



Guided Mark-Up in Metron: Hoof Analysis

How To | Part 2 | Steps 6-10



Click F11 on your keyboard for full screen display!

Dependent on your screen size, the menu buttons on the Database Browser screen may appear in one or two rows.



Guided Mark-Up in Metron: Hoof Analysis

How To | Part 2 | Steps 6-10

This online training session will provide you with the details of how to use "Guided Mark-Up in Metron: Hoof Analysis-How To | Part 2". Note: Please refer to "[Guided Mark-Up in Metron: Hoof Analysis \(How-To | Part 1\)](#)" for the first five steps of this Guided Mark-Up process.



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Guided Mark-Up in Metron: Hoof Analysis

How To | Part 2 | Steps 6-10

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The Training Session Objectives:

Describe steps 5-10 in creating a "Guided Mark-Up" of the hoof

Describe how to use Metron's Computed Parameters and Comparison window

(Video Length: 8 minutes)



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Guided Mark-Up in Metron: Hoof Analysis

How To | Part 2 | Steps 6-10

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Describe how to use Metron's Computed Parameters and Comparison window

(Video Length: 8 minutes)



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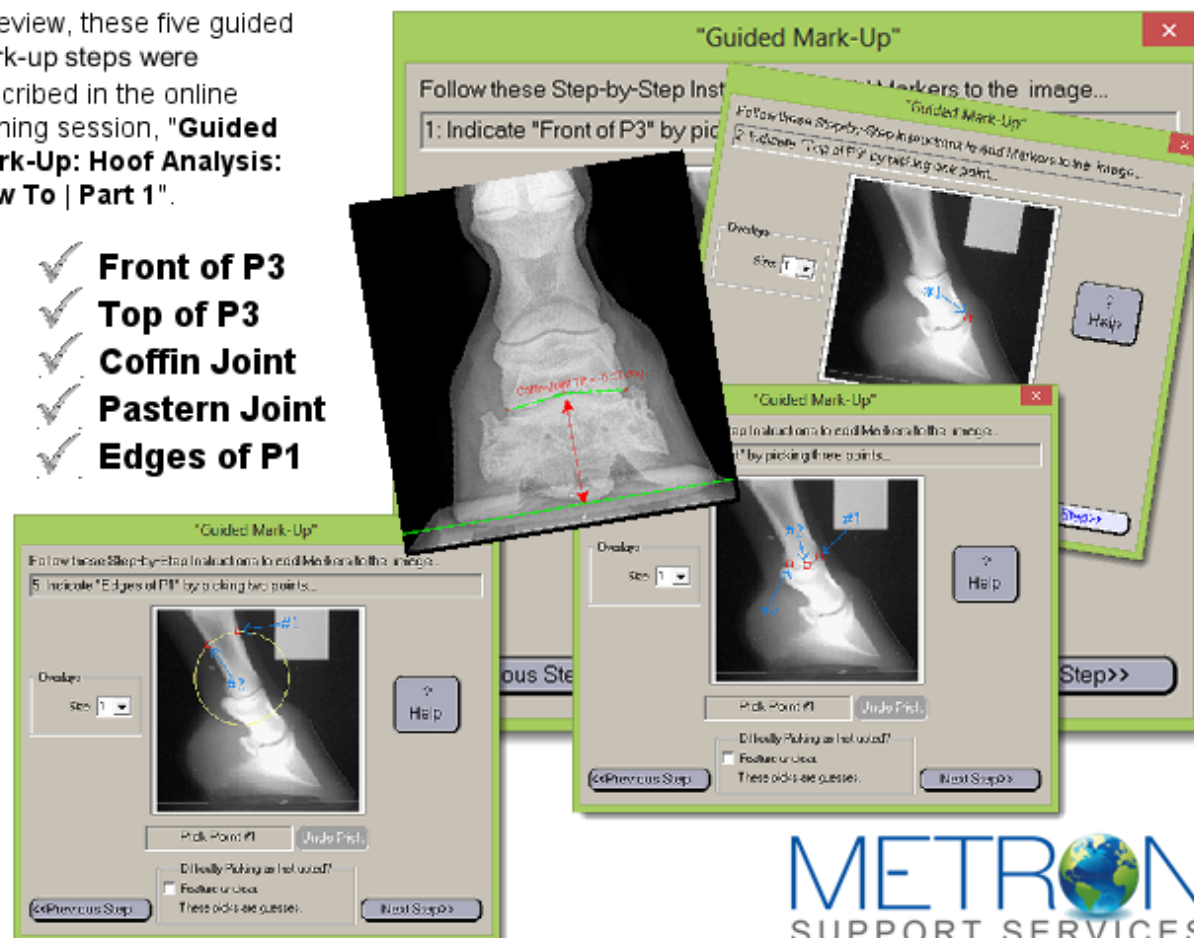
1

Guided Mark-Up: Hoof Analysis

How To | Part 2

In review, these five guided mark-up steps were described in the online training session, "**Guided Mark-Up: Hoof Analysis: How To | Part 1**".

- ✓ **Front of P3**
- ✓ **Top of P3**
- ✓ **Coffin Joint**
- ✓ **Pastern Joint**
- ✓ **Edges of P1**



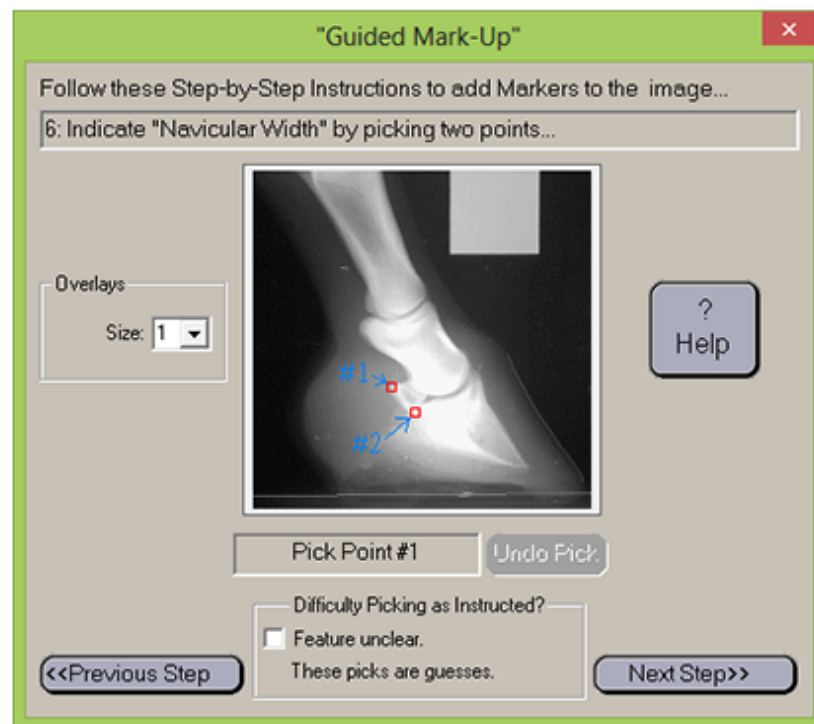
2

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How To | Part 2

The following is the conclusion of the ten steps as indicated on the instruction window.

Step 6: "Navicular Width"



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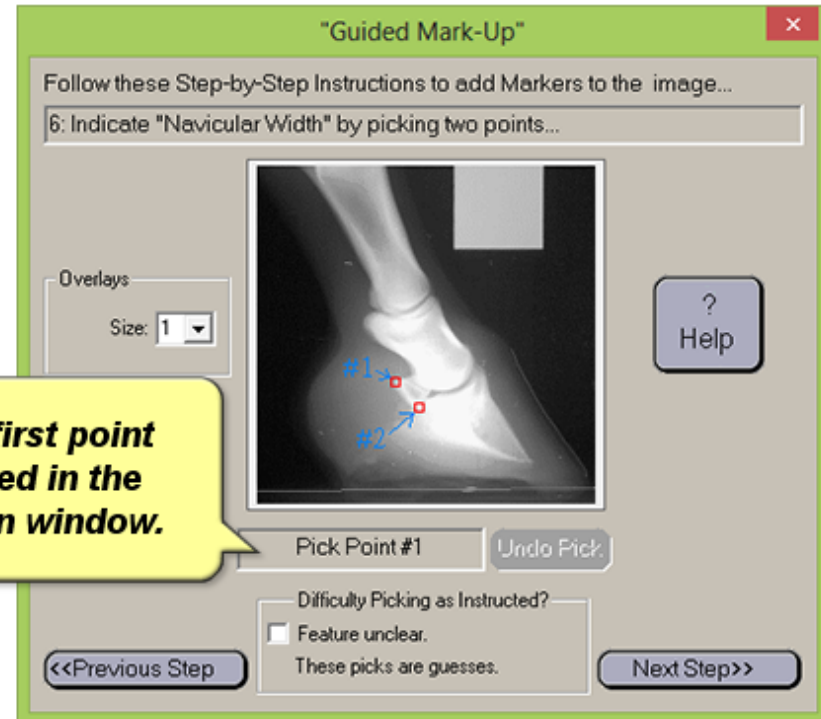
Guided Mark-Up: Hoof Analysis

How To | Part 2

The following is the conclusion of the ten steps as indicated on the instruction window.

Step 6: "Navicular Width"

Click the first point as indicated in the instruction window.

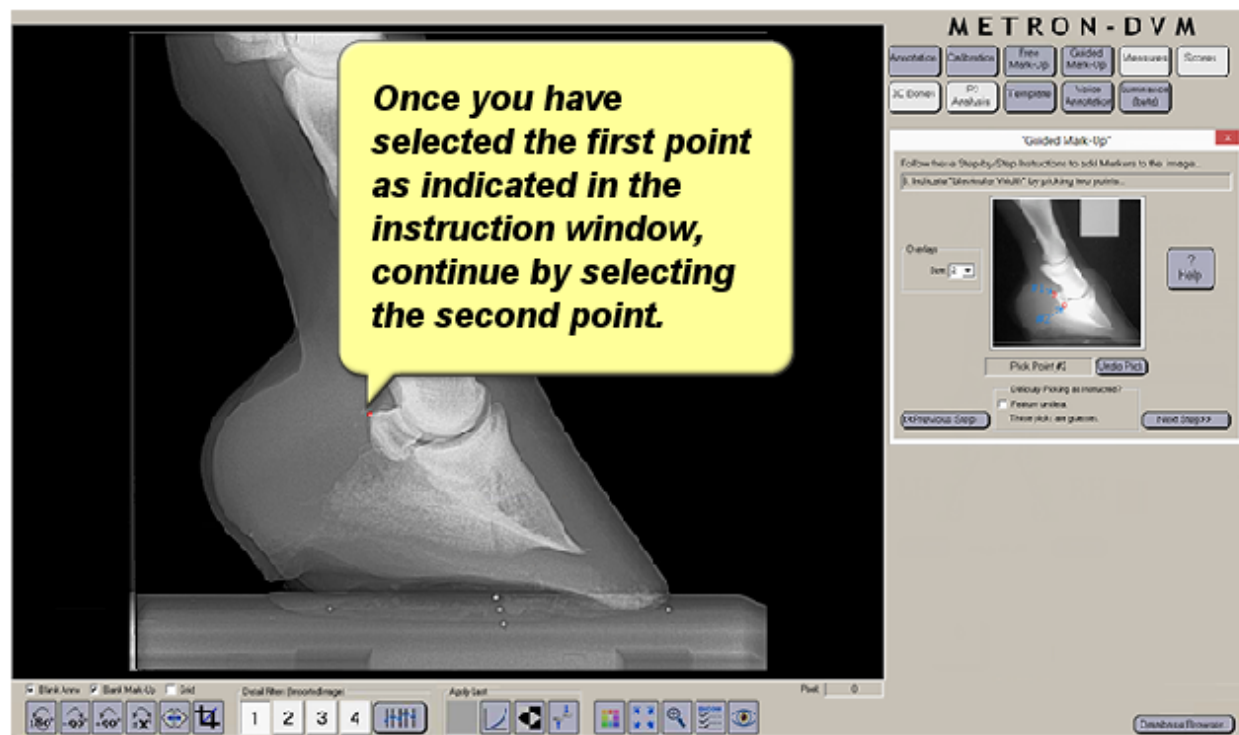


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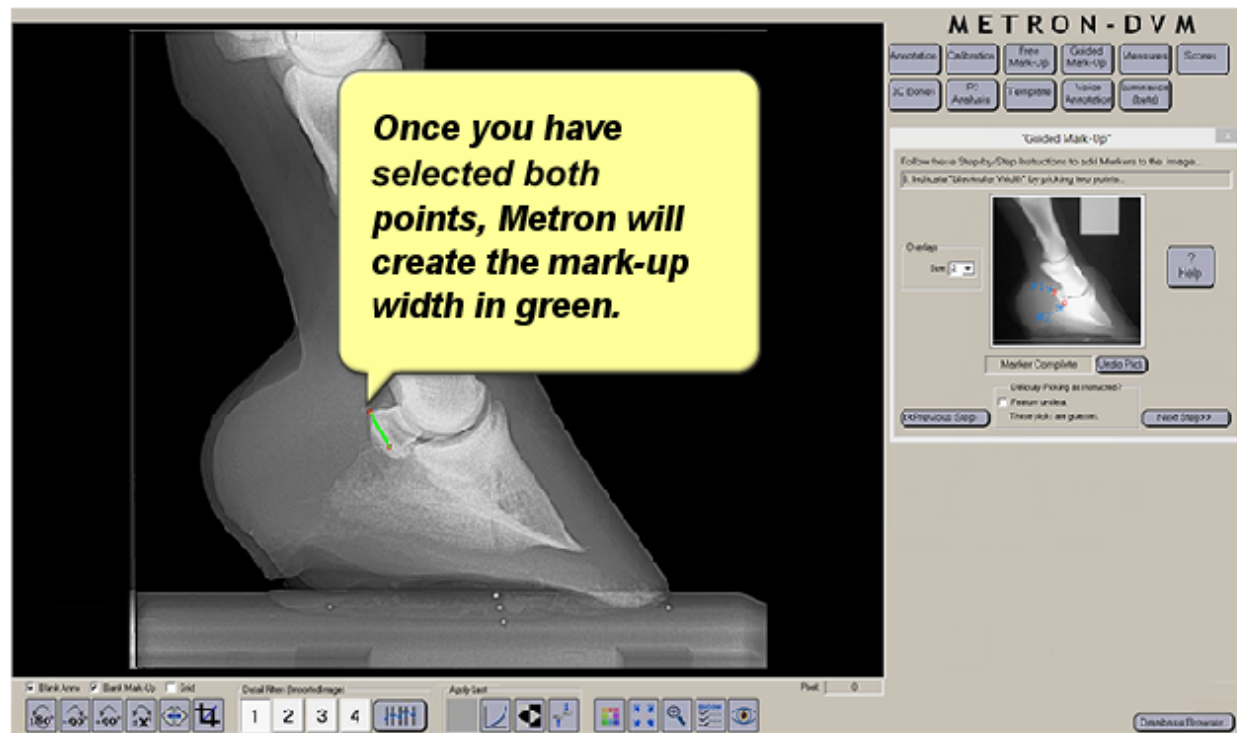
TIPS

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How To | Part 2

Step 7: "Ground Plane"



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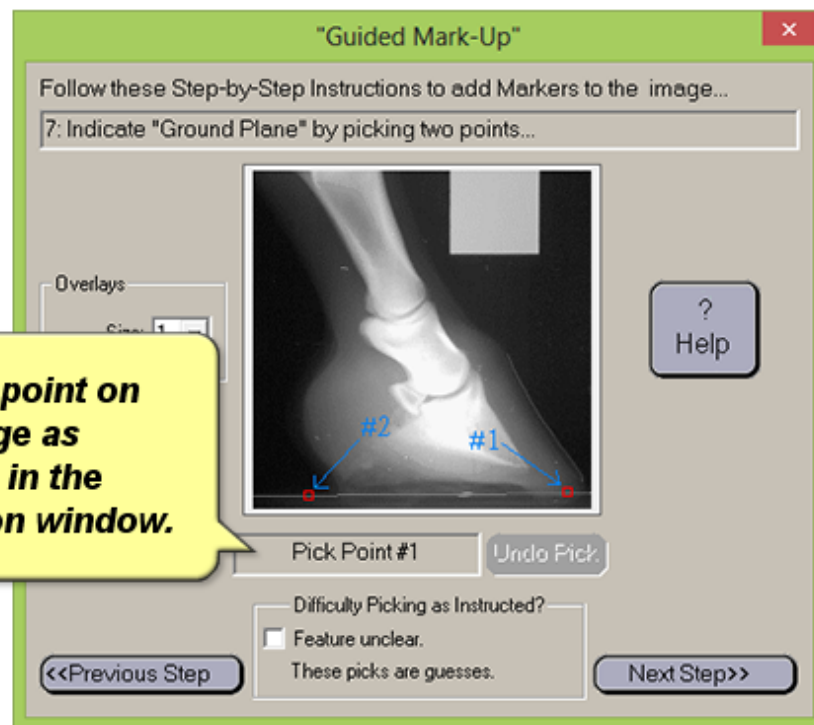
7

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Step 7: "Ground Plane"

**Click the point on
your image as
indicated in the
instruction window.**

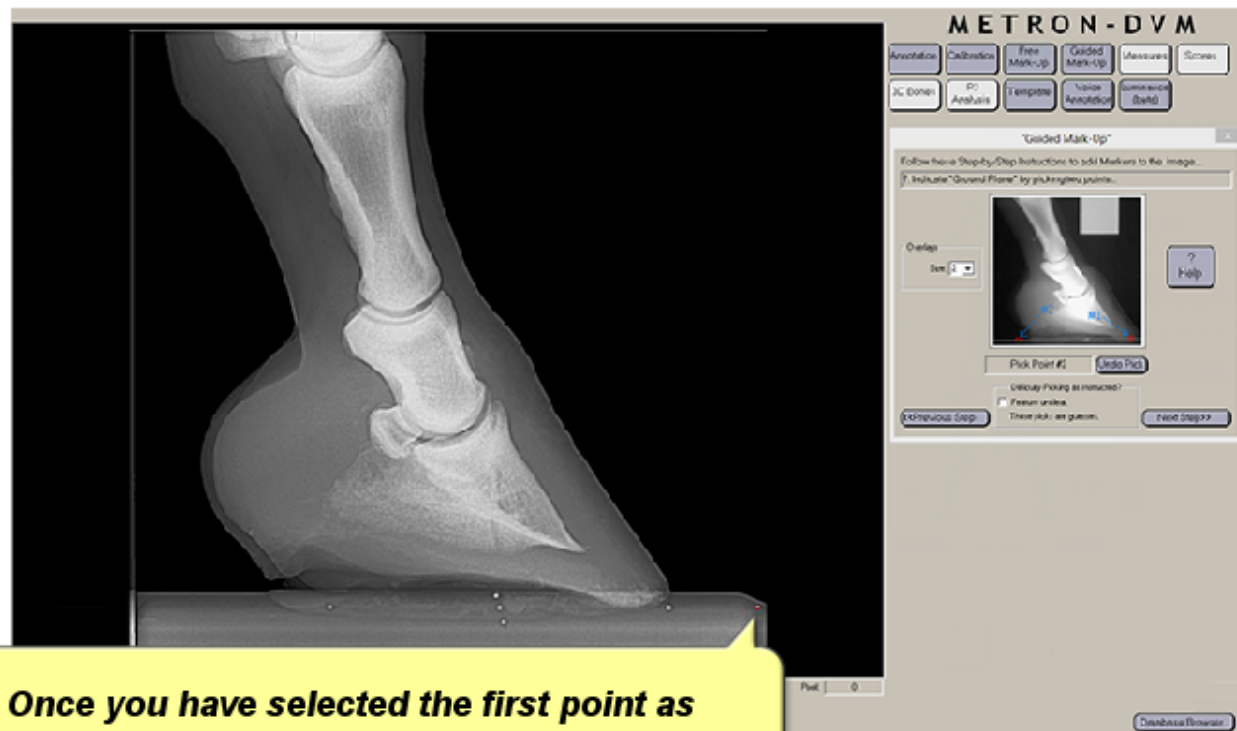


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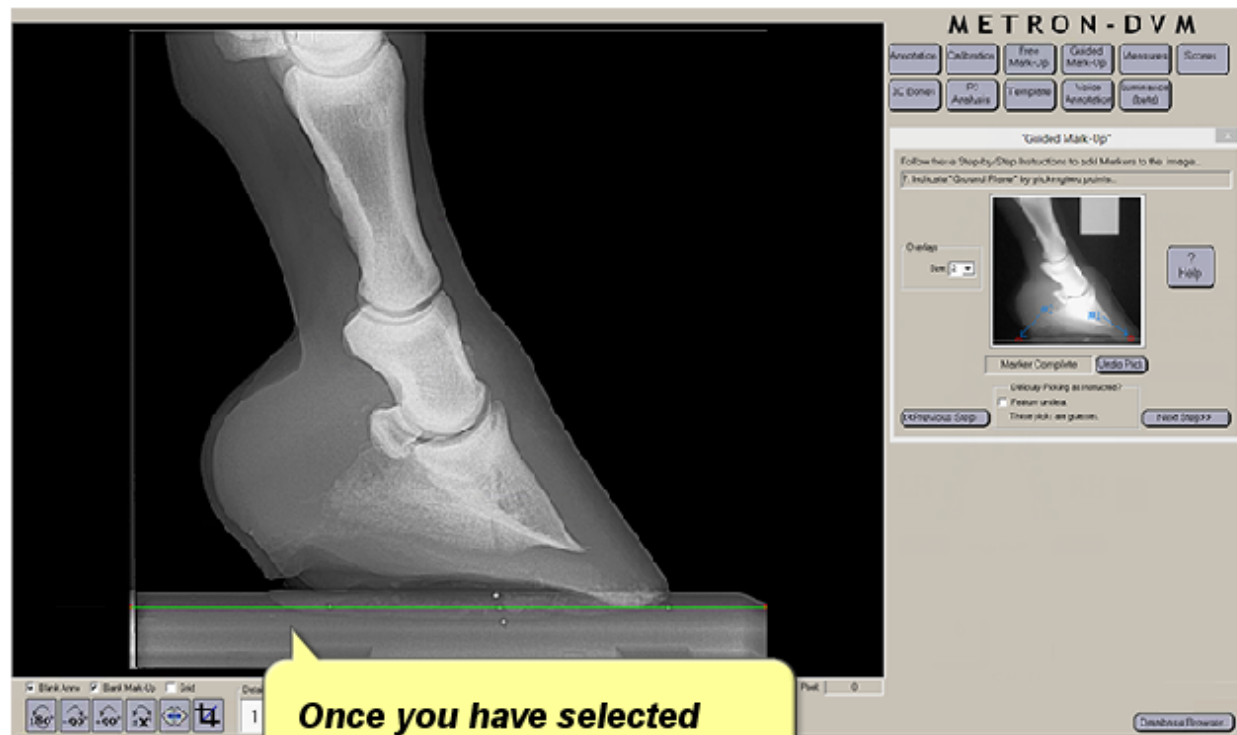
Once you have selected the first point as indicated in the instruction window, continue by selecting the second point.

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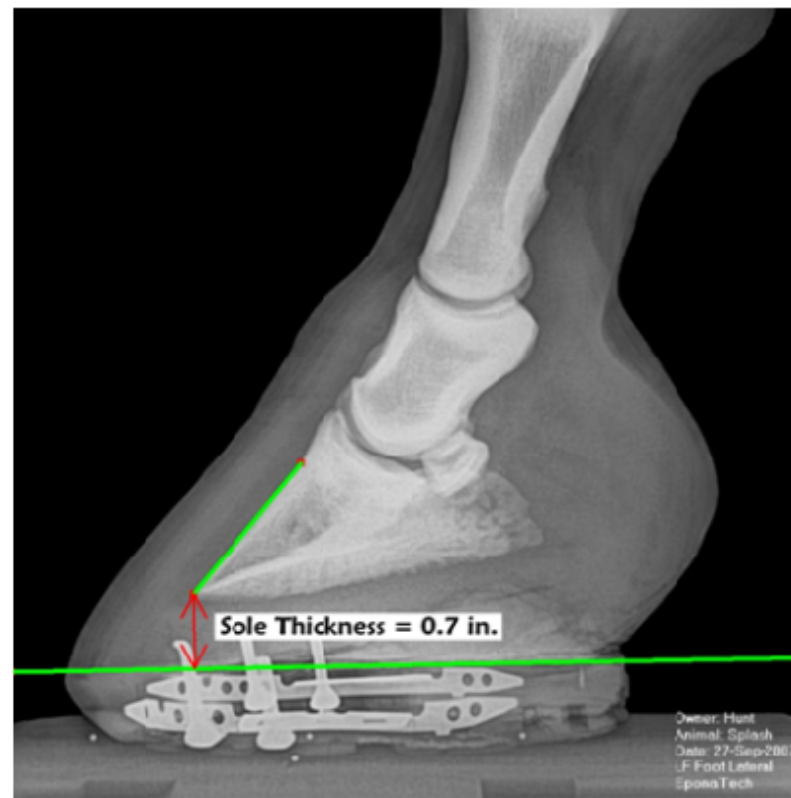
10

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Now that you have completed steps 1 and 7 - these measurements would be used by Metron to complete the **"P3 Distance to Ground"**.

This gives a measure of the thickness of the sole, which most practitioners measure just under the tip of the pedal (or "P3" bone). Metron's ability to accurately calibrate the image and compensate for the inherent magnification in radiographs is important for this and any other linear measure.



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Step 8: "Dorsal Wall"



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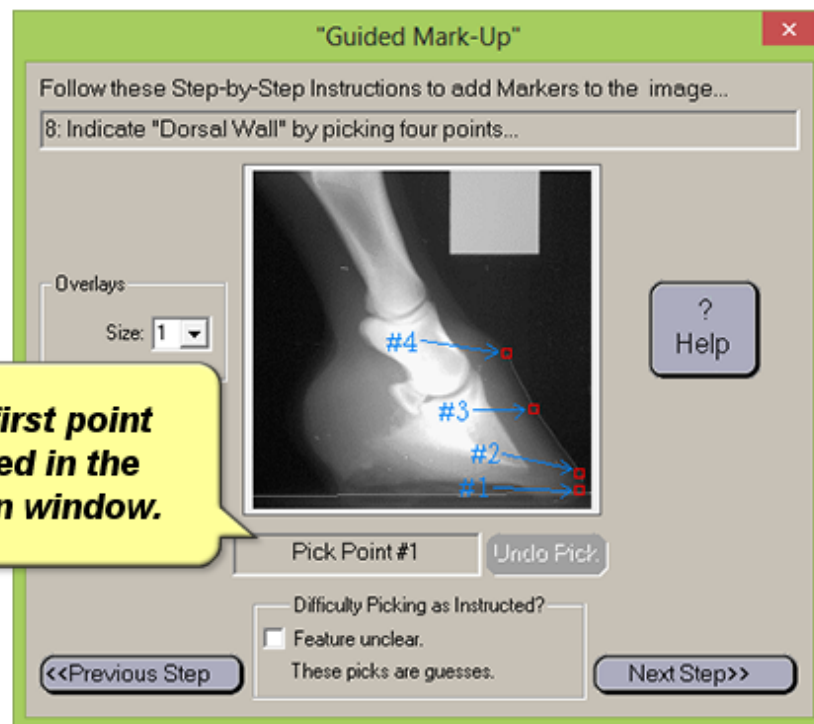
12

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Step 8: "Dorsal Wall"

**Click the first point
as indicated in the
instruction window.**

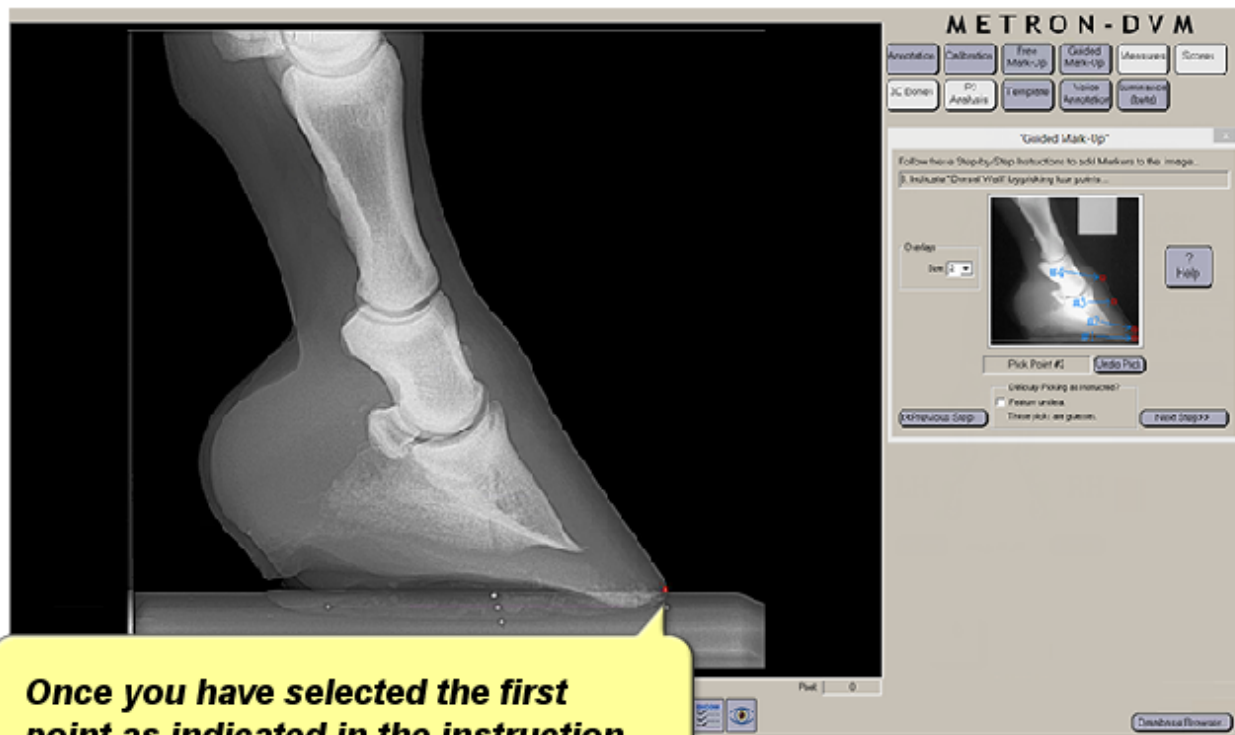


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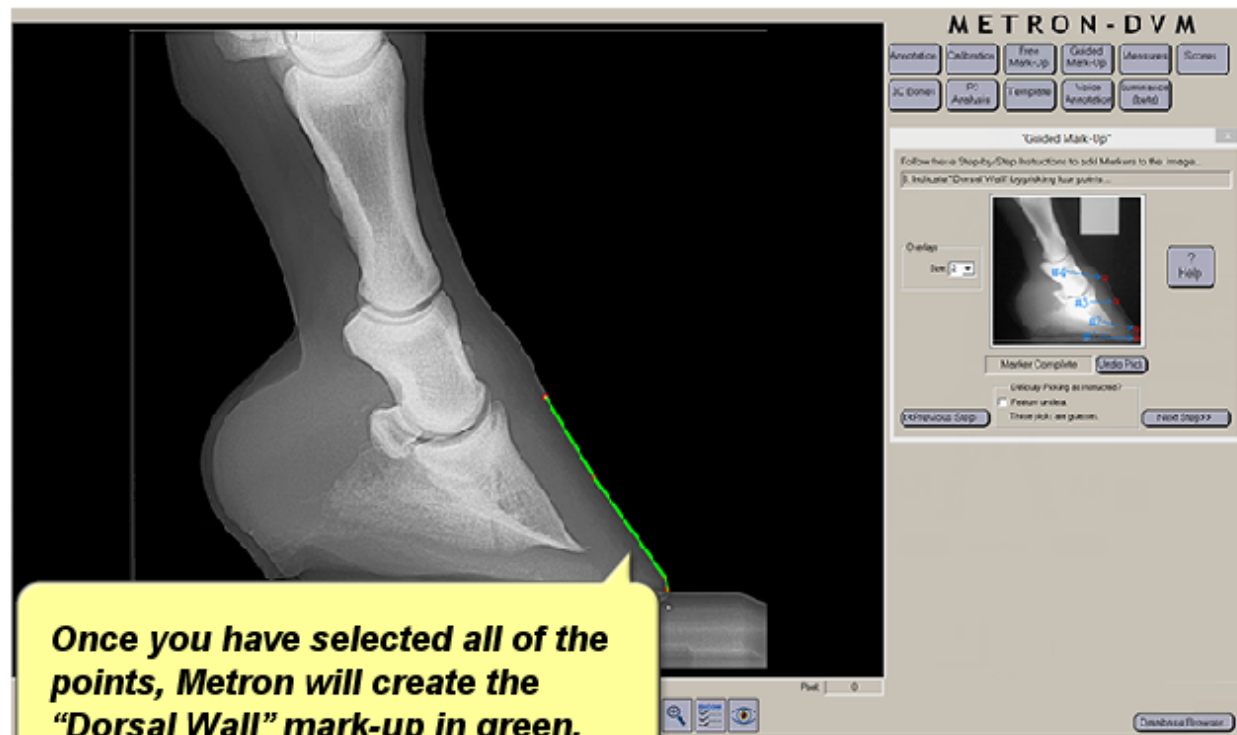
Once you have selected the first point as indicated in the instruction window, continue by selecting the other three points.

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Now that you have completed steps 7 and 8 - these measurements would be used by Metron to complete the **"Hoof Angle"**.

This is a very basic measure, the angle made between the front hoof wall and the ground. This parameter is computed in Metron from the lateral radiograph or the lateral photograph.



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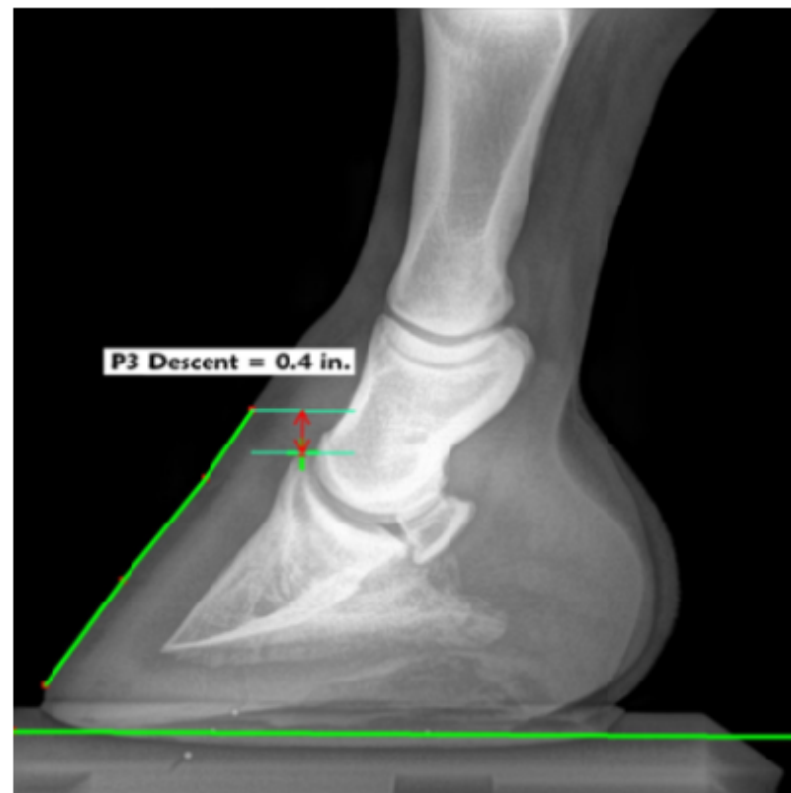
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Now that you have completed steps 2, 7 and 8 - these measurements would be used by Metron to complete the "**P3 Descent**".

The vertical distance from the hairline at the center of the front hoof wall down to the highest point on the P3 bone. This is used as a measure of the bone "sinking" relative to the hoof capsule, a condition which can occur as a side effect of laminitis.



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Step 9: "Rear Support"



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Step 9: "Rear Support"

**Click the point on
your image as
indicated in the
instruction window.**



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**Once clicked, Metron
will highlight the point.**

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Now that you have completed steps 3, 8 and 9 - these measurements would be used by Metron to complete the **"Toe Support %"**.

This measures the length of the foot in front of the articulation center of the coffin joint as a percentage of the entire foot length. This is a measure of whether the hoof has a "long toe" or "short toe" in a biomechanical sense relative to the joint axis.

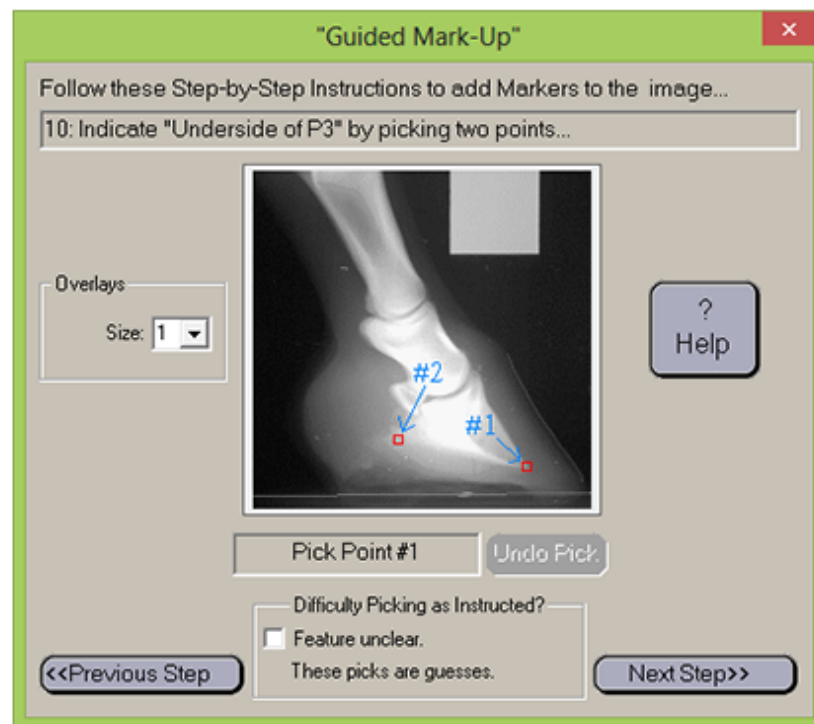


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How To | Part 2

Step 10: "Underside of P3"

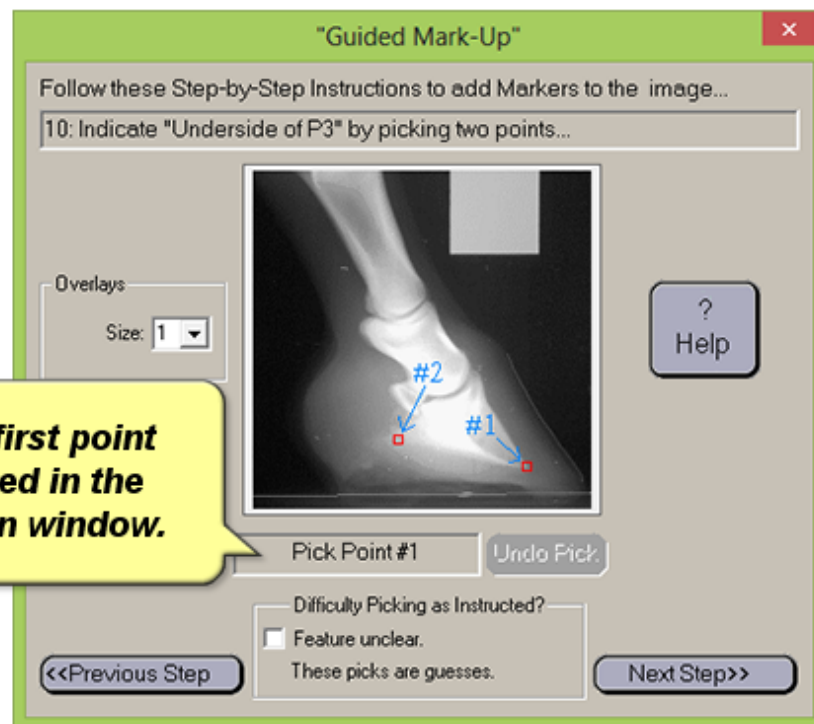


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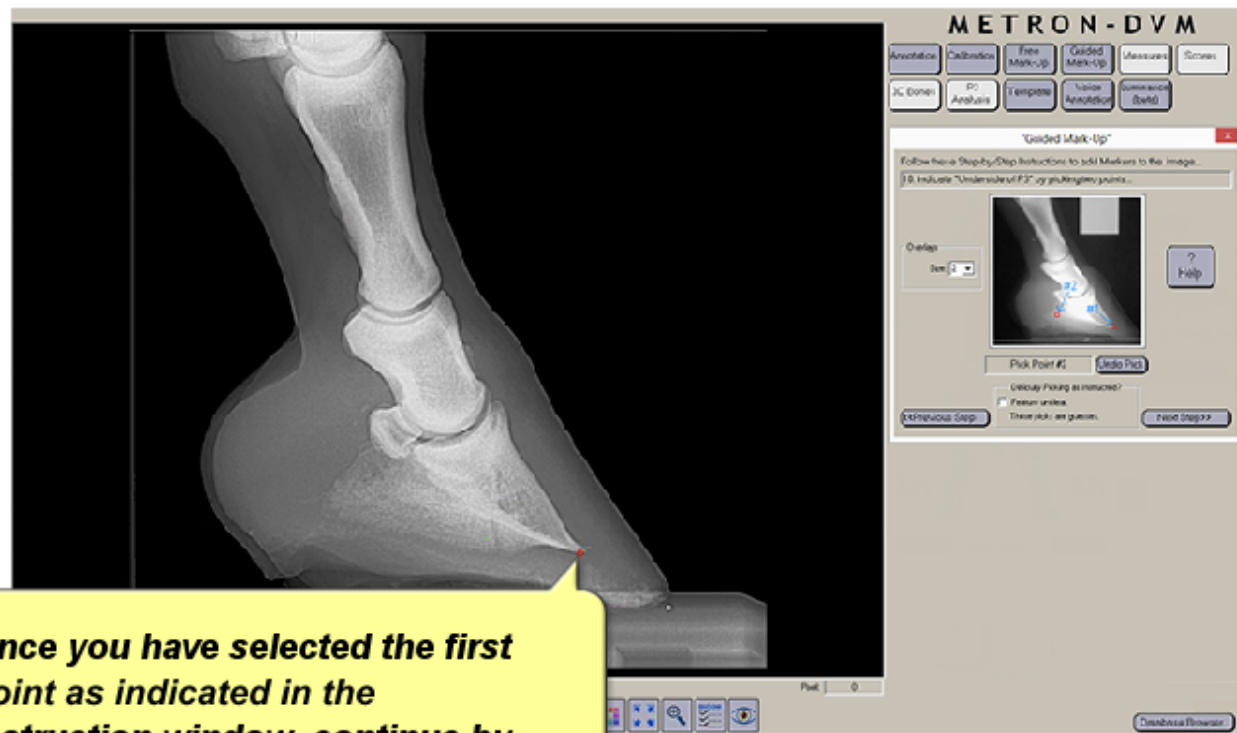
Step 10: "Underside of P3"

**Click the first point
as indicated in the
instruction window.**



Guided Mark-Up: Hoof Analysis

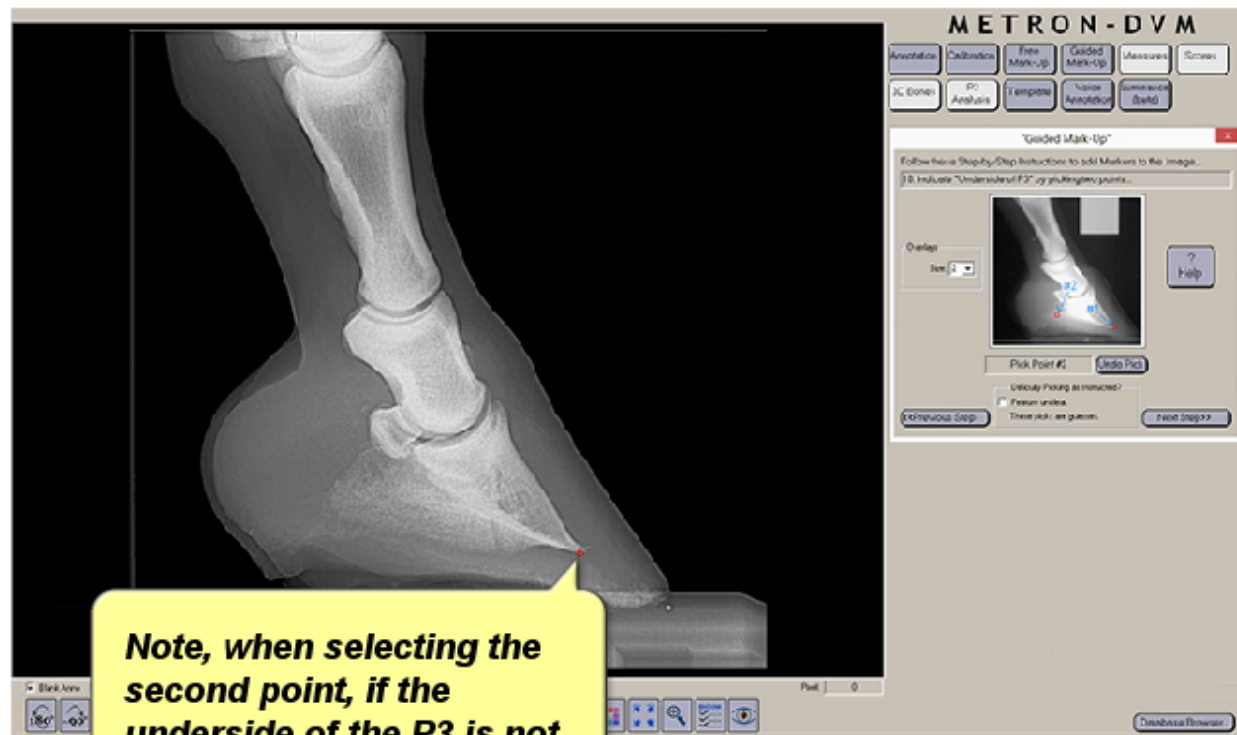
How To | Part 2



Once you have selected the first point as indicated in the instruction window, continue by selecting the second point.

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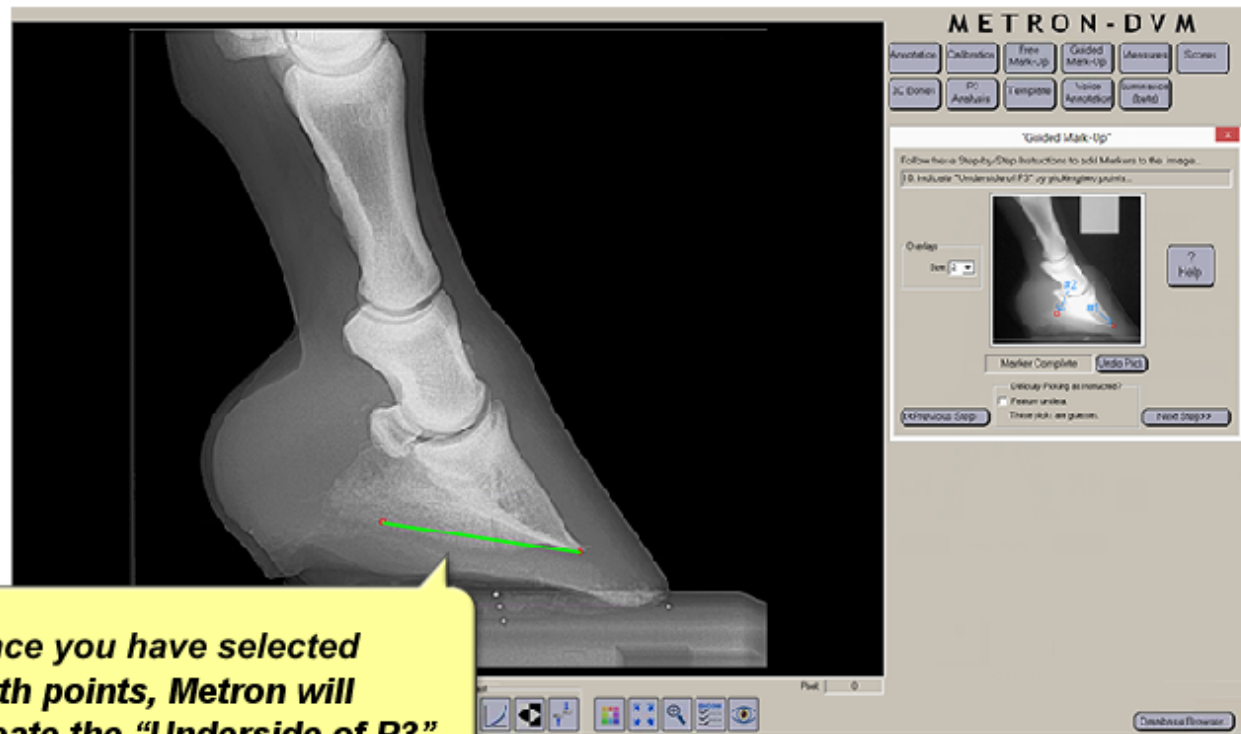
How To | Part 2



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How To | Part 2



Once you have selected both points, Metron will create the "Underside of P3" mark-up in green.

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Now that you have completed steps 7 and 10 - these measurements would be used by Metron to complete **"The Palmar Angle"**.

This is the angle between the underside of the pedal bone and ground. Around 3 to 5 degrees is a normal hoof. This measurement is one way that some practitioners like to calculate rotation of the coffin bone.

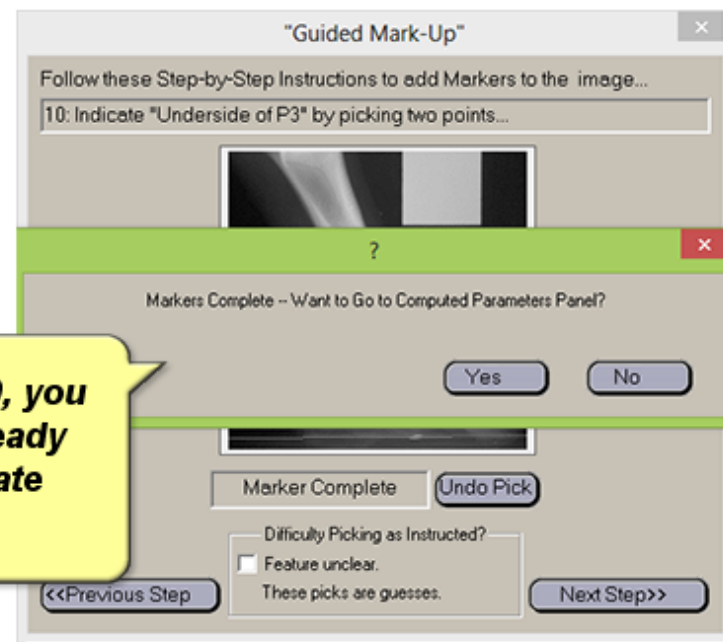


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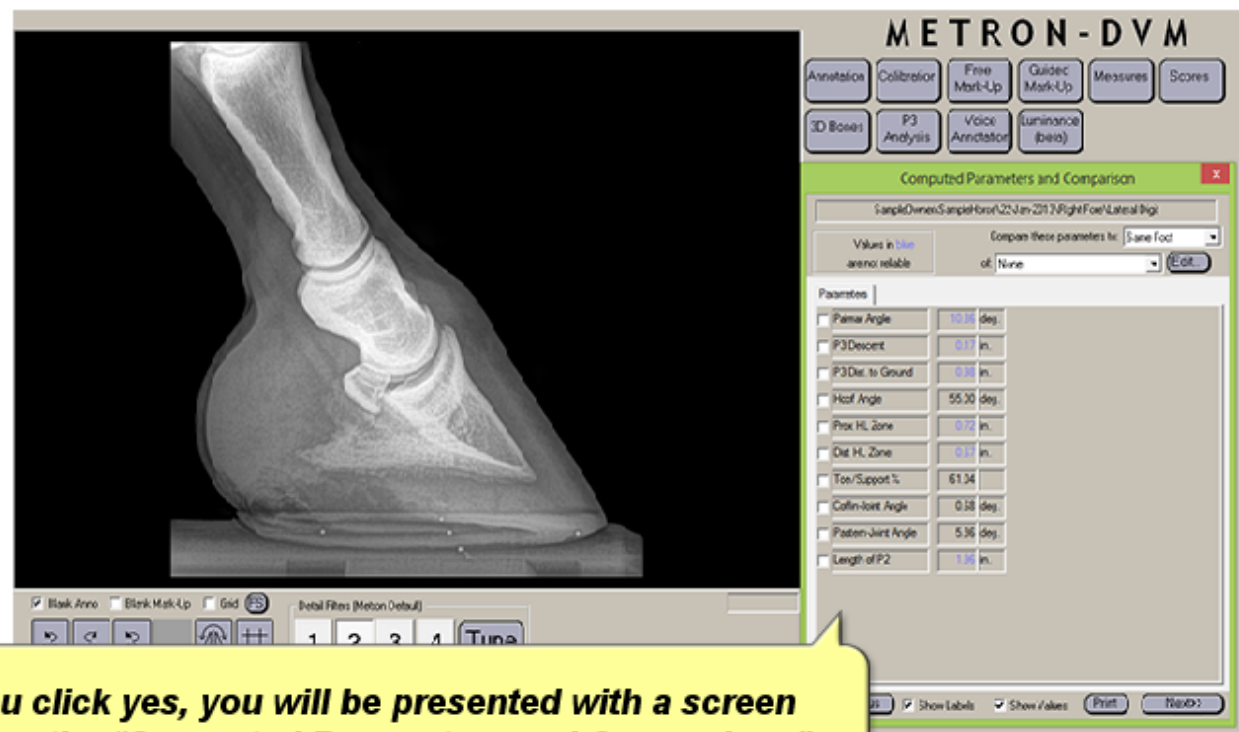
How To | Part 2

After finishing step 10, you are asked if you are ready to have Metron calculate the parameters.



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How To | Part 2



Once you click yes, you will be presented with a screen displaying the “Computed Parameters and Comparison”.

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How To | Part 2

Select the check box to the left of any of the parameters and the related mark-up will be shown on the image.

Computed Parameters and Comparison

SampleOwner\SampleHorse\22-Jan-2013\Right-Fore\Lateral Digit

Values in blue are not reliable

Compare these parameters to: Same Foot

of: None

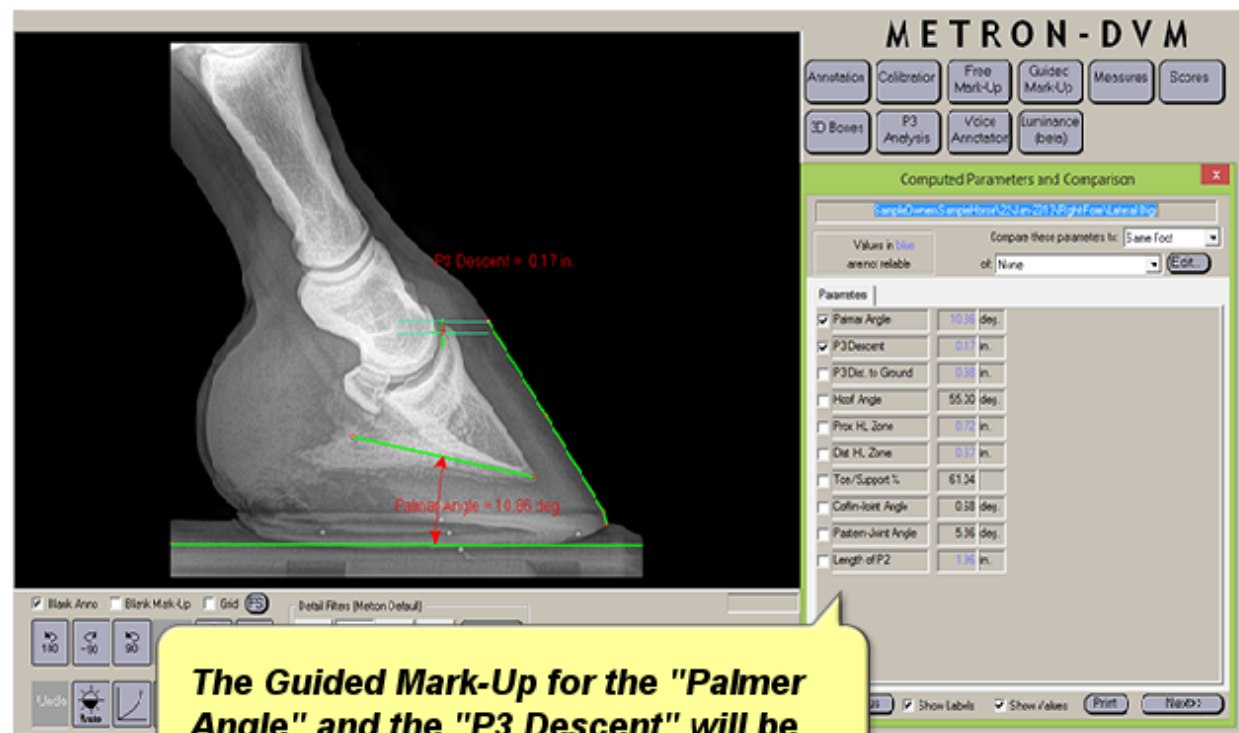
Edit...

Parameters		
☒	Palmar Angle	9.03 deg.
☒	P3 Descent	0.59 in.
☐	P3 Dist. to Ground	0.98 in.
☐	Hoof Angle	54.57 deg.
☐	Prox. HL Zone	0.71 in.
☐	Dist. HL Zone	0.67 in.
☐	Toe/Support %	62.78
☐	Coffin-Joint Angle	0.68 deg.
☐	Pastern-Joint Angle	5.36 deg.
☐	Length of P2	1.96 in.

<<Previous ☒ Show Labels ☒ Show Values Print Next>>

Guided Mark-Up: Hoof Analysis

How To | Part 2



Guided Mark-Up: Hoof Analysis

How To | Part 2

If multiple images are available, the right-portion of this panel can be used to show how this measured hoof compares to a group of previously measured hooves in Metron. Each parameter will be displayed graphically relative to the minimum and maximum values found within the group of hooves currently in the Metron database for comparison.

Computed Parameters and Comparison

SampleOwner\SampleHorse\22-Jan-2013\Right-Fore\Lateral Digit

Values in blue are not reliable

Compare these parameters to: Same Foot

of: None

Edit...

Parameters

☒ Palmar Angle	9.03	deg.
☒ P3 Descent	0.59	in.
☐ P3 Dist. to Ground	0.98	in.
☐ Hoof Angle	54.57	deg.
☐ Prox HL Zone	0.71	in.
☐ Dist HL Zone	0.67	in.
☐ Toe/Support %	62.78	
☐ Coffin-Joint Angle	0.68	deg.
☐ Pastern-Joint Angle	5.36	deg.
☐ Length of P2	1.96	in.

<<Previous ☒ Show Labels ☒ Show Values Print Next>>

Guided Mark-Up: Hoof Analysis

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Computed Parameters and Comparison

SampleOwner\SampleHorse\22-Jan-2013\Right-Fore\Lateral Digit

Values in blue are not reliable

Compare these parameters to: Same Foot

of: None

Parameters

☒ Palmar Angle	9.03	deg.
☒ P3 Descent	0.59	in.
☐ P3 Dist. to Ground	0.98	in.
☐ Hoof Angle	54.57	deg.
☐ Prox. HL Zone	0.71	in.
☐ Dist. HL Zone	0.67	in.
☐ Toe/Support %	62.78	
☐ Coffin-Joint Angle	0.68	deg.
☐ Pastern-Joint Angle	5.36	deg.
☐ Length of P2	1.96	in.

Click the 'Next>>' button.

<<Previous ☒ Show Labels ☒ Show Values Print Next>>

Guided Mark-Up: Hoof Analysis

How To | Part 2

The “Rules-Based Scoring” will be added to the display window. The results for this hoof and its rating are presented with comparison to other hooves in the Metron database.

Computed Parameters and Rule-Based Scoring

SampleOwner\SampleHorse\22-Jan-2013\Right-Fore\Lateral Digit

Rule: EponaTech#5

Parameters

Parameter Name	Value		Best when...	Importance	
Palmar Angle	9.03	deg.	Between 1.500 and 6.000	High	Edt...
P3 Descent	0.59	in.	At Most 0.587	High	Edt...
P3 Dist. to Ground	0.98	in.	At Least 0.489	High	Edt...
Hoof Angle	54.57	deg.	Between 51.000 and 56.000	High	Edt...
Prox HL Zone	0.71	in.	Between 0.572 and 0.774	High	Edt...
Dist HL Zone	0.67	in.	Between 0.599 and 0.811	High	Edt...
Toe/Support %	62.78		Between 62.000 and 70.000	High	Edt...
Coffin-Joint Angle	0.68	deg.	Between 5.000 and 15.000	Low	Edt...
Pastern-Joint Angle	5.36	deg.	Between 3.000 and 9.000	Low	Edt...
Length of P2	1.96	in.	Any Value is OK	None	Edt...

<<Previous Highlight Loss 0 % Score: 90.6 %

Guided Mark-Up: Hoof Analysis

How To | Part 2

Metron suggests a desirable range for each of the measurements. These ranges are subjective and the Metron user can click on the 'Edit' button at the far right for any parameter and may re-define the desirable range.

These ranges are described by 'rules' which can be saved, so if you edit the ranges, be sure to save the updated 'rule' so you can use it in other images.

In Metron 7 we supply the rule called "EponaTech#5" which we suggest as a reasonable set of guidelines which are based on our opinions and statistical analysis of thousands of images.

Computed Parameters and Rule-Based Scoring

SampleOwner\SampleHorse\22-Jan-2013\Right-Fore\Lateral Digit

Rule: EponaTech#5 Load Rule Save Rule Delete Rule

Parameter Name	Value	Best when...	Importance	
Palmar Angle	9.03	deg. Between 1.500 and 6.000	High	Edit...
P3 Descent	0.59	in. At Most 0.587	High	Edit...
P3 Dist. to Ground	0.98	in. At Least 0.489	High	Edit...
Hoof Angle	54.57	deg. Between 51.000 and 56.000	High	Edit...
Prox HL Zone	0.71	in. Between 0.572 and 0.774	High	Edit...
Dist HL Zone	0.67	in. Between 0.599 and 0.811	High	Edit...
Toe/Support %	62.78	Between 62.000 and 70.000	High	Edit...
Coffin-Joint Angle	0.68	deg. Between 5.000 and 15.000	Low	Edit...
Pastern-Joint Angle	5.36	deg. Between 3.000 and 9.000	Low	Edit...
Length of P2	1.96	in. Any Value is OK	None	Edit...

<<Previous Highlight Loss 0 % Score: 90.6 % Print

Guided Mark-Up: Hoof Analysis

How To | Part 2

Metron suggests a desirable range for each of the measurements. These ranges are subjective and the Metron user can click on the 'Edit' button at the far right for any parameter and may re-define the desirable range.

These ranges are described by 'rules' which can be saved, so if you edit the ranges, be sure to save the updated 'rule' so you can use it in other images.

In Metron 7 we supply the rule called "EponaTech#5" reasonable based on analysis

Parameters outside the desirable ranges are highlighted in red.

Parameter Name	Value	Unit	Best when...	Importance	Edit...
Palmar Angle	9.03	deg.	Between 1.500 and 6.000	High	Edit...
P3 Descent	0.59	in.	At Most 0.587	High	Edit...
P3 Dist. to Ground	0.98	in.	At Least 0.489	High	Edit...
Hoof Angle	54.57	deg.	Between 51.000 and 56.000	High	Edit...
Prox HL Zone	0.71	in.	Between 0.572 and 0.774	High	Edit...
Dist HL Zone	0.67	in.	Between 0.599 and 0.811	High	Edit...
Toe/Support %	62.78		Between 62.000 and 70.000	High	Edit...
Coffin-Joint Angle	0.68	deg.	Between 5.000 and 15.000	Low	Edit...
Pastern-Joint Angle	5.36	deg.	Between 3.000 and 9.000	Low	Edit...
Length of P2	1.96	in.	Any Value is OK	None	Edit...

<<Previous Highlight Loss 0 % Score: 90.6 % Print

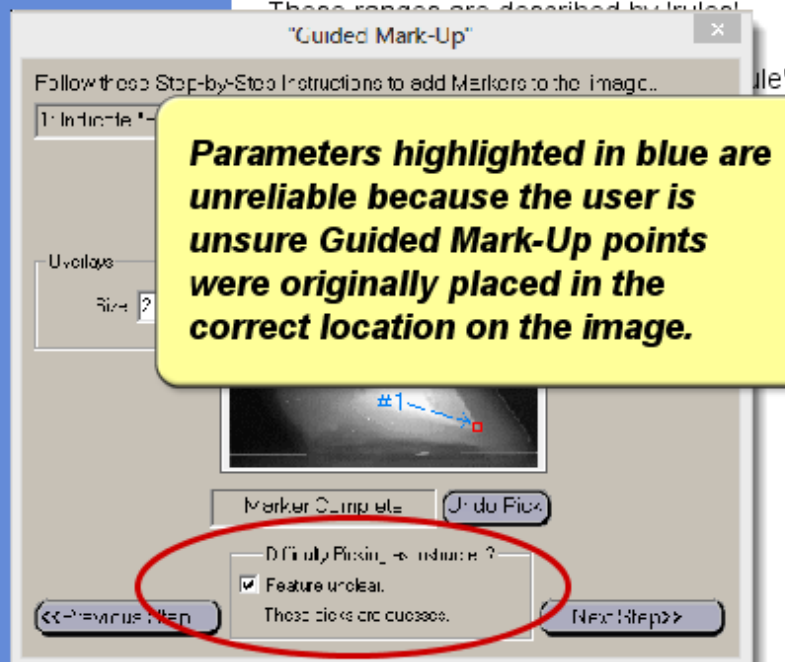
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Guided Mark-Up: Hoof Analysis

How To | Part 2

Metron suggests a desirable range for each of the measurements. These ranges are subjective and the Metron user can click on the 'Edit' button at the far right for any parameter and may re-define the desirable range.

These ranges are described by the user-defined rule.



Computed Parameters and Rule-Based Scoring

SampleOwner\SampleHorse\22-Jan-2013\Right-Fore\Lateral Digit

Rule: EponaTech#5 Load Rule Save Rule Delete Rule

Parameter Name	Value	Best when...	Importance	Edit...
Palmar Angle	9.03	deg. Between 1.500 and 6.000	High	Edit...
P3 Descent	0.59	in. At Most 0.587	High	Edit...
P3 Dist. to Ground	0.98	in. At Least 0.489	High	Edit...
Hoof Angle	54.57	deg. Between 51.000 and 56.000	High	Edit...
Prox HL Zone	0.71	in. Between 0.572 and 0.774	High	Edit...
Dist HL Zone	0.67	in. Between 0.599 and 0.811	High	Edit...
Toe/Support %	62.78	Between 62.000 and 70.000	High	Edit...
Coffin-Joint Angle	0.68	deg. Between 5.000 and 15.000	Low	Edit...
Pastern-Joint Angle	5.36	deg. Between 3.000 and 9.000	Low	Edit...
Length of P2	1.96	in. Any Value is OK	None	Edit...

<<Previous Highlight Loss 0 % Score: 90.6 % Print

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Guided Mark-Up: Hoof Analysis

How To | Part 2

Metron suggests a desirable range for each of the measurements. These ranges are subjective and the Metron user can click on the 'Edit' button at the far right for any parameter and may re-define the desirable range.

These ranges are described by 'rules' which can be saved, so if you edit the ranges, be sure to save the updated 'rule' so you can use it in other images.

In Metron 7 we supply the rule called "EponaTech#5" which we suggest as a reasonable set of guidelines which are based on analysis.

Computed Parameters and Rule-Based Scoring

SampleOwner\SampleHorse\22-Jan-2013\Right-Fore/Lateral Digit

Rule: EponaTech#5 Load Rule Save Rule Delete Rule

Parameter Name	Value	Best when...	Importance	
Palmar Angle	9.03	deg. Between 1.500 and 6.000	High	Edit...
P3 Descent	0.59	in. At Most 0.587	High	Edit...
P3 Dist. to Ground	0.98	in. At Least 0.489	High	Edit...
Hoof Angle	54.57	deg. Between 51.000 and 56.000	High	Edit...
Prox HL Zone	0.71	in. Between 0.572 and 0.774	High	Edit...
Dist HL Zone	0.67	in. Between 0.599 and 0.811	High	Edit...
Toe/Support %	62.78	Between 62.000 and 70.000	High	Edit...
Coffin-Joint Angle	0.68	deg. Between 5.000 and 15.000	Low	Edit...
		Between 3.000 and 9.000	Low	Edit...
		Any Value is OK	None	Edit...

90.6 % Print

Based on how well each measurement aligns with the range specified by the rule, Metron computes a 'score' for this image. A score of 100% would mean that all parameters are within the desired ranges.

Guided Mark-Up: Hoof Analysis

How To | Part 2

In the following seven slides, you will be presented questions to evaluate your knowledge of

"Guided Mark-Up: Hoof Analysis How To | Part 2".

Let's get started!



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Guided Mark-Up: Hoof Analysis

How To | Part 2

After completing Step 10, you will be asked if you are ready to have Metron calculate the parameters. Click yes and you will be presented with a screen displaying the “Computed Parameters and Comparison”. Check the box to the left of the parameters and the:

- ☒ Related mark-up will be shown on the image
- ☐ Calibrations will automatically be recorded
- ☐ Annotations will be saved to the database

Submit

Congratulations, your answer is correct!

Sorry, your answer is incorrect. Please try again.

Guided Mark-Up: Hoof Analysis

How To | Part 2

Parameters highlighted in blue are unreliable because the user is unsure if Guided Mark-Up points were originally placed:

- ☐ In the correct location on the horse's hoof
- ☒ In the correct location on the image
- ☐ In the correct location on the filter

Submit

Congratulations, your answer is correct!

Sorry, your answer is incorrect. Please try again.

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Guided Mark-Up: Hoof Analysis

How To | Part 2

Parameters outside the desirable ranges are highlighted in:

- ☐ Black
- ☐ In the box to the right
- ☒ Red

Submit

Congratulations, your answer is correct!

Sorry, your answer is incorrect. Please try again.

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Guided Mark-Up: Hoof Analysis

How To | Part 2

Metron suggests a desirable range for each of the measurements. These ranges are subjective and the Metron user can click on the “Edit” button on the far right of the Parameters section for any parameter and:

- ☐ Erase all the ranges
- ☒ May re-define the desirable range
- ☐ Eliminate all the annotations

Submit

Congratulations, your answer is correct!

Sorry, your answer is incorrect. Please try again.

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Guided Mark-Up: Hoof Analysis

How To | Part 2

The right portion of screen displaying the “Computed Parameters and Comparison” can be used to show how the imaged hoof compares to:

- ☒ A group of previously measured horse’s hooves in Metron
- ☐ A group of previously measured horse’s heads
- ☐ A group of previously measured horse’s stifles

Submit

Congratulations, your answer is correct!

Sorry, your answer is incorrect. Please try again.

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Guided Mark-Up: Hoof Analysis

How To | Part 2

The desirable range for each Metron measurement is described by rules. If you edit the ranges provided you:

- ☐ Cannot use the edit on other images
- ☐ Cannot use the Metron software
- ☒ Must save the edit so it can be used on other images

Submit

Congratulations, your answer is correct!

Sorry, your answer is incorrect. Please try again.

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Guided Mark-Up: Hoof Analysis

How To | Part 2

Based on how well each measurement aligns with the range specified by the rule, Metron computes a 'score' for this image. A score of 100% would mean that all parameters are within the desired ranges. This percentage score is:

- ☐ Shown at the top of the screen
- ☒ Shown at the bottom of the screen
- ☐ Shown in the Annotation section

Submit

Congratulations, your answer is correct!

Sorry, your answer is incorrect. Please try again.

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Guided Mark-Up in Metron: Hoof Analysis

How To | Part 2

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