

# **USE OF IMAGING TO AID THE ENFORCEMENT OF THE HORSE PROTECTION ACT**

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**Diplomate, American College of Veterinary Surgeons**

**Diplomate, American College of Veterinary Sports Medicine and Rehabilitation**

**Fellow, American Academy of Thermology**

# Tracy A. Turner, DVM, MS

- **1978 Graduate Colorado State University**
- **M.S. degree Purdue University, thesis: “Thermographic Evaluation of the Equine Lower Limb” 1979-1981**
- **Spoke nationally and internationally on lameness topics**
- **Written over 100 scientific publications and book chapters**
- **Board certified in Surgery (ACVS) 1986**
- **Board certified in Equine Sports Medicine and Rehabilitation (ACVSMR) 2013**
- **Fellow of American Academy of Thermology (AAT) 2002**
- **Inducted into Am Farrier’s J Equine Veterinary Hall Fame in 2004 for my work on the horse’s foot**
- **Member of ad hoc committee on the AAEP Tennessee Walking Horse white paper**
- **Consultant to USDA and FEI**
- **Past President of Minnesota Association of Equine Practitioners**
- **Past President of Minnesota Horse Council, chair of the MHC Legislative and Welfare Committees**
- **Served 2 terms on Central States Dressage and Eventing BOD**

# STARTED with a CLINICAL PROJECT

## Research Activities

- 1) Pre-exercise Thermographic exam
- 2) Clinical exam using the currently established protocol which includes a 3 part evaluation of General Attitude (GA), Locomotion/Lameness (L), and Physical Exam / Palpation (PE). Each segment is scored 1 - 3 in terms of normal =1 and severe = 3.
- 3) Horse to enter the ring and compete vigorously in its normal occupation at winning level of intensity. Horse to stay in motion for 10 minutes.
- 4) Post Exercise Physical exam
- 5) Post Exercise Thermal Exam  
Horses allowed to cool out and rest.
- 6) Horses all received DP and Lateral Digital Radiographs of all four feet.
- 7) 2 hour post exercise Physical Exam.
- 8) 2 hour post exercise Thermal Exam.

Horse 1 excused from evaluation

- **Study Event took place in December 2007**
- **15 TWHs of various disciplines participated**
- **All horses were teamed by Persons Responsible to be fit to compete, and were currently being actively shown.**
- **Researchers were blinded as to the individual horse's identity or competition records.**

# RESULTS of the STUDY

➤ 14 HORSES WERE  
THERMOGRAPHICALLY NOT  
NORMAL

➤ 11 CONFIRMED ABNORMAL  
BY FURTHER EXAMINATION:

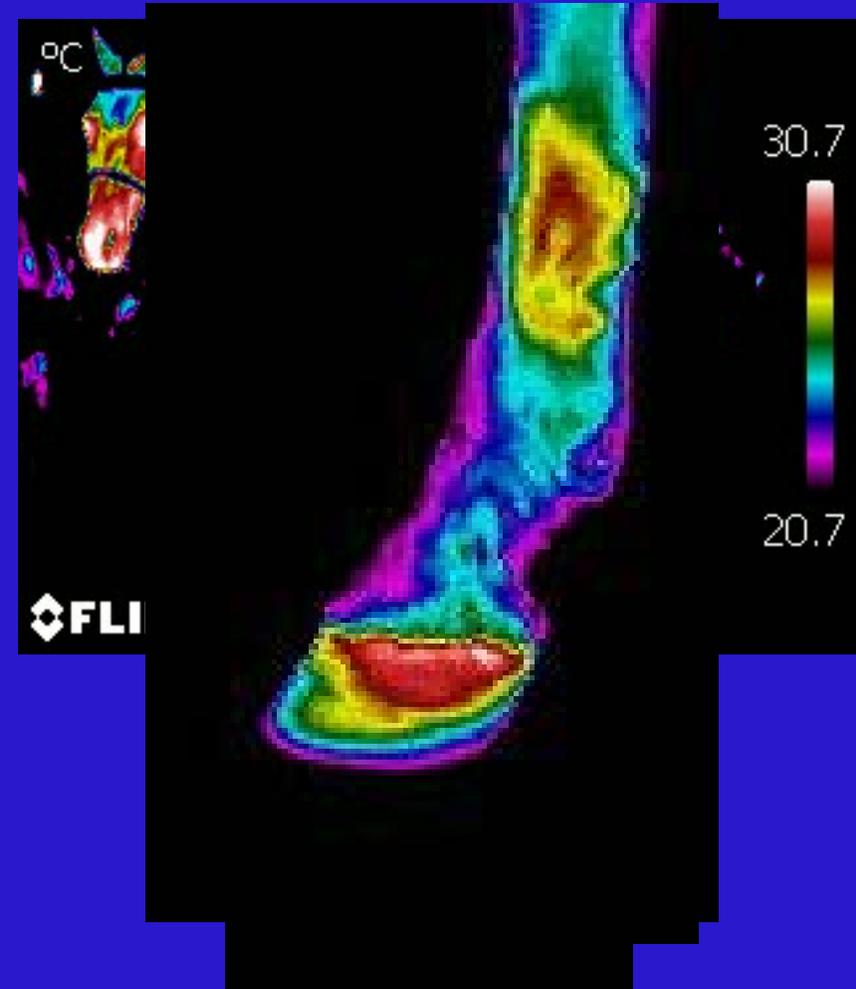
✓ 10, ABNORMAL PALPATION  
and/or HOOF TESTER  
EXAMINATION

✓ 8, ABNORMAL DIGITAL  
RADIOGRAPHY



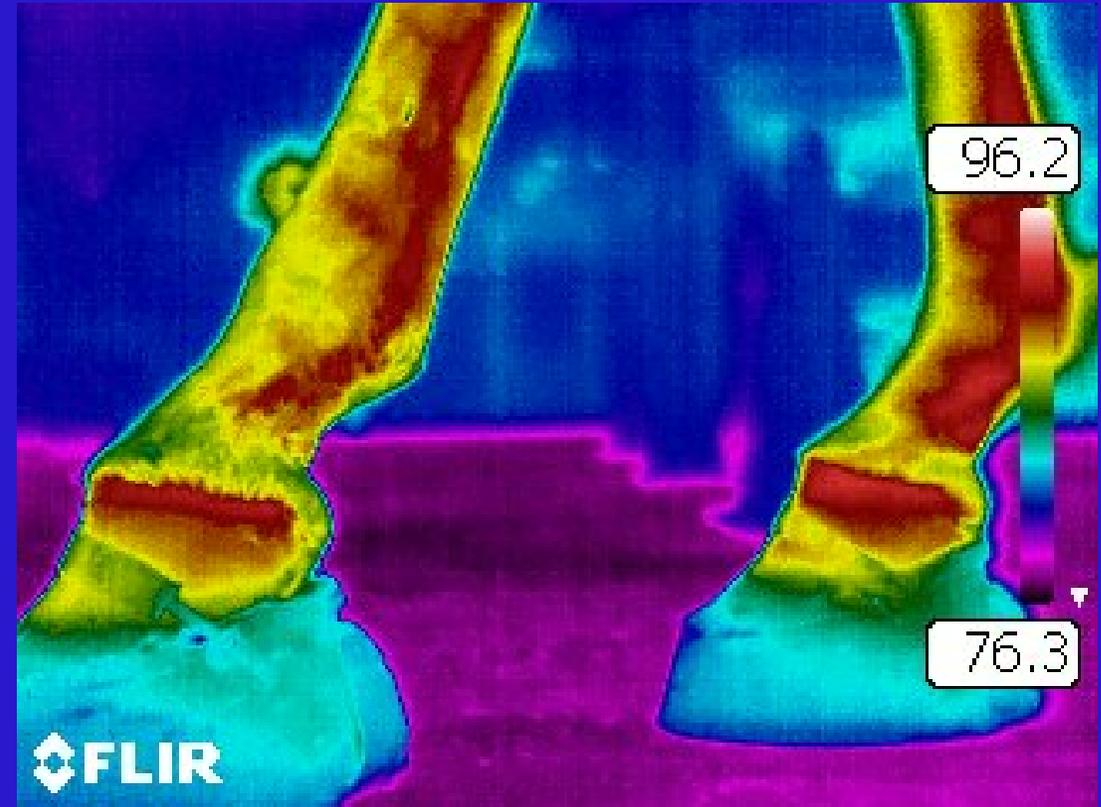
# RESULTS of the STUDY

- 15 HORSES EXAMINED,  
1 WAS NORMAL
- 5 HORSES HAD AN ABNORMAL  
PASTERN
- 3 HORSES HAD ABNORMAL  
HOOVES
- 5 HORSES HAD ABNORMAL  
PASTERNS AND HOOVES
- 1 HORSE HAD ABNORMAL  
CANNON



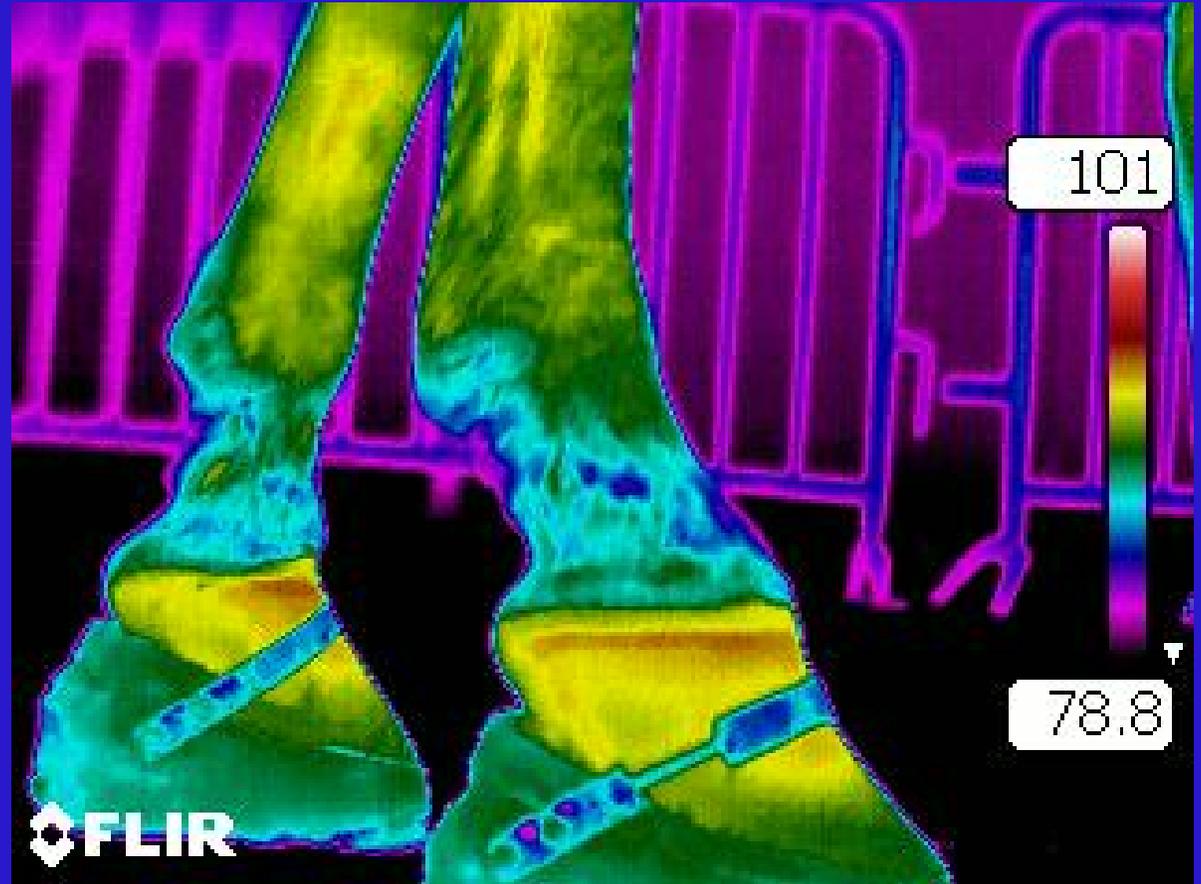
# THERMOGRAPHY INITIALLY WAS A SCREENING TOOL

- ALL HORSES WERE EVALUATED, ASSESSED AS NORMAL or NOT NORMAL
- NORMAL WOULD PROCEED WITH ROUTINE INSPECTION
- NOT NORMAL, THE HORSE COULD RETURN TO THE BARN, NO QUESTIONS, or COULD PROCEED THROUGH ROUTINE INSPECTION
  - WE OBSERVED and CORRELATED IMAGES

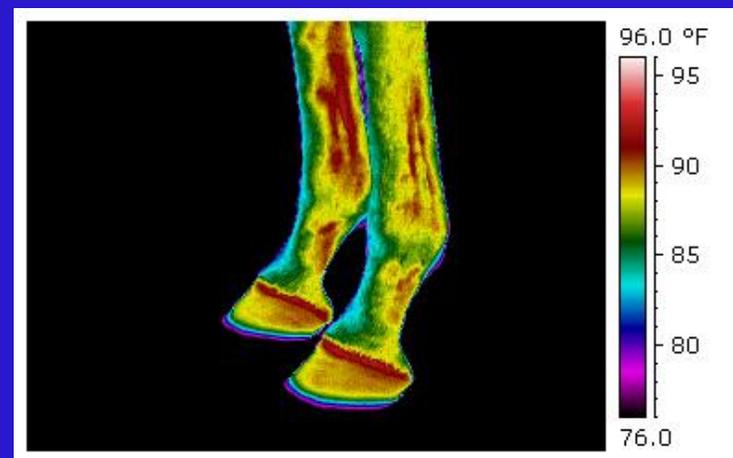
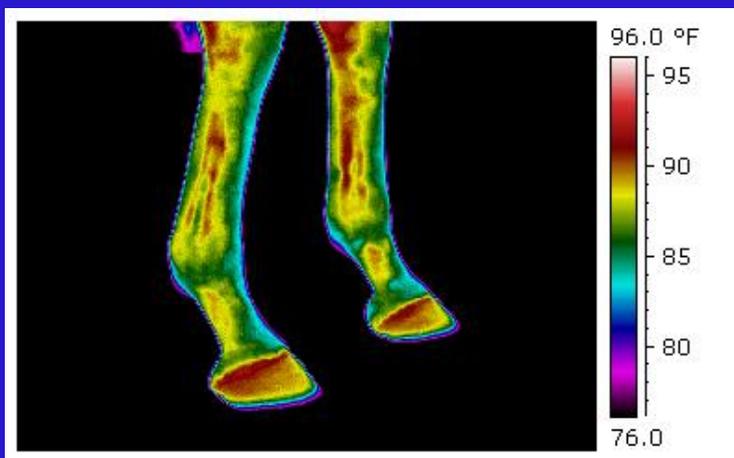
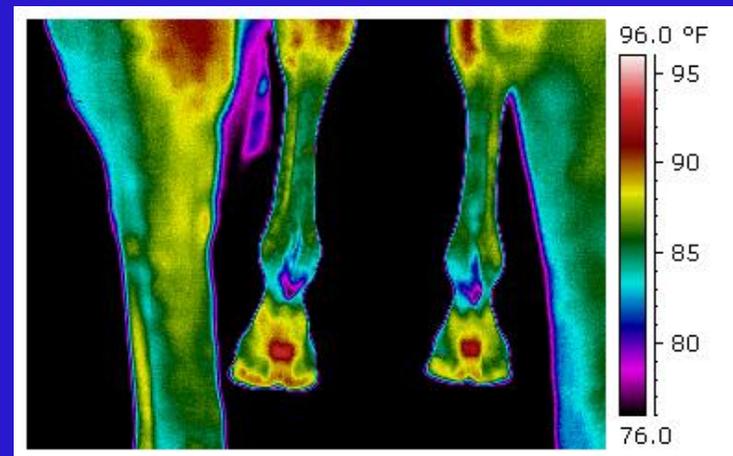
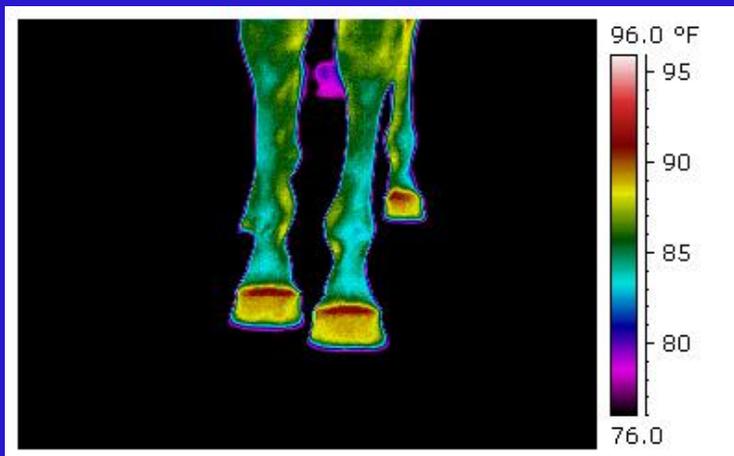


# INITIAL FINDINGS

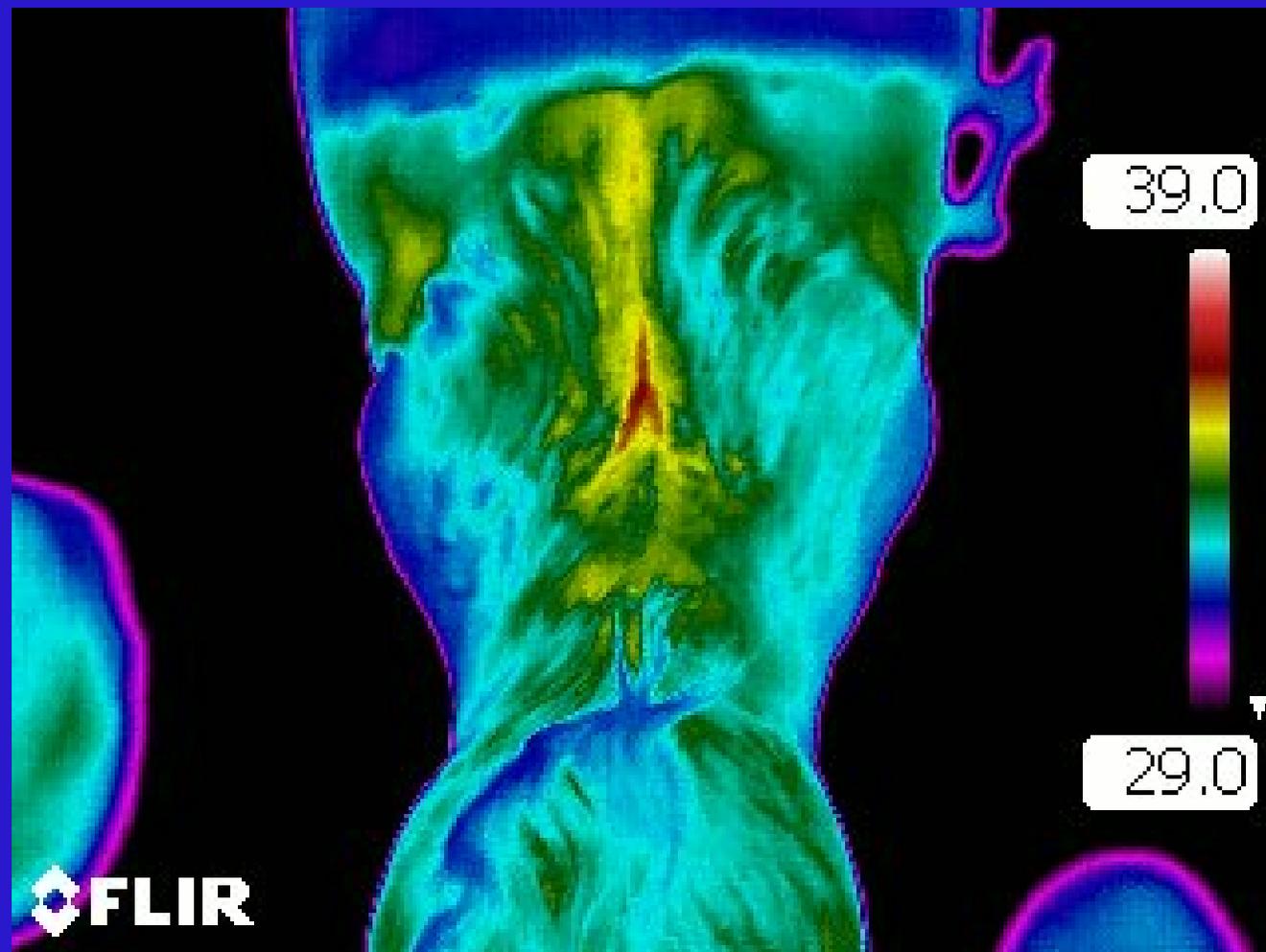
1. ODD “COLD PATTERN”  
OVER PASTERNS
2. OUR INITIAL IMAGES  
WERE NOT ADEQUATE



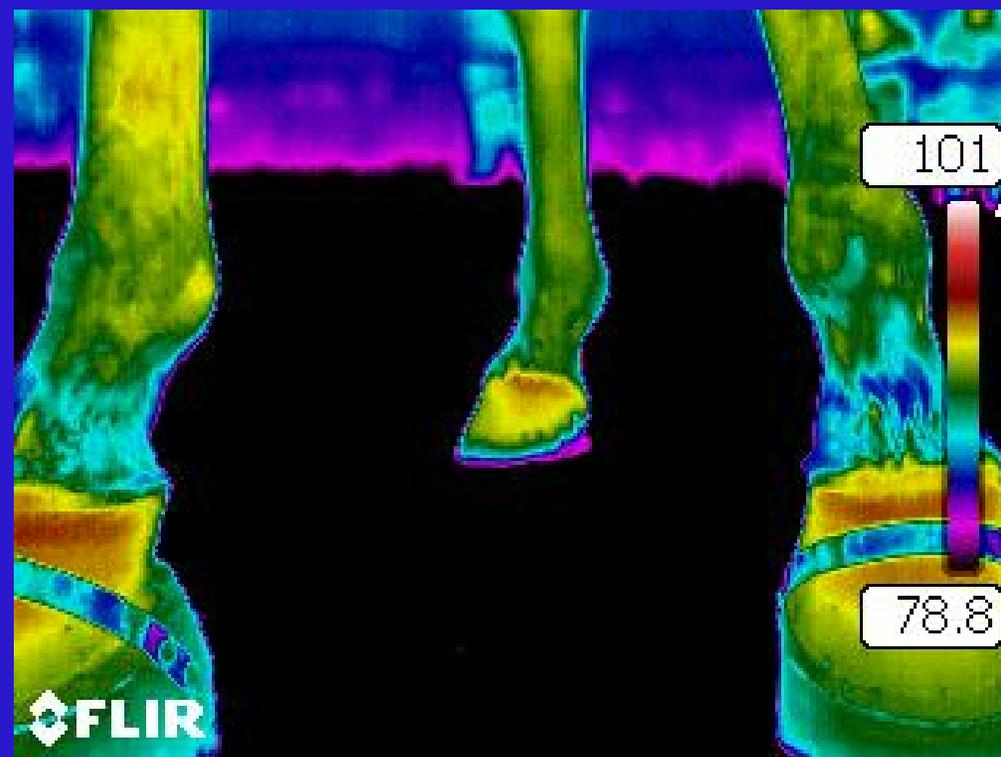
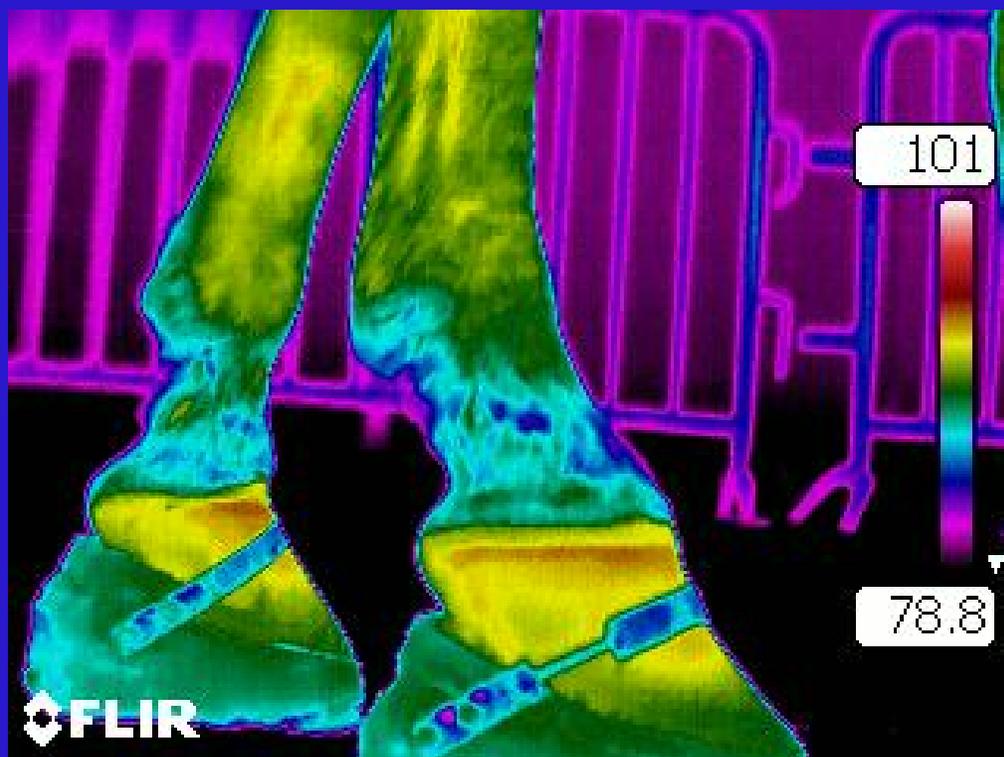
# NORMAL



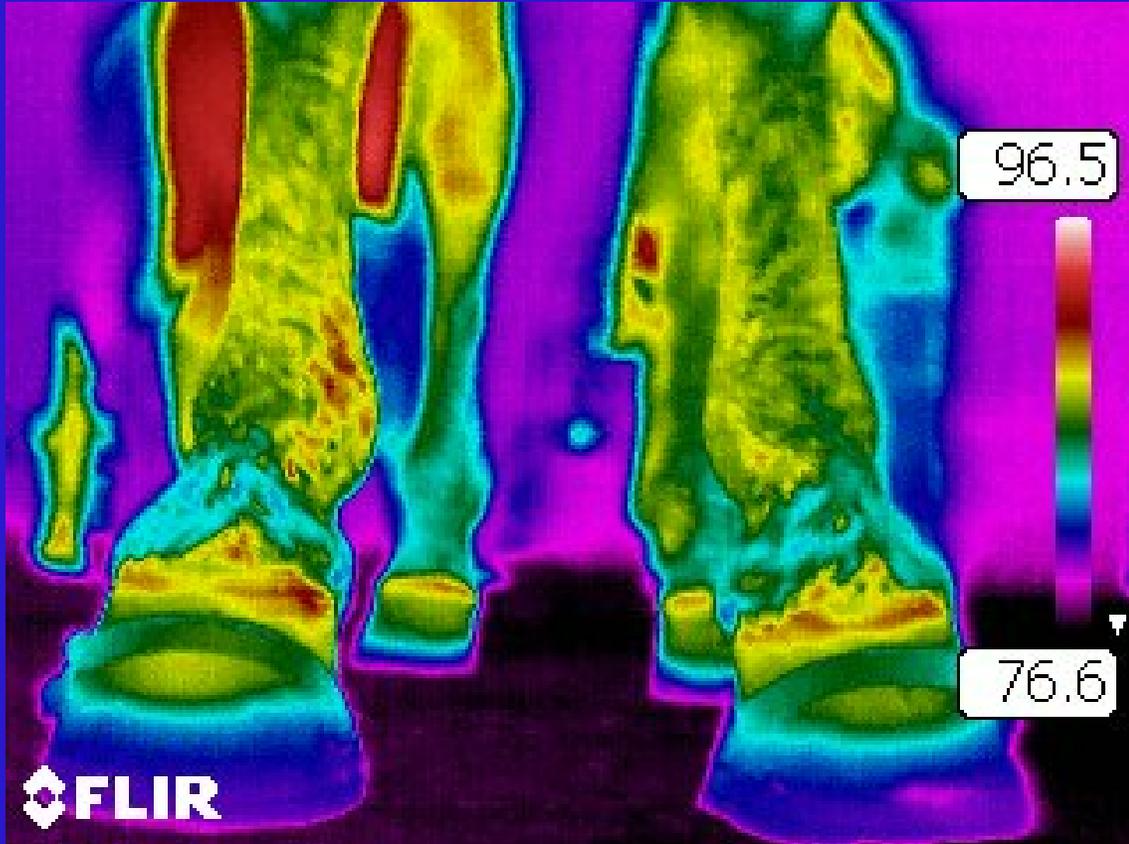
# NEEDED MORE DETAIL OF THE PASTER



# THE “COLD PATTERN”

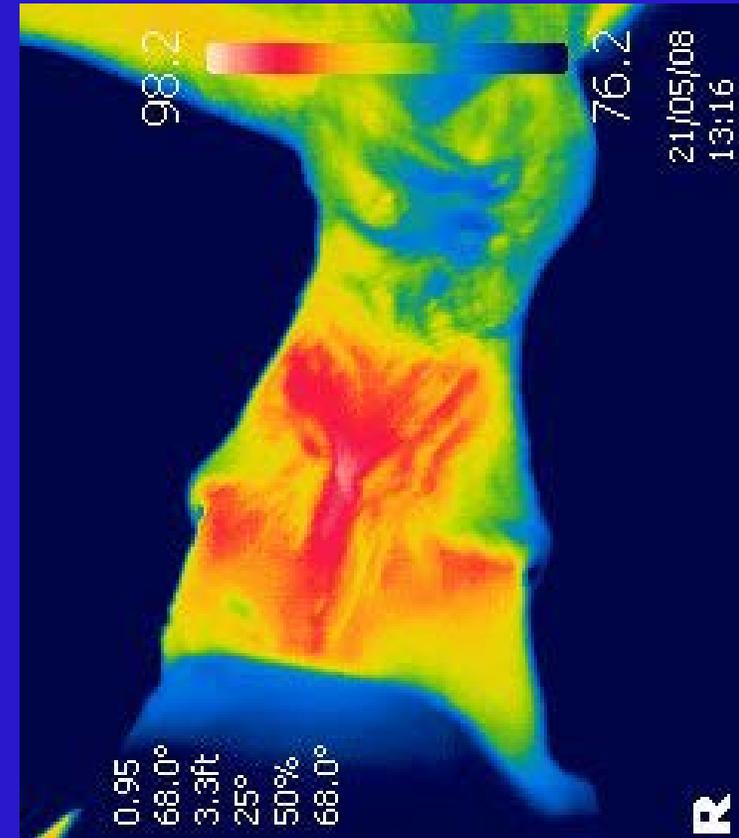


# THE “COLD PATTERN”

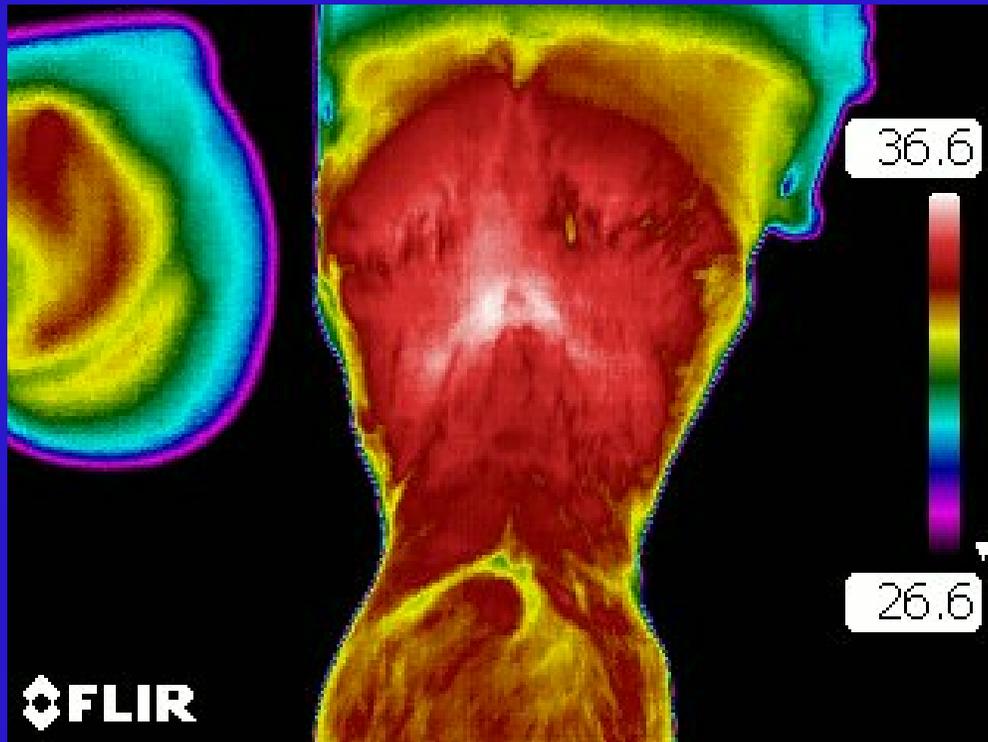


- IN 2011, WE SELECTED HORSES EXHIBITING THIS PATTERN TO BE SWABBED
- ✓ 52 of 52 HORSES SWABBED WERE POSITIVE
- ✓ MAJORITY WERE ‘CAINES’
  - THIS PATTERN IS NOT ASSOCIATED WITH ANY KNOWN PATHOLOGICAL PROCESS
  - PATTERN IS ADULTERATED BY AN INTENT TO OBSTRUCT REACTIVITY TO PALPATION

# USE of the NEW VIEW SCARS

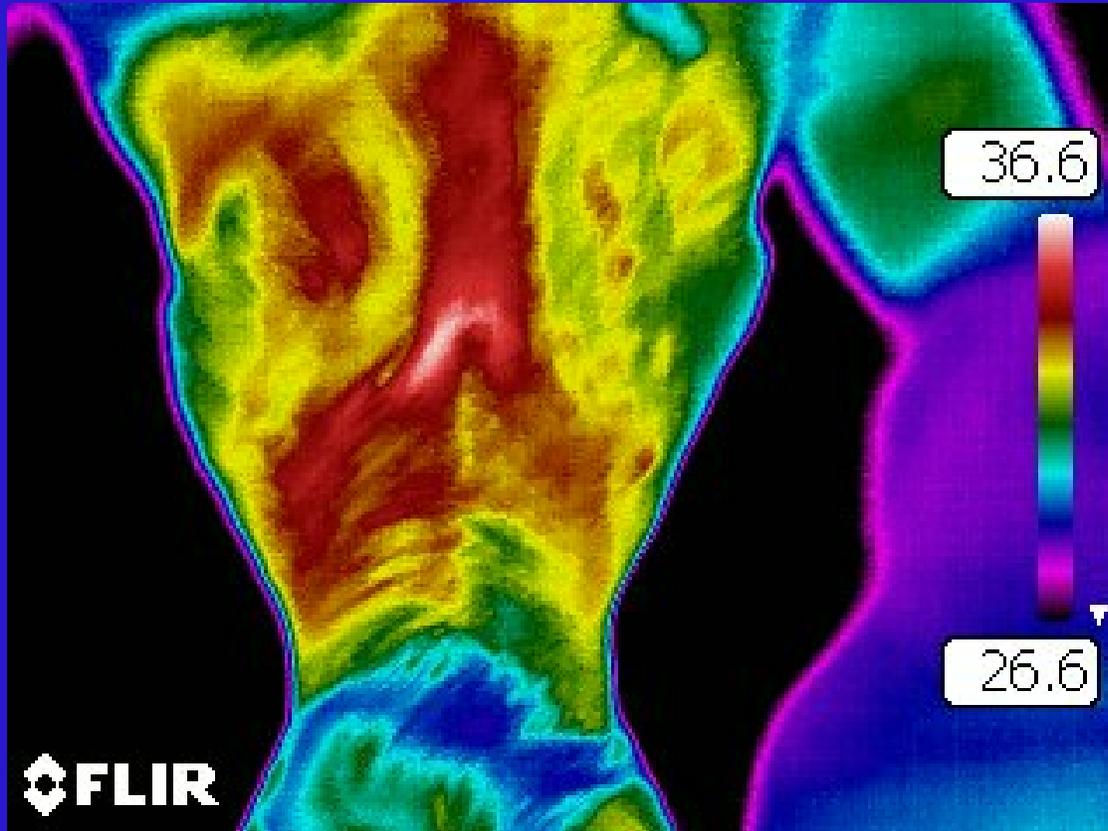


# PATTERN ASSOCIATED with SCARS



- HEAT EMANATING FROM POCKET
- CORRUGATION PATTERN

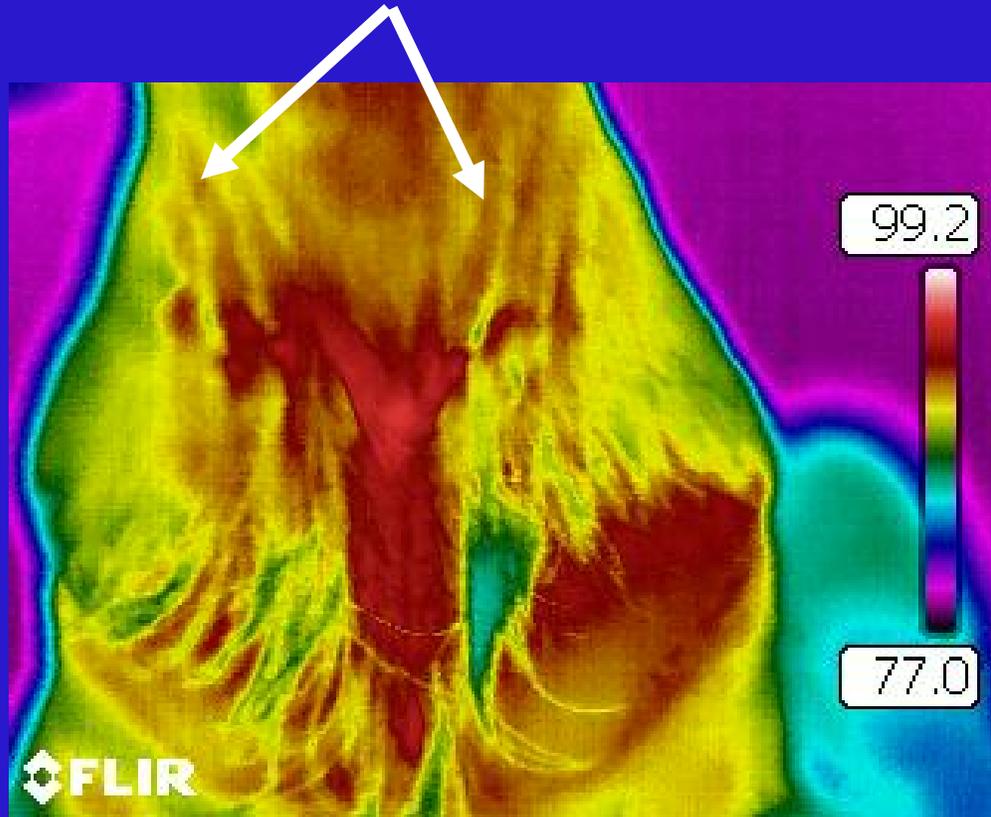
# NOT NORMAL PATTERNS



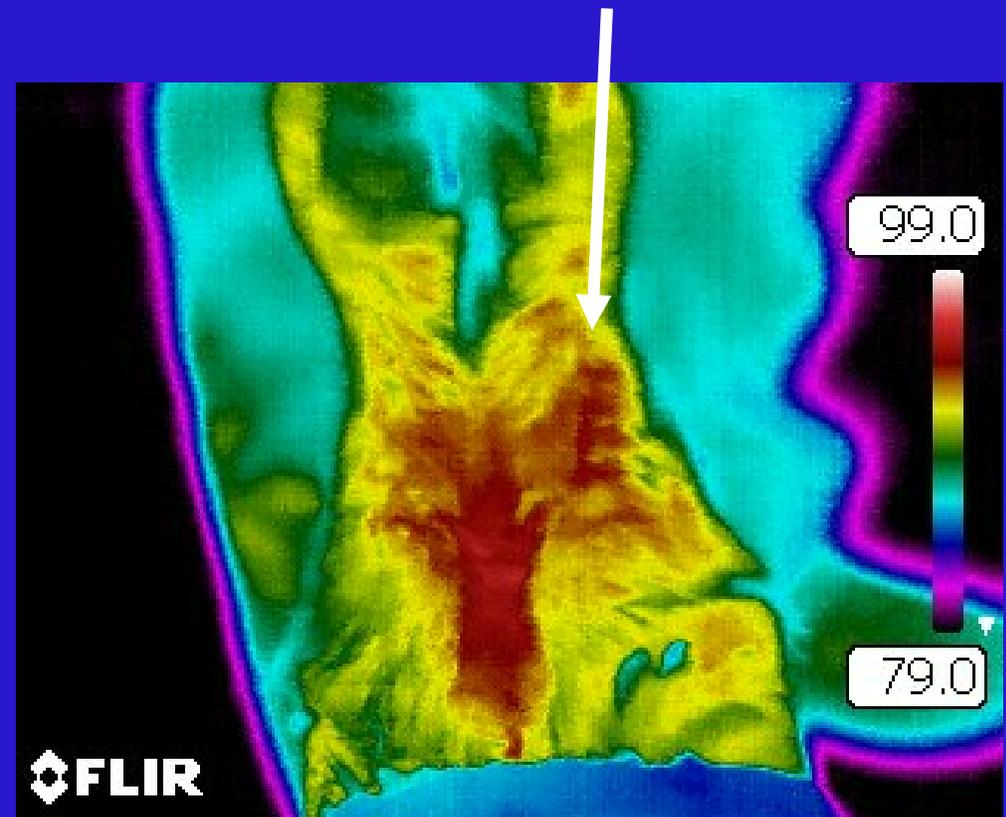
- THERMAL ASYMMETRY
- WHY?
- NEEDS CLOSER SCRUTINY

# NOT NORMAL PATTERNS

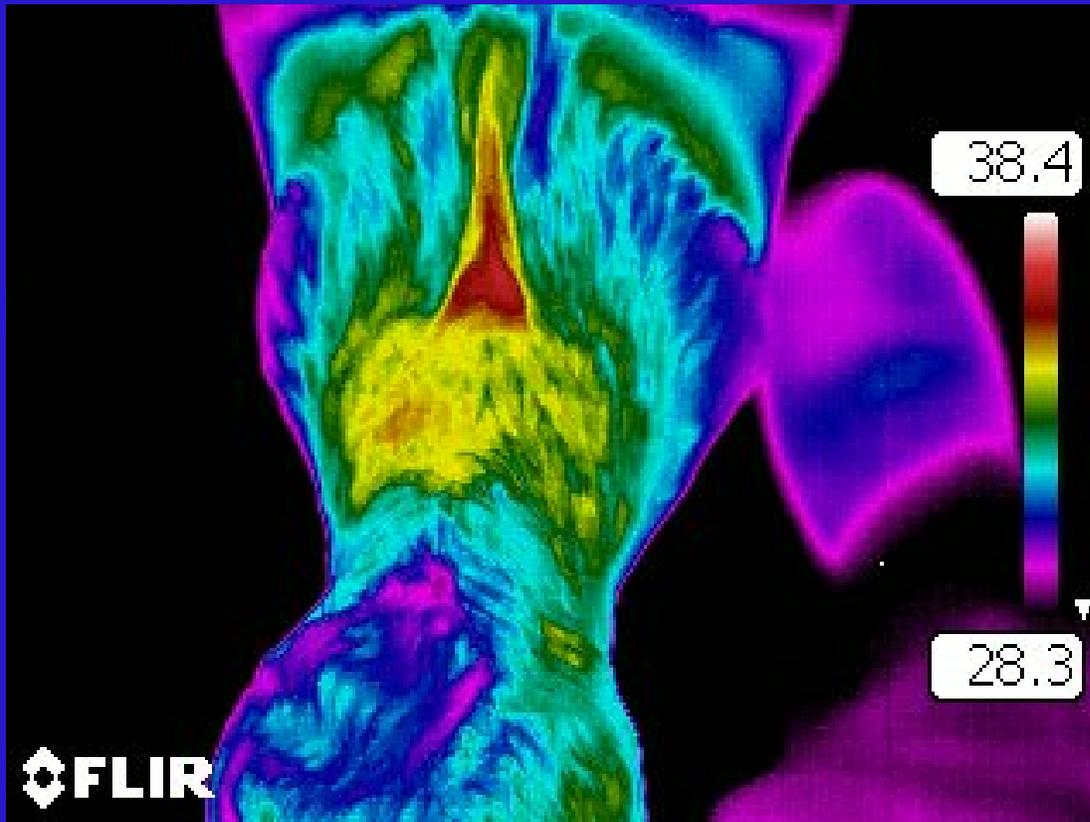
CORRUGATIONS



TRUE SCAR



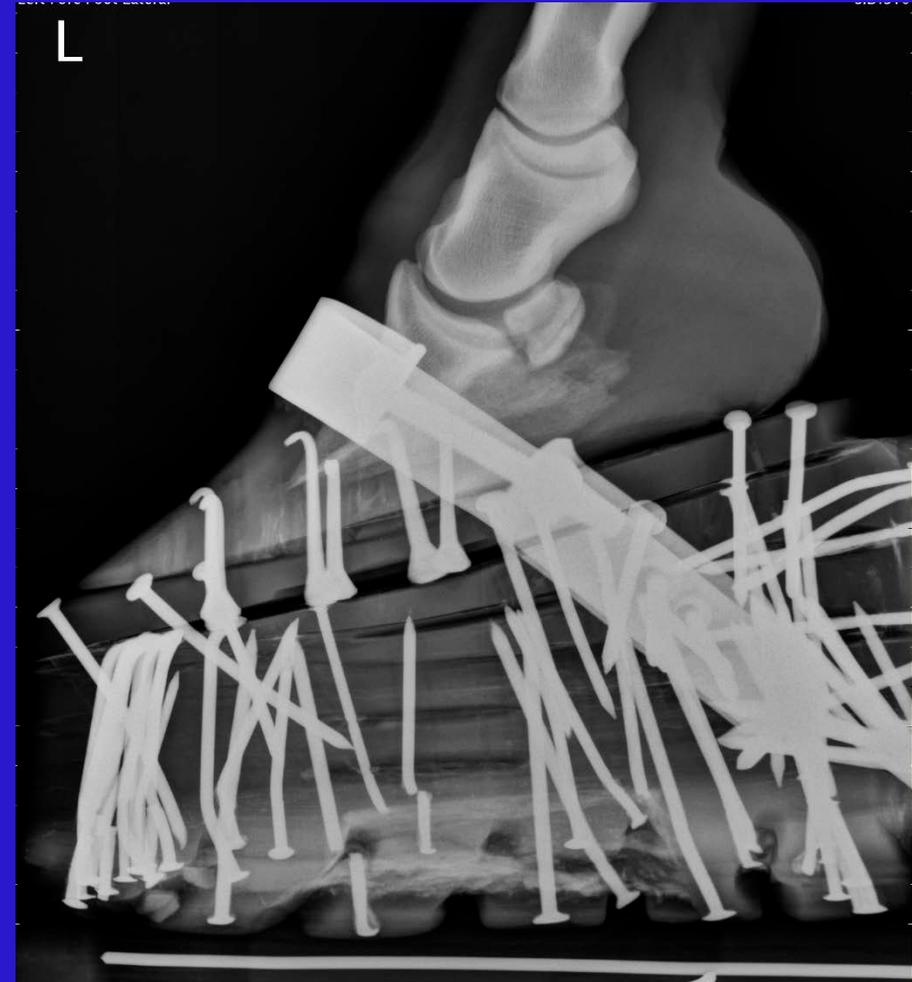
# NOT NORMAL PATTERN



- **MORE HEAT OVER PASTERN THAN EXPECTED BASED ON WHOLE THERMAL IMAGE**
- **NEEDS CLOSER SCRUTINY TO DETERMINE IF IT IS PAINFUL**

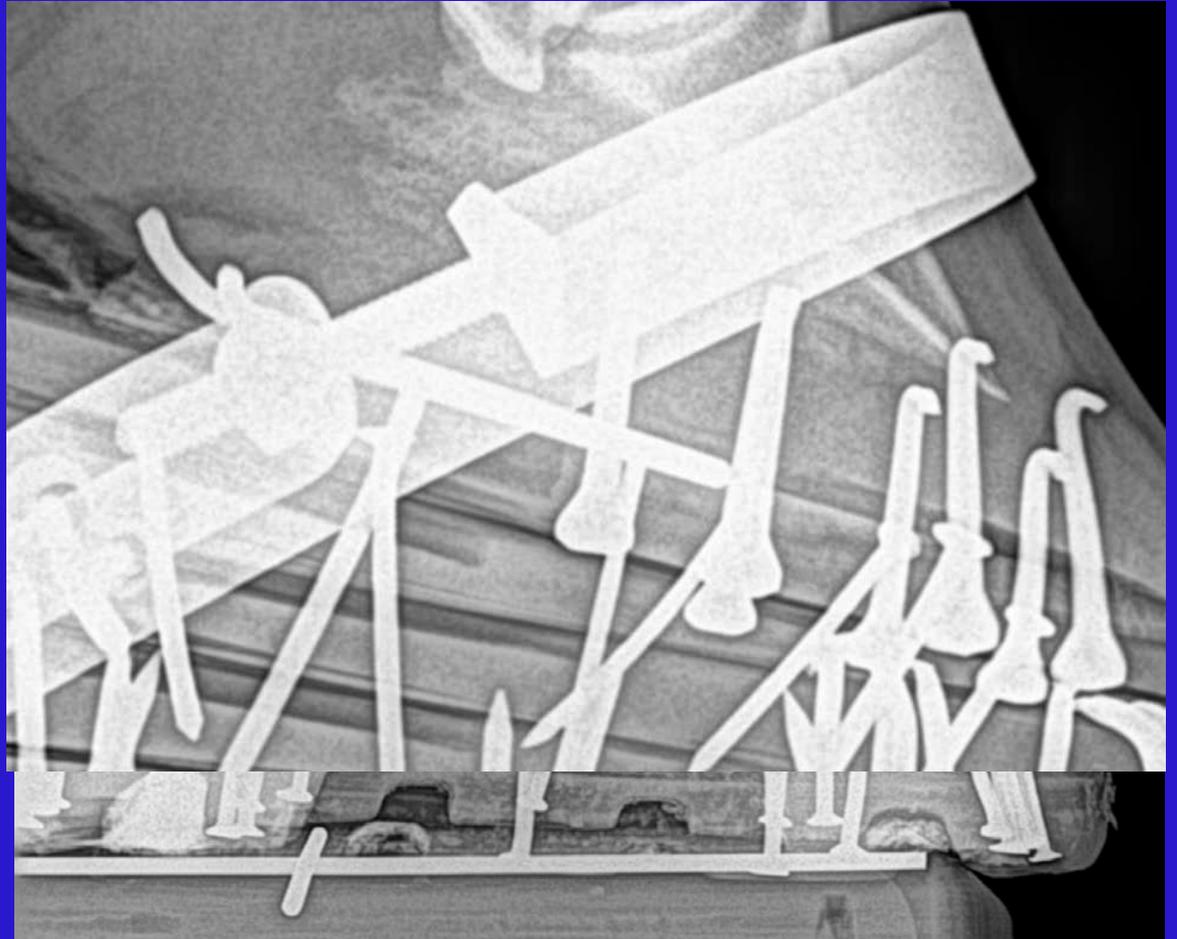
# DIGITAL RADIOGRAPHY

- **NEEDED AWAY TO LOOK INSIDE THE HOOF and PACKAGE**
- **ILLEGAL SHOEING**
- **PRESSURE SHOEING**

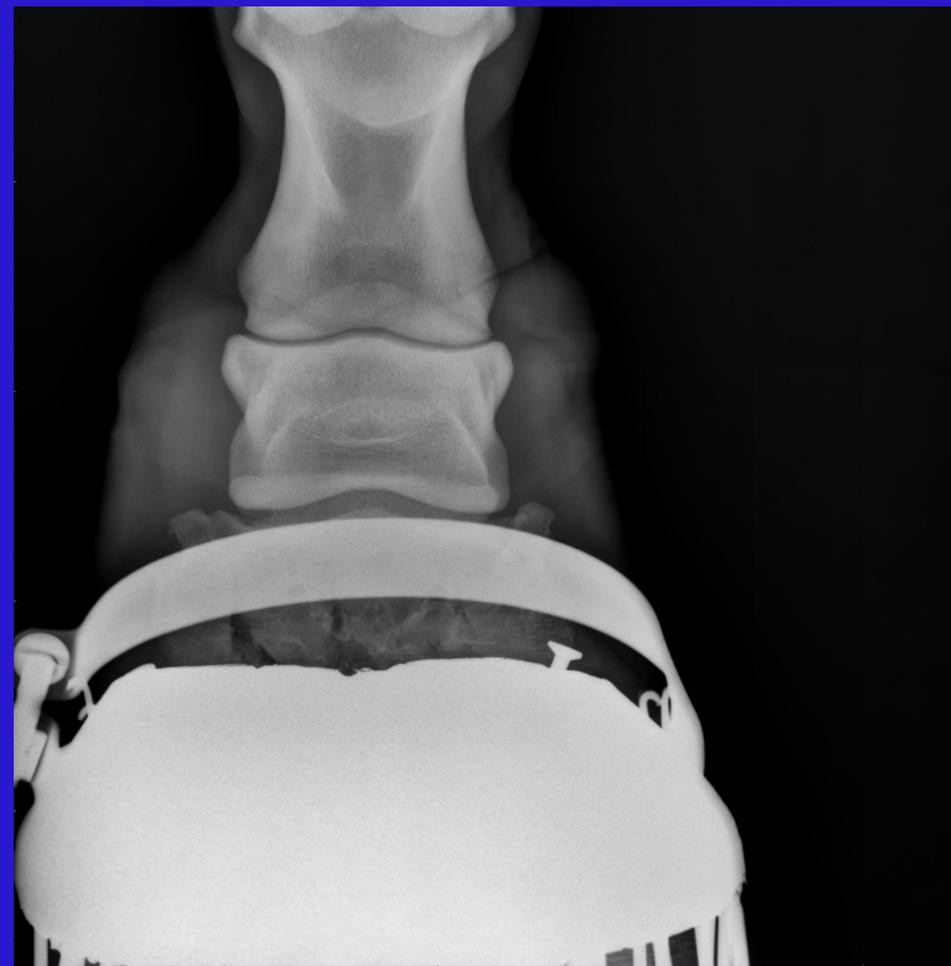
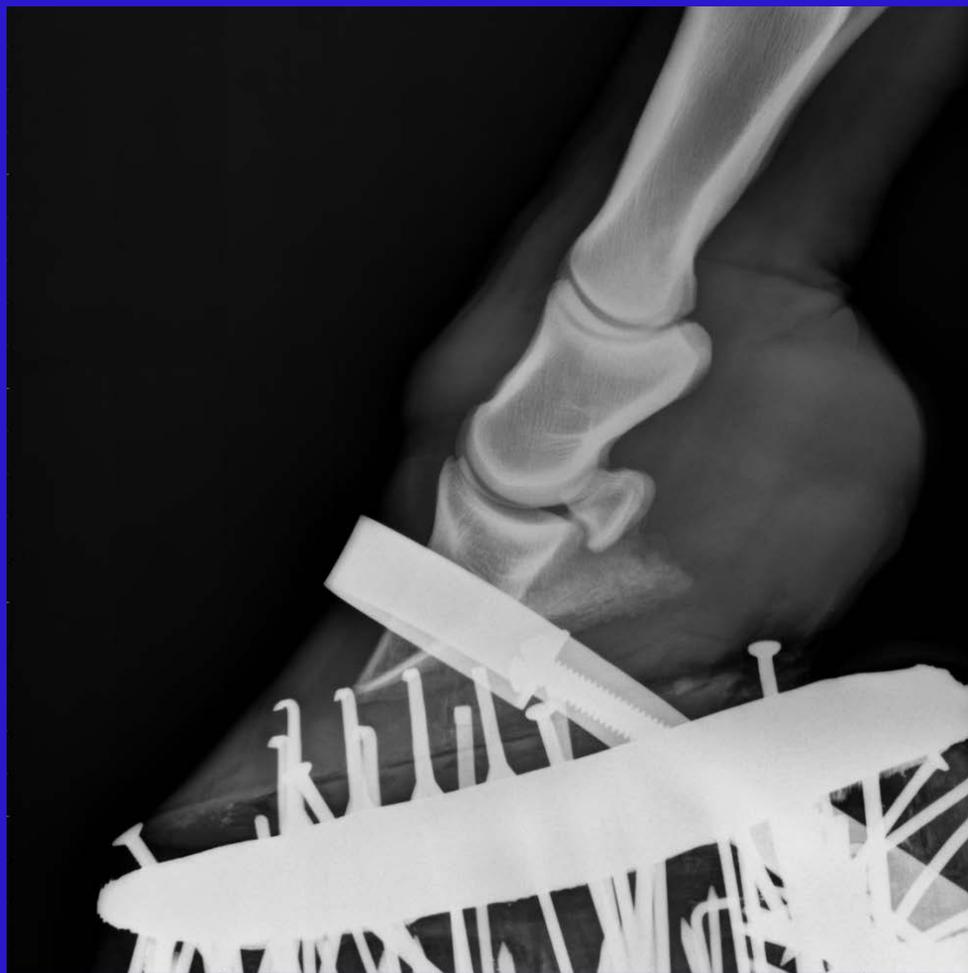


# HPA SPECIFIC PROHIBITIONS

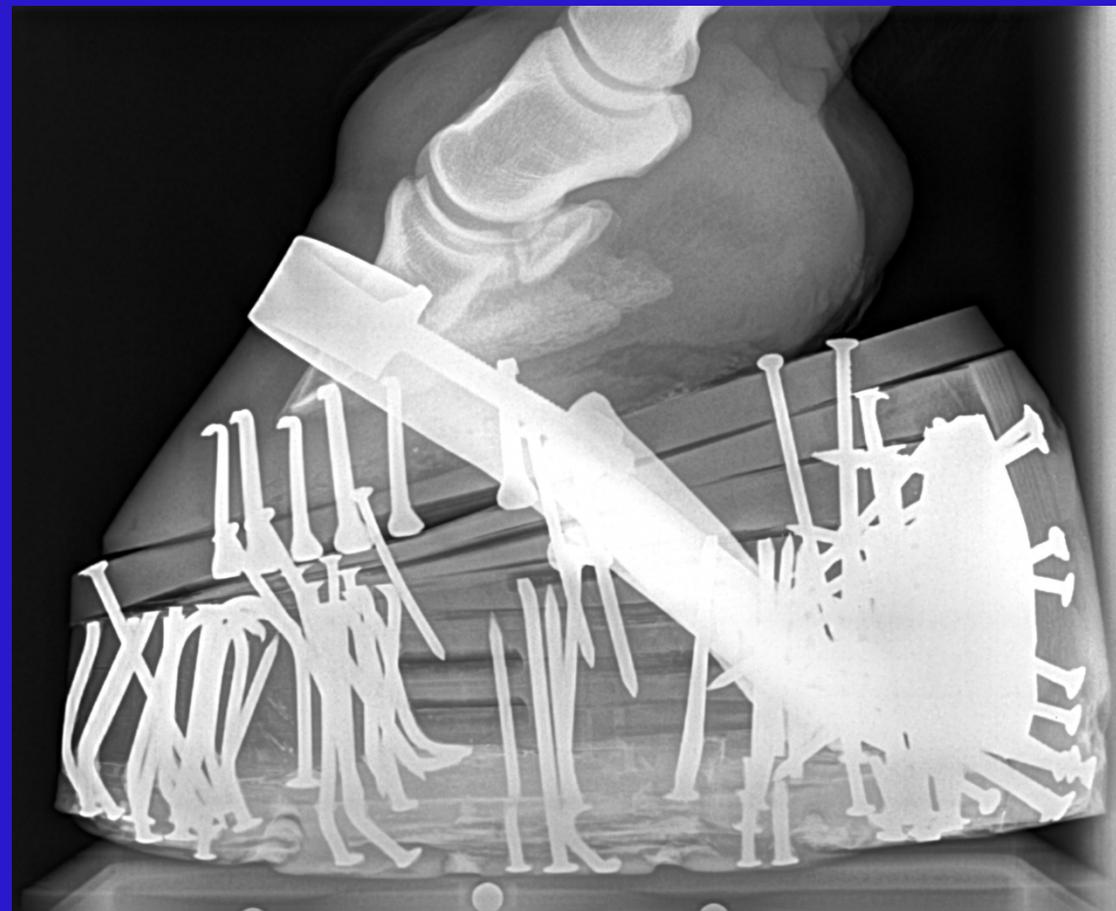
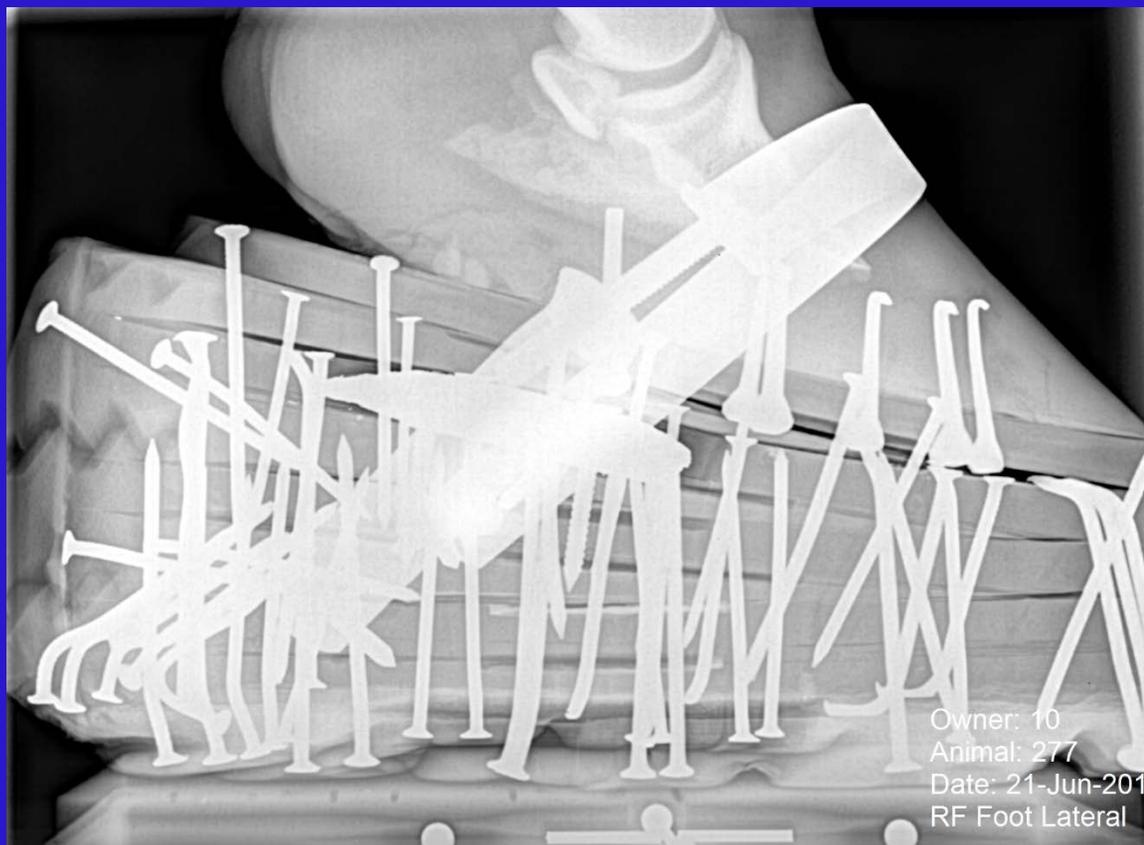
- **PROHIBITIONS ON SHOEING:**
- **SHOEING OR HOOF TRIMMING THAT CAN REASONABLY BE EXPECTED TO CAUSE A HORSE TO SUFFER PAIN OR DISTRESS**
- **ANY OBJECT OR MATERIAL INSERTED BETWEEN THE PAD AND THE HOOF OTHER THAN ACCEPTABLE PACKING**



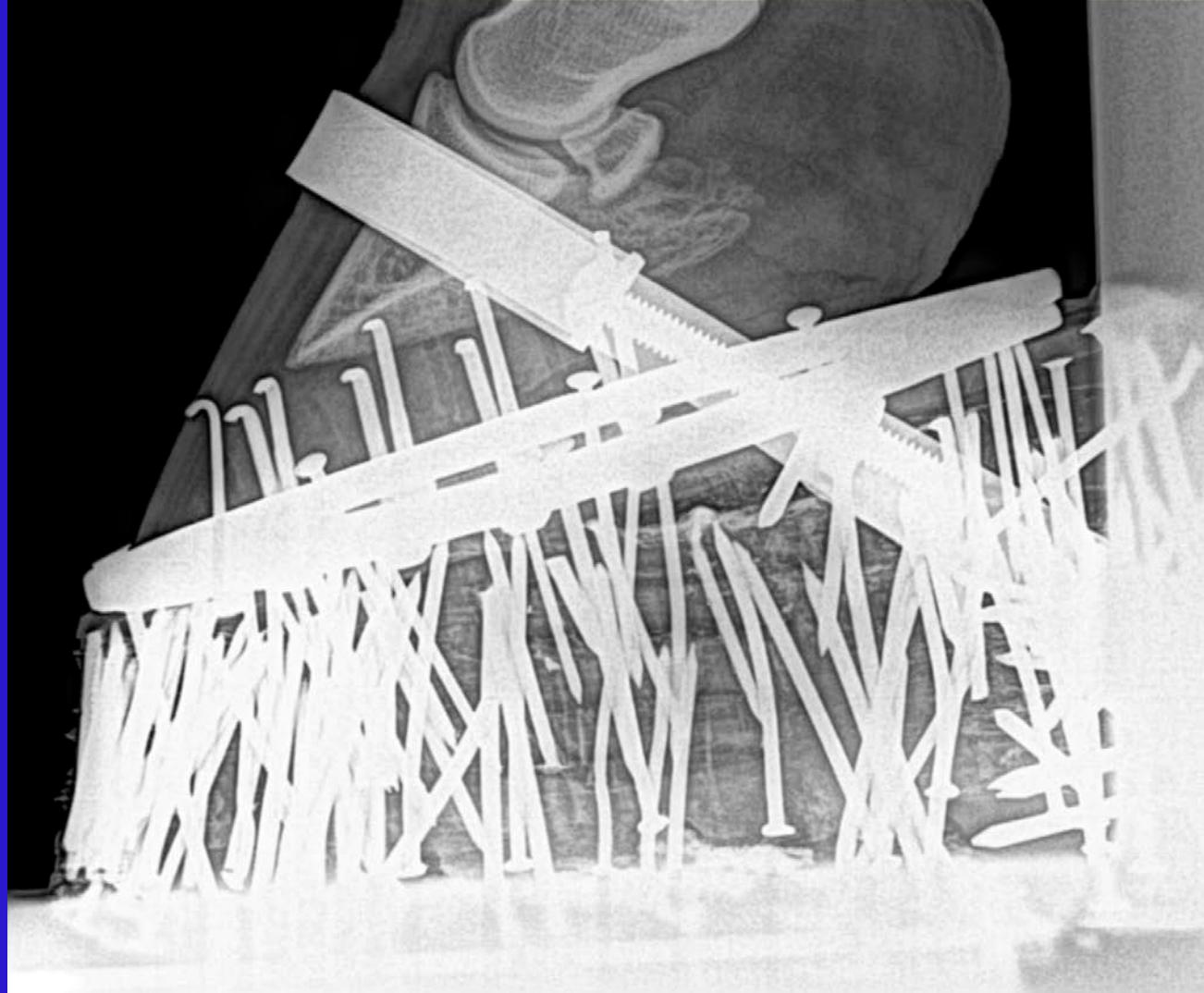
# ILLEGAL METAL IS EASY TO FIND



# MORE METAL



# WHAT CONSTITUTES ILLEGAL METAL???



# METAL

LEGAL



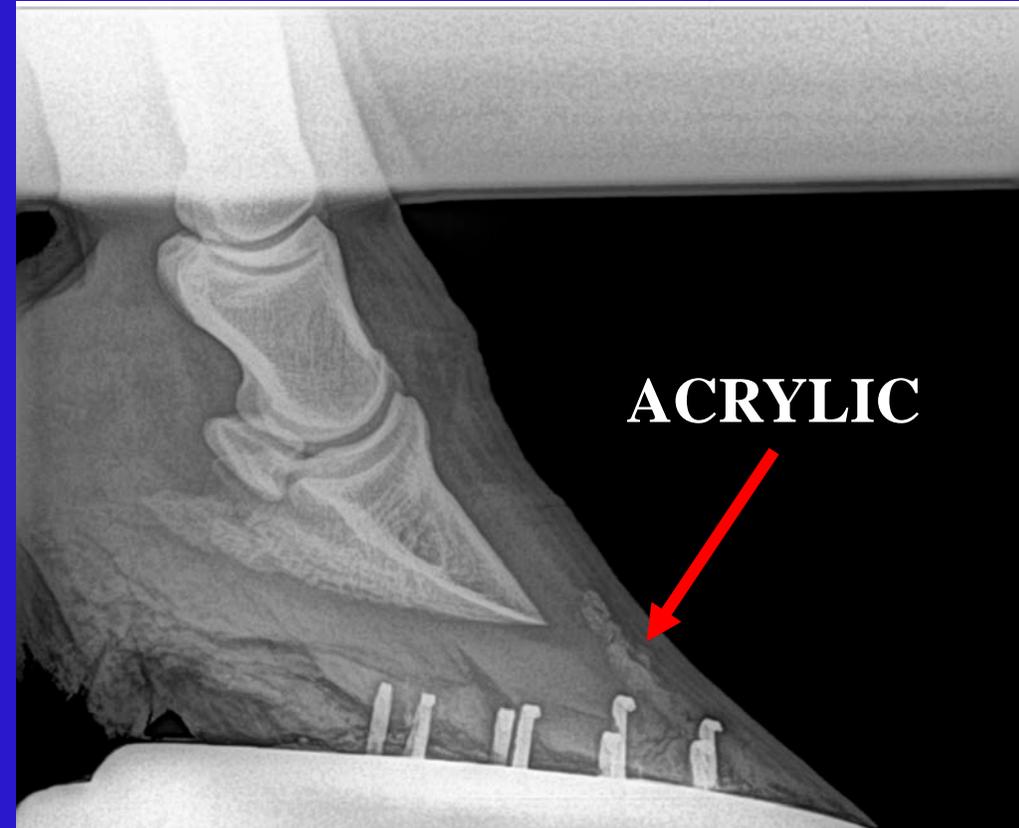
NOT LEGAL



# SHOEING

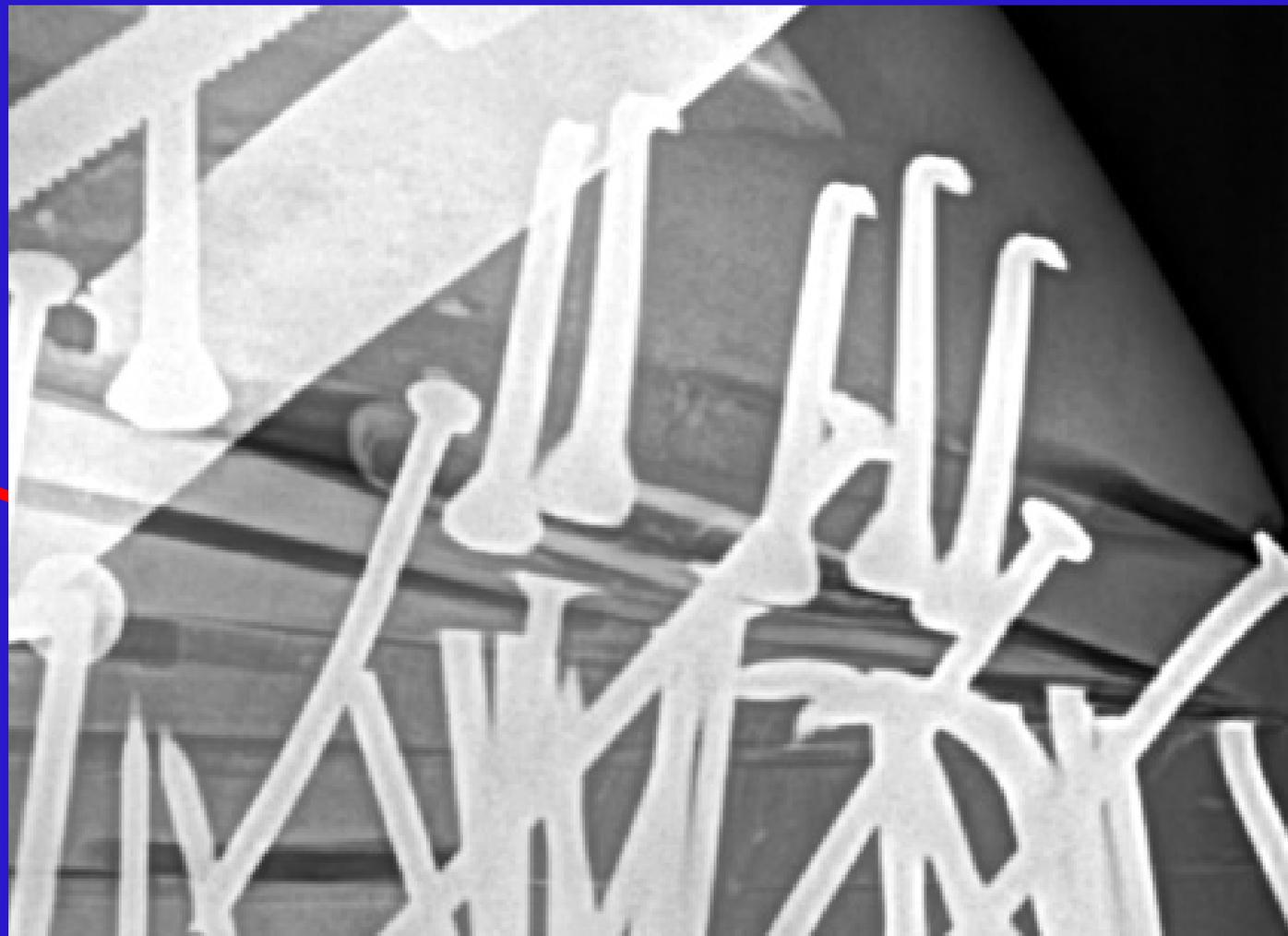
## Specific Prohibitions

- ARTIFICIAL EXTENSIONS OF TOE LENGTH THAT EXCEED 50% OF THE NATURAL HOOF LENGTH
- THE USE OF “POLY” AND OTHER HOOF BUILDING MATERIALS, COMBINED WITH “HOOF BLACK” POLISH HAS MADE THIS DIFFICULT TO DETERMINE. RADIOGRAPHY MAKES IT POSSIBLE

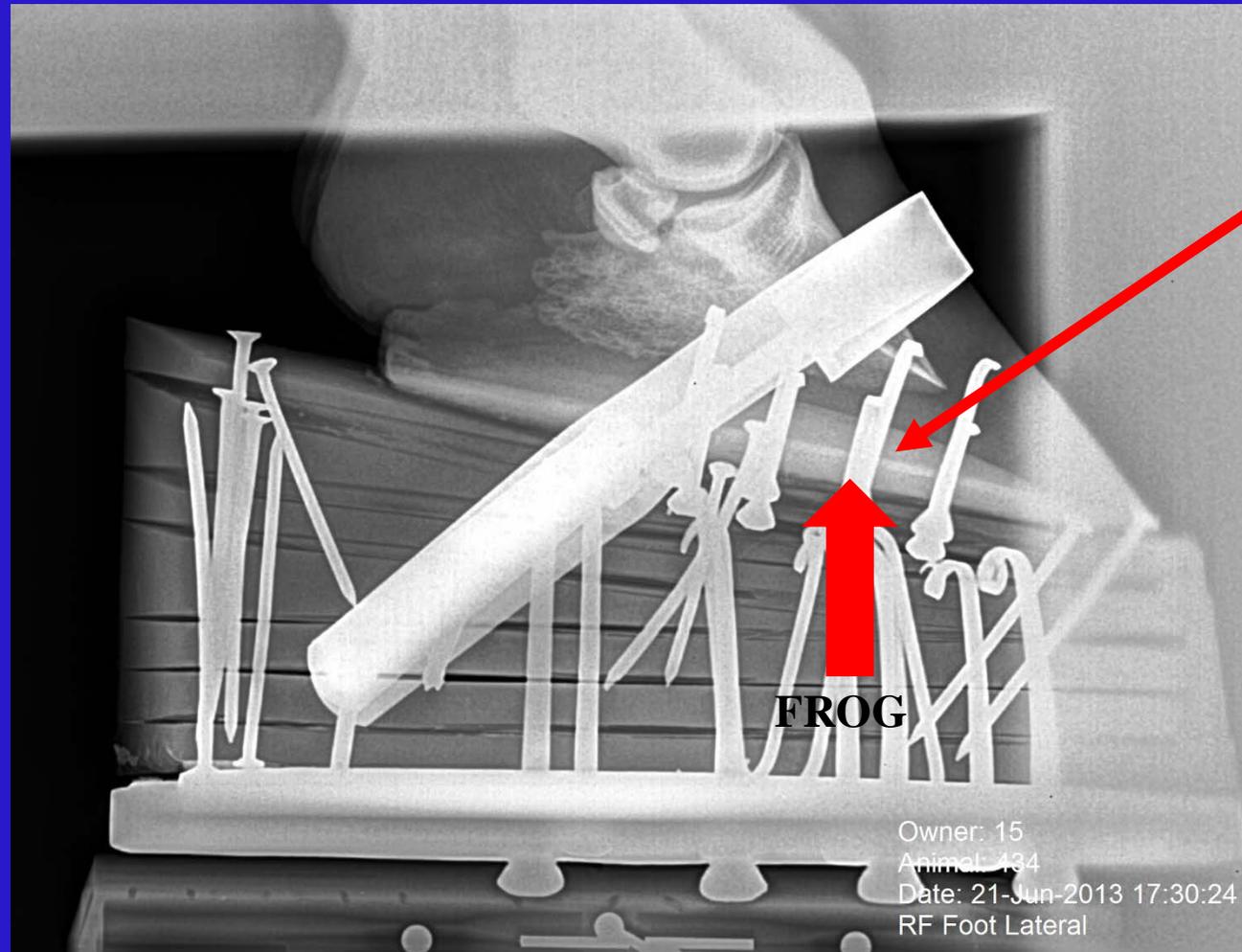


# PRESSURE SHOETING

ILLEGAL  
METAL



# PRESSURE SHOEING

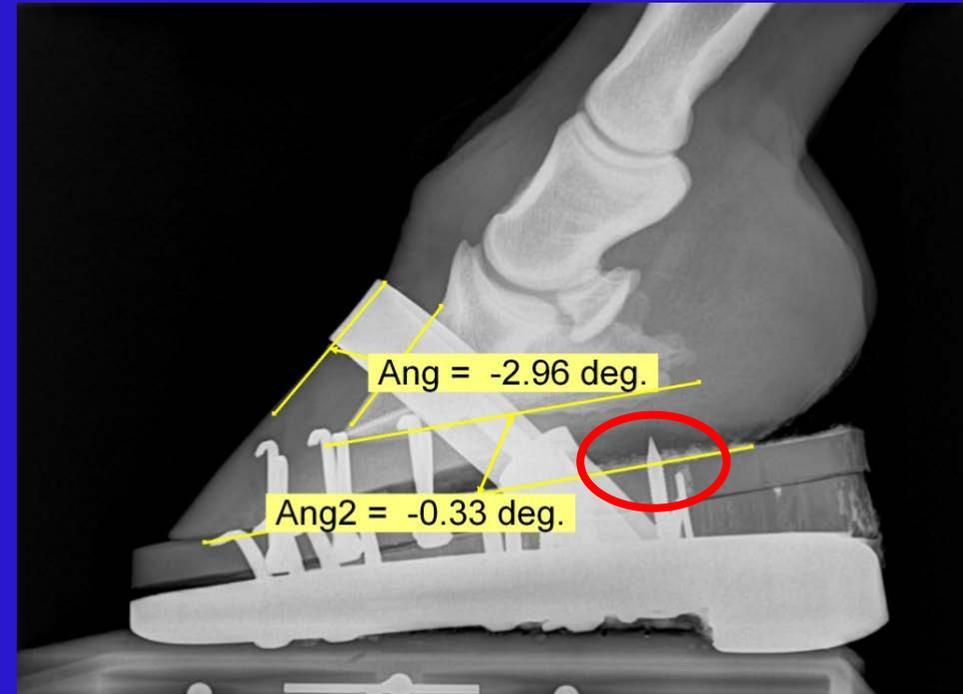
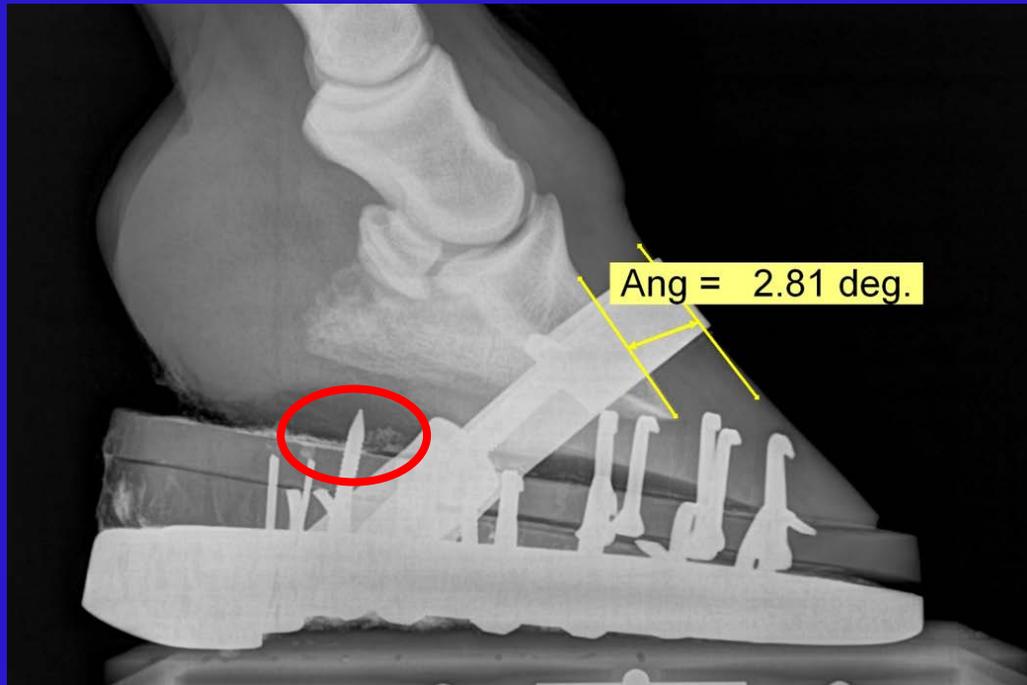


**PACKING  
MATERIAL THAT  
EXTENDS OVER  
SOLE; PACKING IS  
USUALLY OVER  
THE FROG**

**FROG**

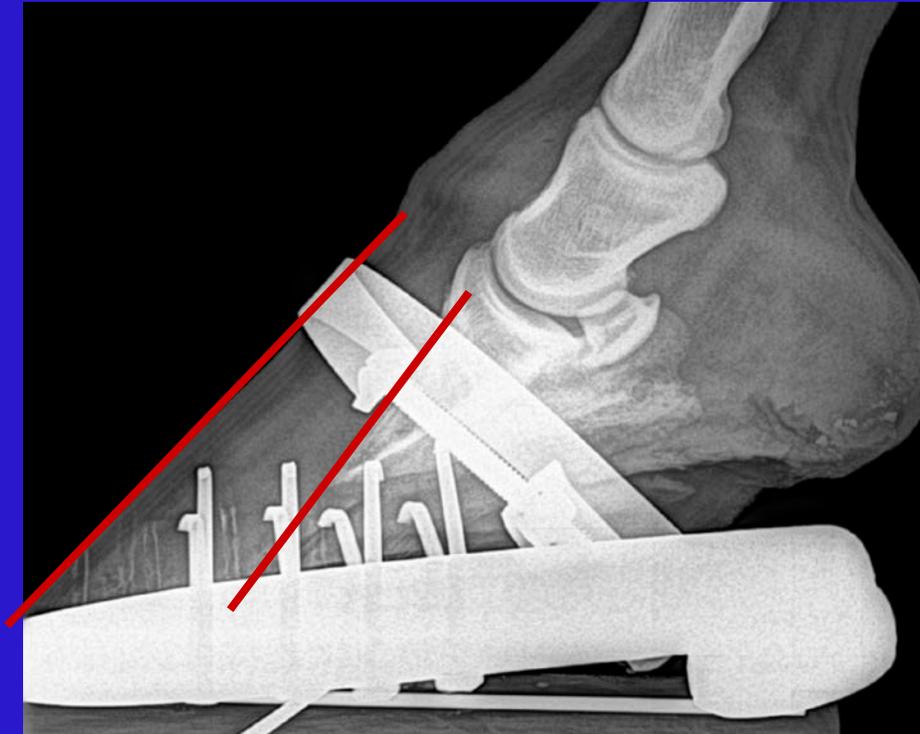
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Animal: 434  
Date: 21-Jun-2013 17:30:24  
RF Foot Lateral

# POST INSPECTION LEAD ADDED TO PACKAGE



# WHAT ELSE ARE WE LOOKING FOR: HOOF IMBALANCE

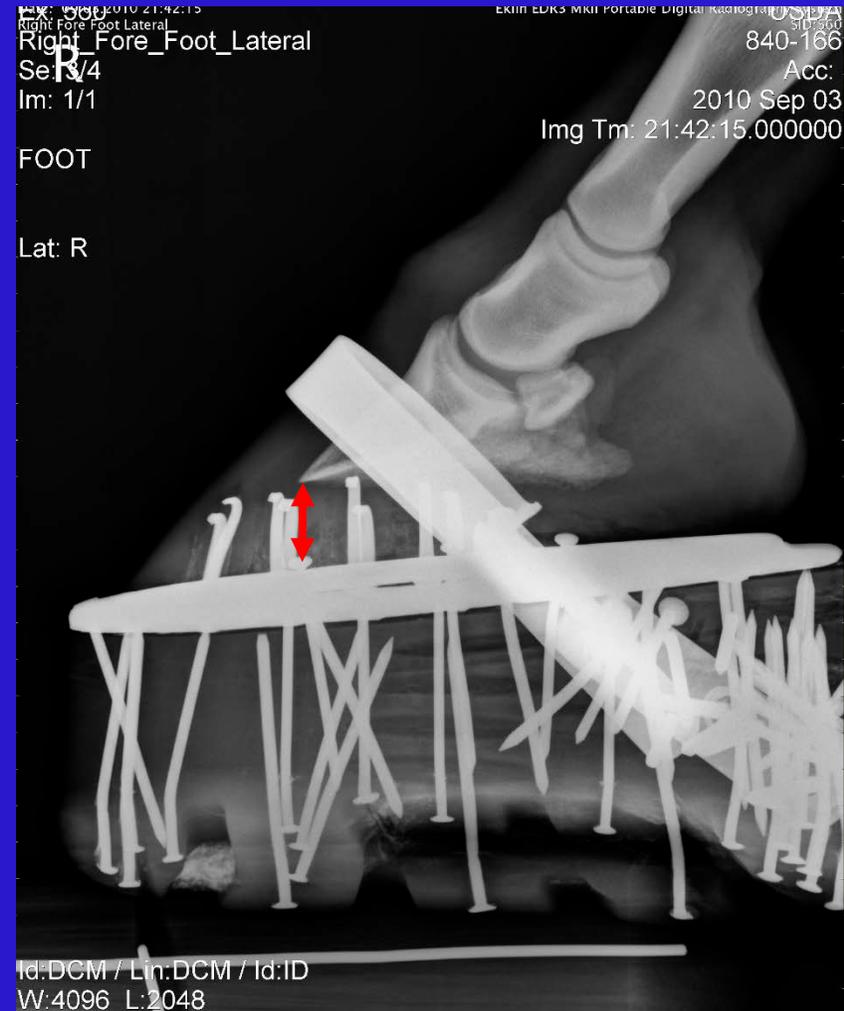
1. SOLAR ANGLE
2. MEDIAL LATERAL BALANCE
3. ROTATION, GREATER THAN 5° IS SORE IN THAT FOOT
  - WE HAVE FOUND THE TENNESSEE WALKING SHOW HORSE TO HAVE THE MOST IMBALANCED HOOVES



# WHAT'S NEW

➤ **WALL THICKNESS:  
DORSAL HOOF WALL  
THICKNESS SHOULD  
BE AT LEAST 16mm,  
anything less than 14mm  
VIOLATION?**

➤ **SOLE THICKNESS  
FROM TIP OF COFFIN  
BONE SHOULD BE AT  
LEAST 10mm**



# DORSAL WALL THINNED DISTALLY FOR WHAT PURPOSE?



# LONG HOOF CAN CAUSE PAINFUL PROBLEMS



**THANK-YOU**

**ANY QUESTIONS?**



# SHOEING CAN CAUSE SORING



WRINKLES IN THE  
SKIN