



Guided Mark-Up in Metron: Hoof Analysis

Summary Description



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

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This online training session will provide you with the summary description of "Guided Mark-Up in Metron: Hoof Analysis".



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The Training Session Objectives:

Understand:

Metron's software development history

The Guided Mark-Up process

The verified accuracy & usefulness of Metron equine hoof measurements & analysis

(Video Length: 9 minutes)



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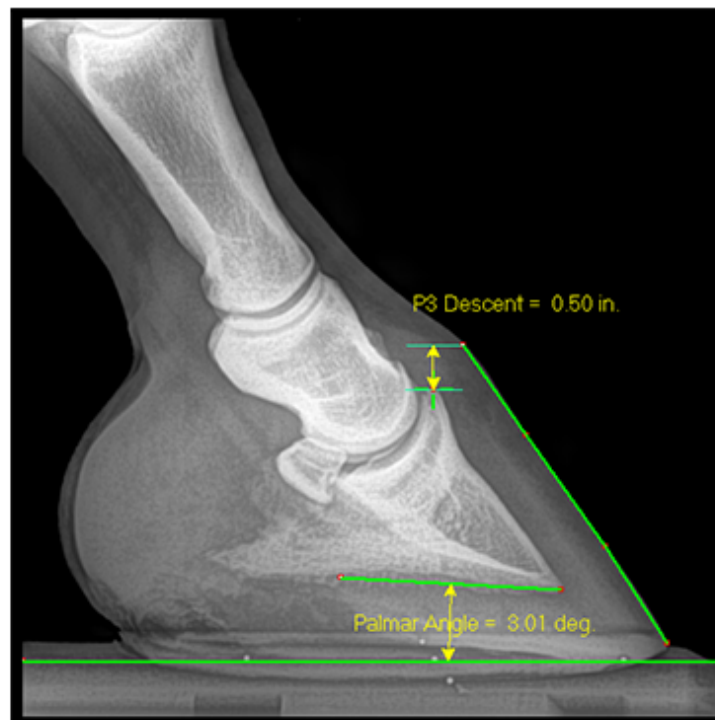
1

Guided Mark-Up: Hoof Analysis

Summary Description

What is Guided Mark-Up?

Metron supports a process called "Guided Mark-Up" in which the user is prompted to pick key points in certain images of the equine digit. Metron then uses those picked points to compute many important parameters of the hoof's conformation.



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Guided Mark-Up: Hoof Analysis

Summary Description

Why use Guided Mark-Up?

The notion "Guided Mark-Up" is powerful because it gives a repeatable means for different practitioners to measure certain quantities.

Computed Parameters and Rule-Based Scoring

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

Rule: EponaTech#5 Load Rule Save Rule Delete Rule

Parameters

Parameter Name	Value	Unit	Best when...	Importance	Edit...
Palmar Angle	3.01	deg.	Between 1.500 and 6.000	High	Edit...
P3 Descent	0.50	in.	At Most 0.594	High	Edit...
P3 Dist. to Ground	0.81	in.	At Least 0.495	High	Edit...
Hoof Angle	54.72	deg.	Between 51.000 and 56.000	High	Edit...
Prox HL Zone	0.72	in.	Between 0.568 and 0.768	High	Edit...
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Toe/Support %	61.18		Between 62.000 and 70.000	High	Edit...
Coffin-Joint Angle	0.02	deg.	Between 5.000 and 15.000	Low	Edit...
Pastern-Joint Angle	5.77	deg.	Between 3.000 and 9.000	Low	Edit...
Length of P2	1.98	in.	Any Value is OK	None	Edit...

<<Previous Highlight Loss 0 % Score: 97.9 % Print

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Guided Mark-Up: Hoof Analysis

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Guided Mark-Up: Hoof Analysis

Summary Description

What did practitioners do before Metron Guided Mark-Up?

Prior to the advent of Metron's method, practitioners used terms like "contracted heels", "broken-back pastern", "long toe", "rotated coffin bone", and more without much of a repeatable definition by which to really quantify these terms.



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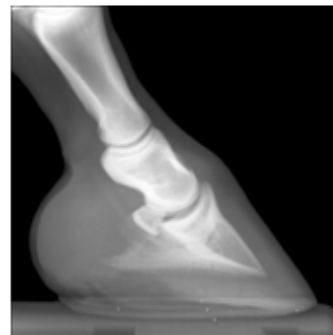
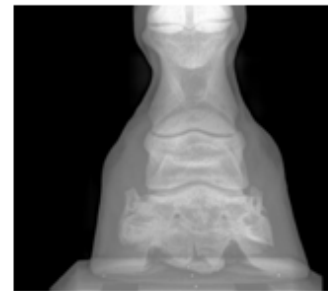
5

Guided Mark-Up: Hoof Analysis

Summary Description

What types of images does Metron support?

Metron supports Guided Mark-Up for five different images of the foot.



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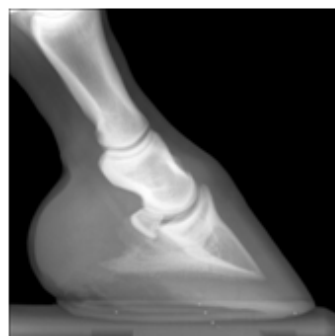
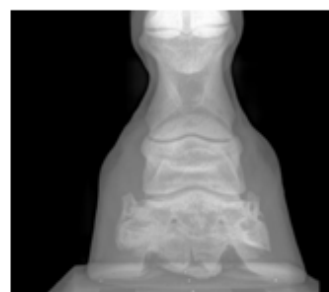
6

Guided Mark-Up: Hoof Analysis

Summary Description

What types of images does Metron support?

Metron supports Guided Mark-Up for five different images of the foot.



***Two images are radiographs:
The lateral and the DP -
sometimes called 'AP'.***

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Guided Mark-Up: Hoof Analysis

Summary Description

What types of images does Metron support?

Metron supports Guided Mark-Up for five different images of the foot.

Three are photographs: Solar, Lateral, and AP (sometimes called Frontal).



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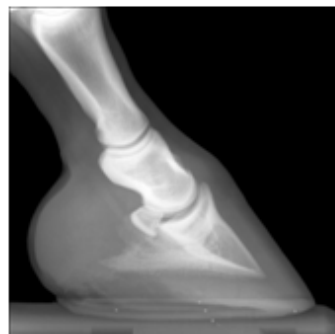
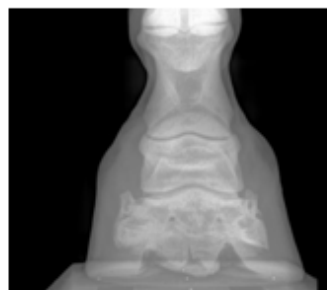
Guided Mark-Up: Hoof Analysis

Summary Description

What types of images does Metron support?

Metron supports Guided Mark-Up for five different images of the foot.

Each of these images show different aspects and allow different measurements to be made.



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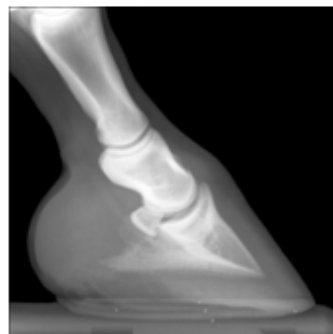
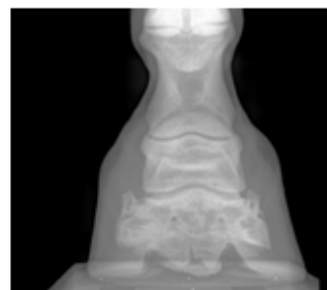
Guided Mark-Up: Hoof Analysis

Summary Description

What types of images does Metron support?

Metron supports Guided Mark-Up for five different images of the foot.

A Metron user can use any one of these images or all five of them when analyzing the foot.



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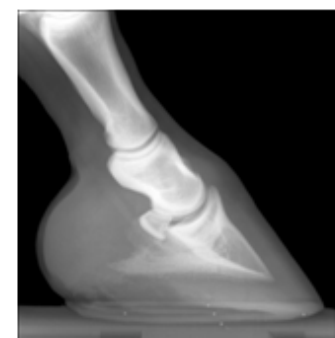
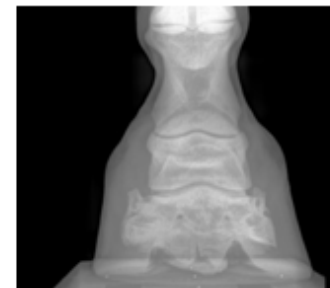
10

Guided Mark-Up: Hoof Analysis

Summary Description

What things of importance does Metron measure?

If the two radiographic images of the foot are used, Metron generates a total of 17 different measurements. These 17 measurements include virtually every calculation described in veterinary literature and more.



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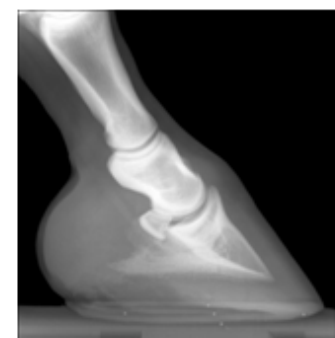
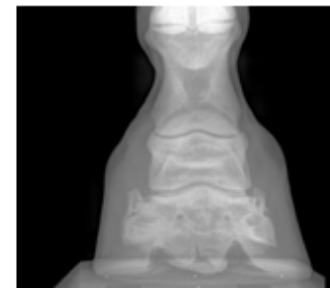
Guided Mark-Up: Hoof Analysis

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If the two radiographic images of the foot are used, Metron generates a total of 17 different measurements. These 17 measurements include virtually every calculation described in veterinary literature and more.

In the typical use of Metron, the practitioner selects anywhere from one to five of these measurements to overlay on the image and display. All 17 are computed and are located in the Metron database.



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Guided Mark-Up: Hoof Analysis

Summary Description

How did the “Guided Mark-Up” get developed?

The developers of Metron have spent many hours in discussion with prominent veterinarians and farriers who have an interest in the equine digit.

Through discussions with many experts we have confirmed our techniques and made additions to our methods.



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Guided Mark-Up: Hoof Analysis

Summary Description

"The Palmar Angle"

The angle between the underside of the pedal bone and ground. Around 3 to 5 degrees is a healthy horse, this measure is one way that the practitioners like to measure rotation of the coffin bone.



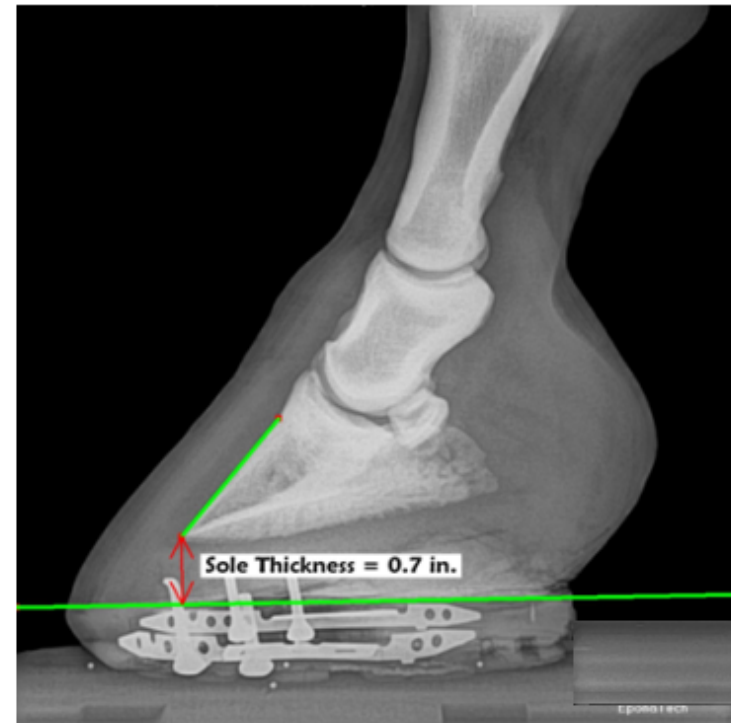
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Guided Mark-Up: Hoof Analysis

Summary Description

"P3 Distance to Ground"

This provides 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 measurements.



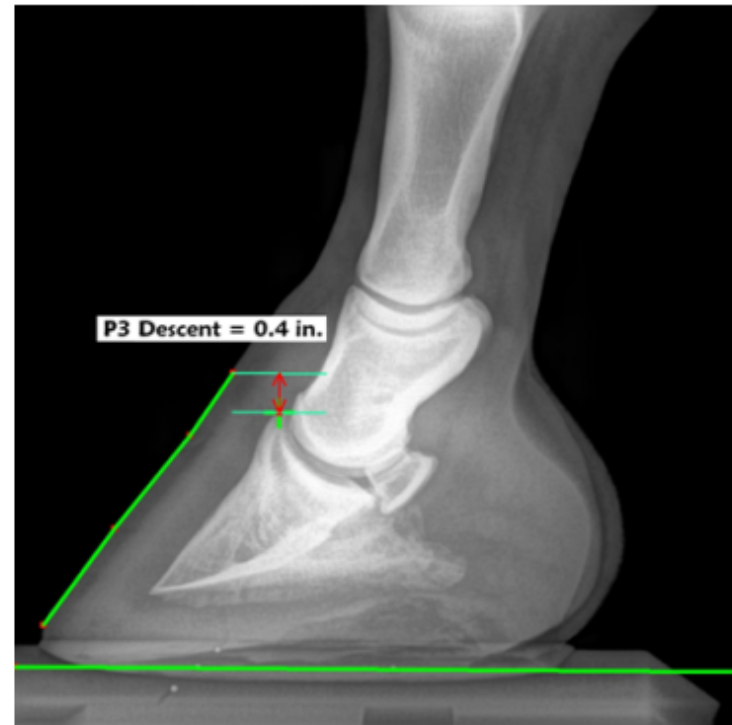
16

Guided Mark-Up: Hoof Analysis

Summary Description

"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. It 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. Again, the calibration feature of Metron is critical to being able to accurately measure this distance in a radiograph.



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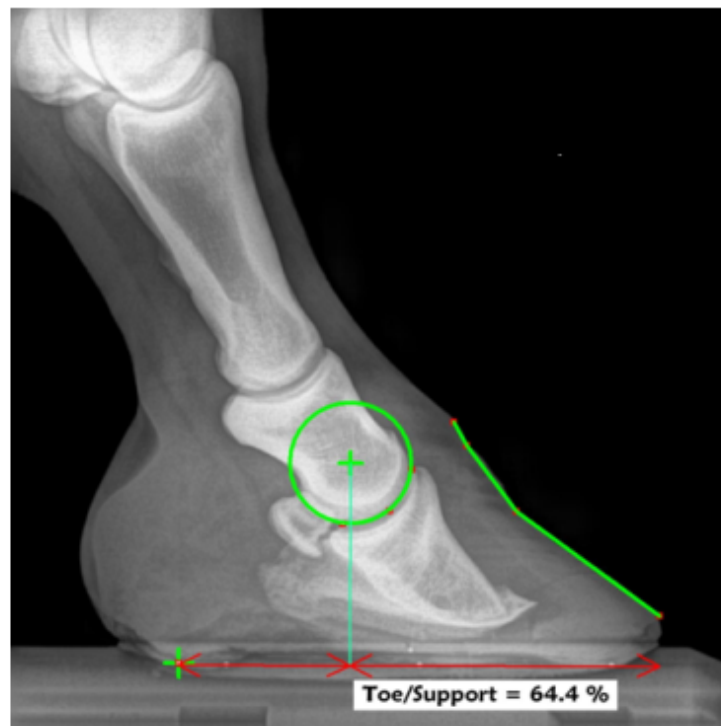
17

Guided Mark-Up: Hoof Analysis

Summary Description

"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 foot has a "long toe" or "short toe" in a biomechanical sense, relative to the joint axis.



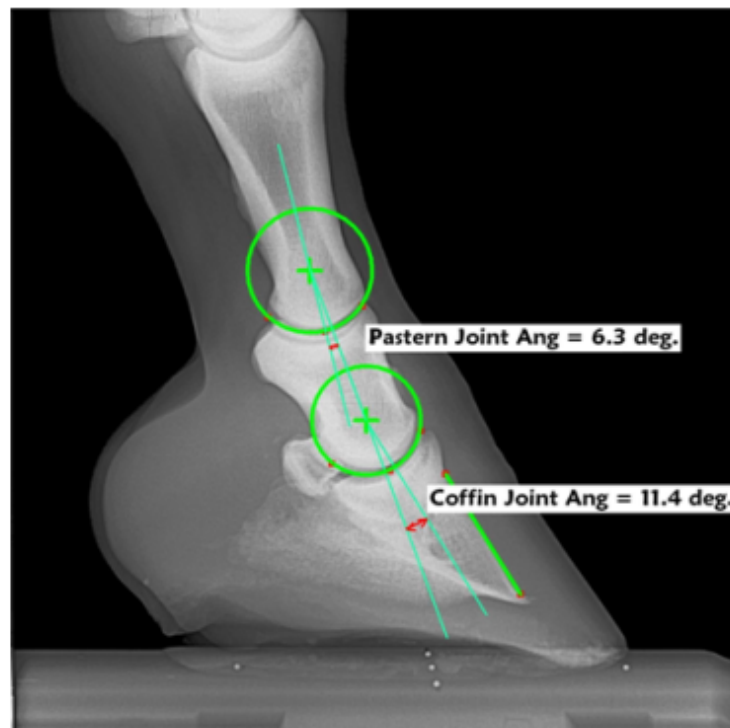
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Guided Mark-Up: Hoof Analysis

Summary Description

"Coffin Angle" & "Pastern Angle"

These are measures of how the horse is standing and they quantify terms such as "broken-back pastern" that one hears in the field.

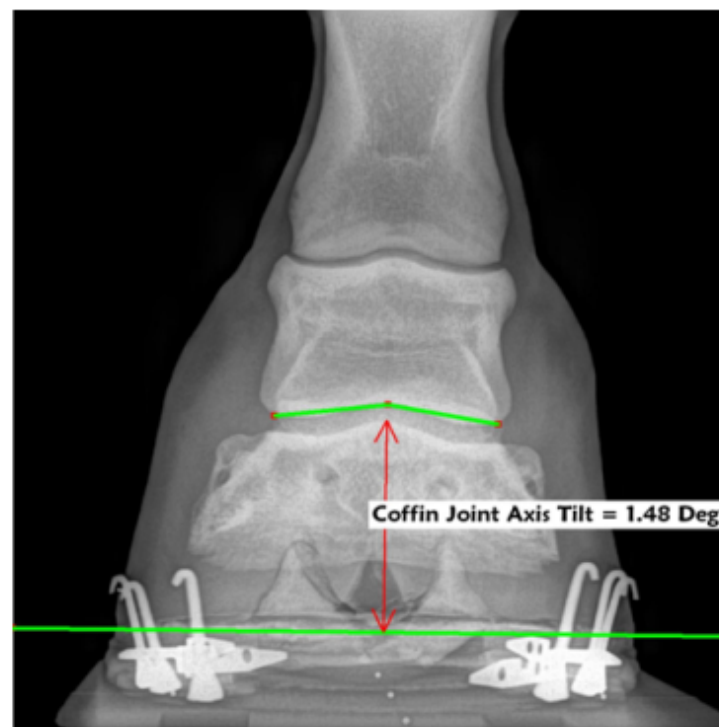


Guided Mark-Up: Hoof Analysis

Summary Description

"Coffin-Joint Tilt"

This measure, made from the DP (or "Frontal") radiograph, measures what is called "medial-lateral balance" by measuring how nearly parallel the coffin-joint's biomechanical axis of rotation is to the ground. The common belief is that the hoof should be trimmed so that this is parallel to the ground.

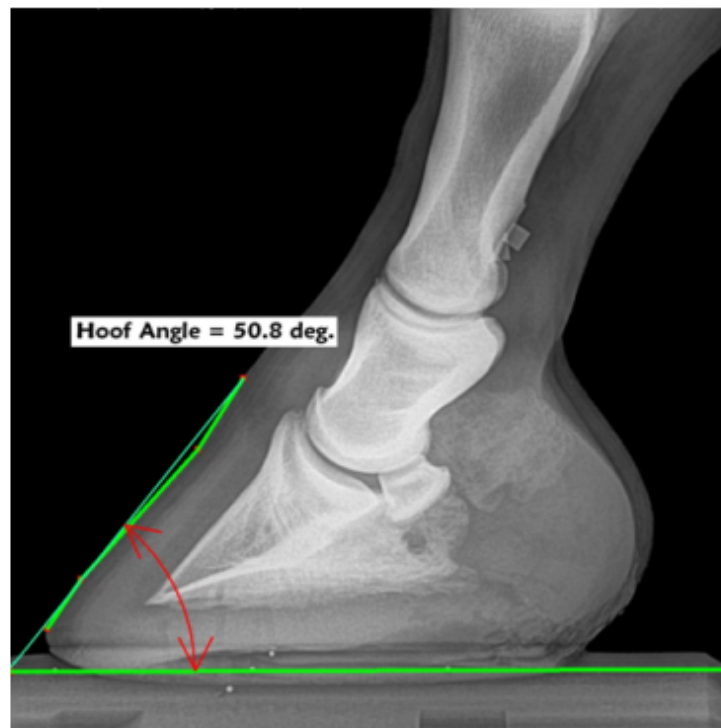


Guided Mark-Up: Hoof Analysis

Summary Description

"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.



Guided Mark-Up: Hoof Analysis

Summary Description

What about the other parameters?

There are 10 more parameters computed from the lateral and DP radiographs in Metron. These other 10 parameters are less frequently used in the literature, but are important to certain practitioners in certain cases. It is extremely likely that any measurement of interest to the equine podiatrist is already supported as a standard measure in Metron.

Computed Parameters and Rule-Based Scoring

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

Rule: EponaTech#5

Parameters

Parameter Name	Value	Unit	Best when...	Importance	Edit...
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Guided Mark-Up: Hoof Analysis

Summary Description

Working with photographs

From the three photographs that Metron analyzes using Guided Mark-Up, there are an additional 24 measurements calculated. Thus, Metron can produce a total of 41 measurements of the hoof if all five images are used in the analysis.

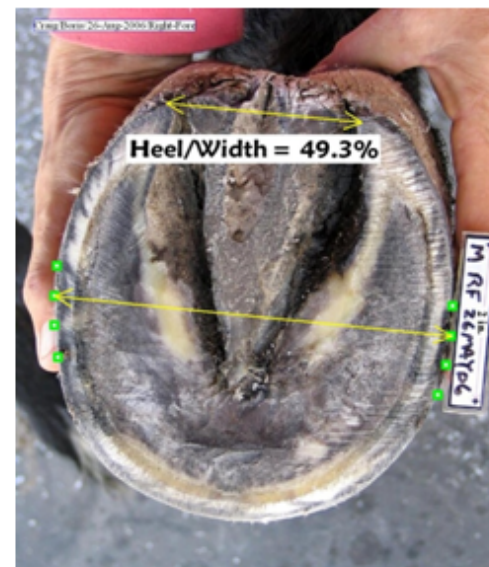
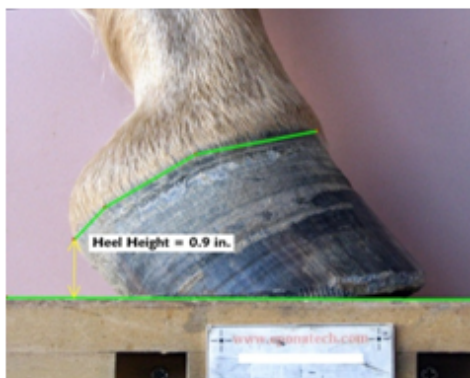
Of course, there is no requirement to use all of these images -- the lateral radiograph itself generating 10 measurements in Metron, is the single most important image to analyze.



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Guided Mark-Up: Hoof Analysis

Summary Description



Guided Mark-Up: Hoof Analysis

Summary Description

Independent Confirmation

Published papers by independent university researchers have tested the Metron system for accuracy and have concluded that it is capable of making accurate and useful measurements of the hoof.



Guided Mark-Up: Hoof Analysis

Summary Description

Independent Confirmation

No other software system exists that makes these measurements - one reason is the Metron system has been granted a US patent.



Guided Mark-Up: Hoof Analysis

Summary Description

Note: If you would like more detail on Guided Mark-Up, please read the documents listed below. Click the links to view!

[The Value of Measuring the Hoof](#)

[The Effect of Hoof Trimming on Radiographic Measurements of the Front Feet of Normal Warmblood Horses](#)

[The Palmer Metric: A New Measure of Foot Health](#)



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Guided Mark-Up: Hoof Analysis

Summary Description

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

"Guided Mark-Up: Hoof Analysis Summary Description".

Let's get started!



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Guided Mark-Up: Hoof Analysis

Summary Description

The Guided Mark-Up process includes using key points which are picked by the user on certain images of the equine digit and computes:

- ☒ Parameters of the hoof's conformation
- ☐ Size of the horse's head
- ☐ Length of the horse

Submit

Congratulations, your answer is correct!

Sorry, your answer is incorrect. Please try again.

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Guided Mark-Up: Hoof Analysis

Summary Description

The Guided Mark-Up process provides a:

- ☒ Repeatability means for practitioners to measure certain quantities.
- ☐ One time means for practitioners to measure certain quantities
- ☐ One time Metron to measure certain quantities

Submit

Congratulations, your answer is correct!

Sorry, your answer is incorrect. Please try again.

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Guided Mark-Up: Hoof Analysis

Summary Description

Metron supports Guided Mark-Up of 5 different images of the foot

2 radiographic images and 3 photographic images. From the 2 radiographic images, Metron calculates 17 different measurements and from the 3 photographic images, Metron calculates an additional 24 different measurements. Metron then produces 41 measurements which are stored:

- ☒ In the Metron Database
- ☐ Only the 2 radiographic images
- ☐ Only the 3 photographic images

Submit

Congratulations, your answer is correct!

Sorry, your answer is incorrect. Please try again.

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Guided Mark-Up: Hoof Analysis

Summary Description

In order to obtain the 41 Guided Mark-Up measurements, you have to use:

- ☒ All 5 different images of the foot
- ☐ Only the 2 radiographic images
- ☐ Only the 3 photographic images

Submit

Congratulations, your answer is correct!

Sorry, your answer is incorrect. Please try again.

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Guided Mark-Up: Hoof Analysis

Summary Description

Research done by independent universities has verified the accuracy of Metron software measurements and has determined it can make:

- ☒ Accurate and useful measurements of the horse's hoof
- ☐ Accurate and useful measurements of the horse's tail
- ☐ Accurate and useful measurements of the horse's head

Submit

Congratulations, your answer is correct!

Sorry, your answer is incorrect. Please try again.

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Guided Mark-Up: Hoof Analysis

Summary Description

Metron is the only software system that currently exists that can calculate 41 measurements of a horse's hoof and has been granted:

- ☒ A U.S. patent.
- ☐ A license
- ☐ A certification

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

Summary Description

This completes the "Guided Mark-Up: Hoof Analysis (Summary Description)" online training. Please feel free to view it again or select another online training session to review.



Click F11 on your keyboard to minimize the browser screen and click the window closed to exit this training session.

