quarters (width), and should extend slightly behind the heel and end close to the back of the frog, or more specifically end at the dimple in the central sulcus.
B. If using a flat (plain-stamped) shoe or unmodified rim shoe, the above criteria must still be met, which usually requires forging a roll into the toe so that the point of breakover is produced 3/8” to ½” behind the leading edge of the shoe. The roll should continue slightly around the toe quarters and not perfectly straight across the toe. This will allow for easy individualizing of the direction of breakover by each foot of each horse, as determined by the direction the knee bends.
C. VERY IMPORTANT: Keep in mind that the majority of horses have somewhat mismatched feet, and some so much so that a different size shoe may be required for different feet of the same horse. Do not be afraid to use the proper size shoe for each foot. This will service the needs of each foot individually; hence service the needs of the horse better.

10. Shape the shoe to fit each foot

A. The shoe should be altered so that the following criteria is met:
   - The shoe is fit so that the shoe and outer wall are flush from the toe quarter to just behind the widest part of the foot.
   - From the just behind the widest part of the foot, the shoe can fit just slightly wider than the outer wall as you get to the heel. This extra width will be gradual from the widest part back so that you have about 1/8” of shoe wider than the wall at the heel when you are done.
   - If the heels of the foot curve in severely or the heels are somewhat contracted, the heels of the shoe may fit wider than the wall from the widest part of the foot to the end of the heel. As much as 3/16” of an inch of “expansion” is acceptable, however you may need to re-evaluate your toe quarter fit if the shoe ends up too triangular in shape.
   - Do not kink or bend the heels of the shoes in sharply to match narrow, curved heels, especially if it covers part of the frog buttress. The heels should not be much narrower than the toe pillar area of the shoe. (Maybe consider a pad, different shoe or smaller size.)

11. Hot Seat the Foot (OPTIONAL)

A. Hot seating the foot can be a good practice for the following reason or circumstances:
   - Too much sole has been accidentally removed or the soles are extremely sensitive.
   - The wall has been taken down too much and the flattened area on the sole is wider than 3/8”.
   - The foot is extremely hydrated and the sole callus is difficult to find (hot seating dehydrates the foot).
   - It helps to level the foot for cases when getting the wall flat has been difficult.
B. Because some manufactured shoes are so well seated out on the foot side, a plain, flat, wide-web shoe may be handy to use as a “hot seating shoe”. (Example – St. Croix Extra EZ Front or Hind)

12. Nailing On the Shoe

A. Most horseshoes will provide 4 nail holes on each side, however if using a modified shoe, you may lose the ability to use the first (toe) nail hole. Typically 3 nails to each side is sufficient, but if you feel it is necessary to punch extra holes, please feel free to do so. Many shoes come with 4 to 6 usable nail holes depending on the manufacturer, but you will typically only need to use 3 on each side.

13. Clinching and Finishing the Foot

A. Your normal or preferred clinching procedure is suitable for the examination.
B. Since you have already finished the wall before applying shoes, there is very little rasping that should be required on the dorsal wall. However, if there is any wall extending over the shoe (primarily in the toe region), simply turn your rasp to a 15° to 25° degree angle (about the same as the roll in the shoe), and slightly undercut the amount hanging over. DO NOT attempt to take the dorsal wall back to the shoe’s perimeter in a vertical manner. This will weaken the dorsal wall and can cause instability within the hoof capsule.

Incorrect Shoe Shape & Placement

Stretched Frog

Heel Turned Too Much! Should Not Cover the Frog!

Breakover of Shoe

Toe Pillar & Center of Heel should be In-Line or within a close range from being in-line.

Heels Fit to Back of Frog - Toe Pillars of Shoe & Toe Fit - Widest Part of Shoe should fit WPOTF

Undercut any amount of toe that extends ahead of the shoe. DO NOT Rasp the Dorsal Wall Back to Meet the Shoe. You have already removed all the flare in step #7.