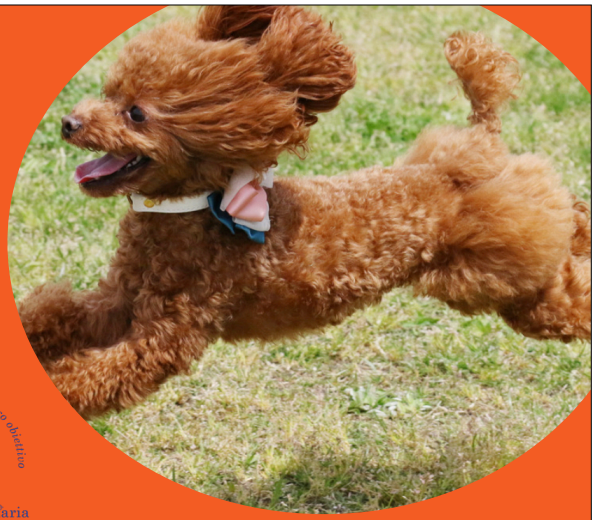
Ultrasound of the medial aspect of the thigh and the iliopsoas

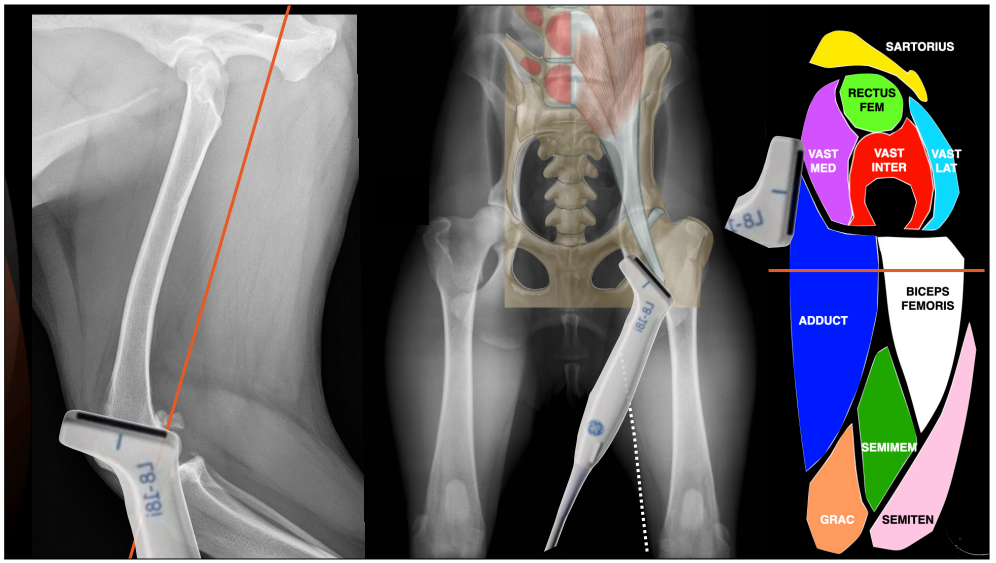
Giliola Spattini
DVM, GP Cardio, CCRT, PhD, DECVDI



Diagnostic Mindset

il loro benessere, il nostro obiettivo
Clinica Veterinaria
CASTELLARANO

Thank to www.imaios.com

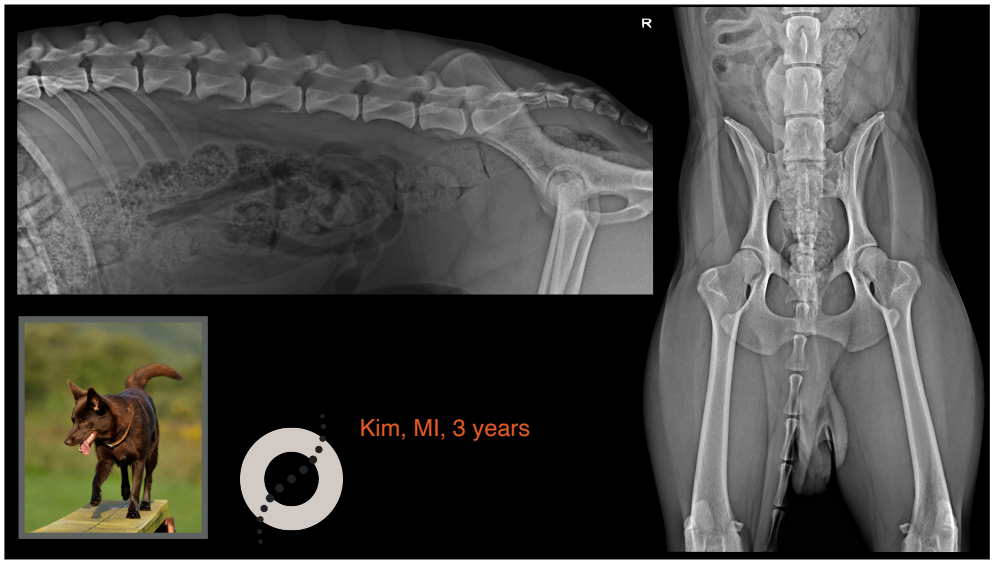


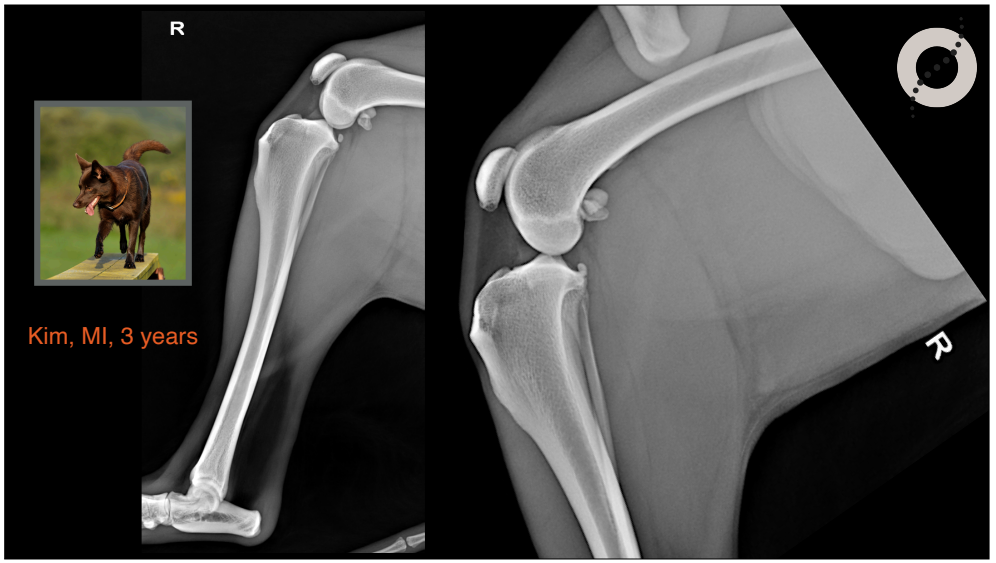
Kim, Australian Kelpie, MI, 3 years

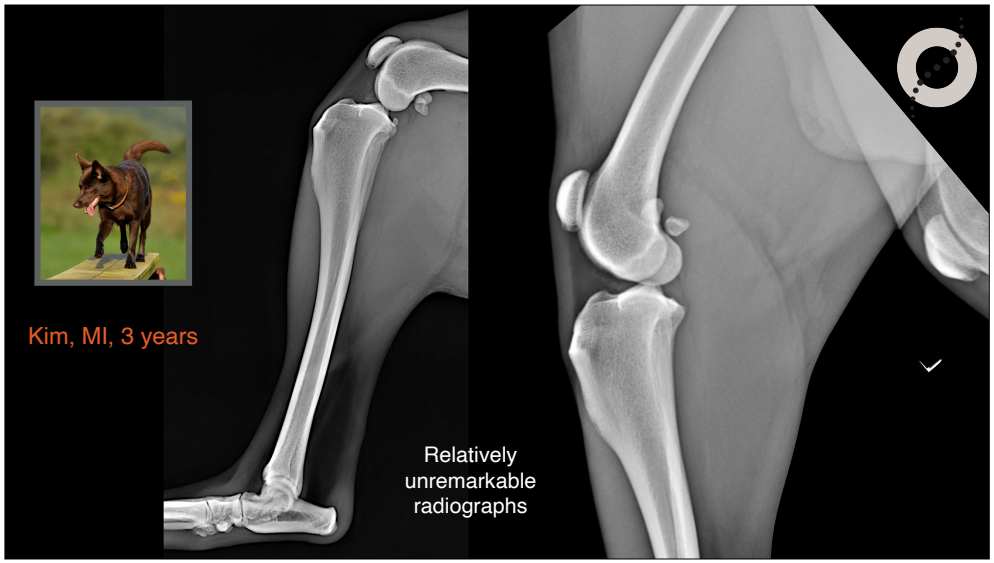
- Failing jumps during agility trial
- Slower than usual
- No evident lameness or discomfort after training

Kim, Australian Kelpie, MI, 3 years

- The following day 3rd degree of lameness in the right hindlimb
- Pain on extension and extra rotation of the hip
- No neurological signs

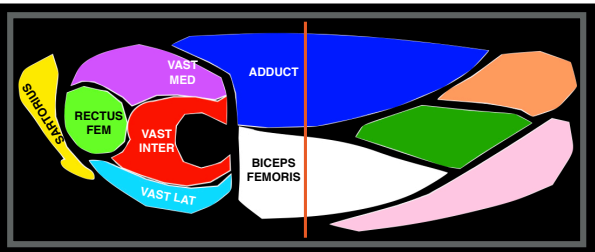

R
Kim, MI, 3 years

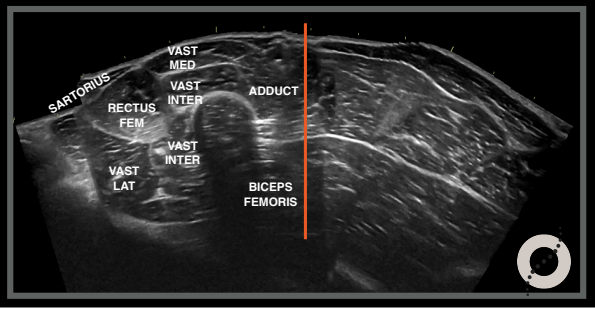

R
Kim, MI, 3 years
R


Kim, MI, 3 years
Relatively
unremarkable
radiographs

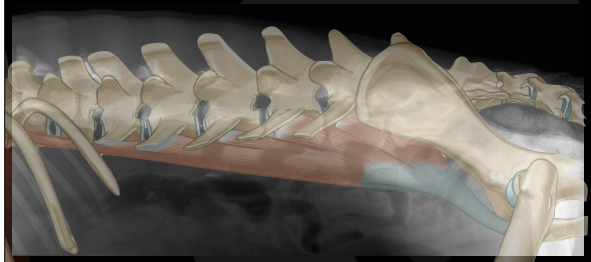

Kim, MI, 3 years
Left stifle
Cranial face longitudinal scan
1-2-3
Right stifle

Cranial part of medial thigh





Ultrasonographic technique for iliopsoas muscle and tendon



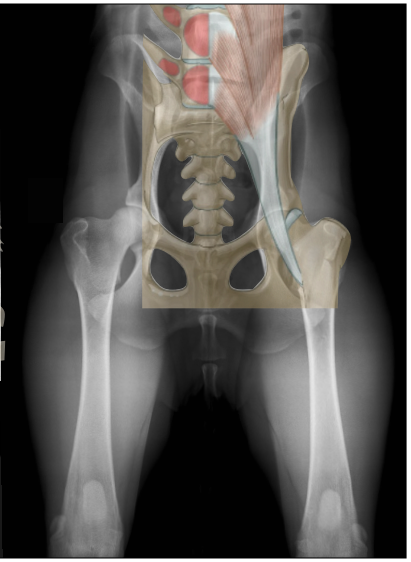
Veterinary Anaesthesia and Analgesia, 2015 doi:10.1111/vaa.12240

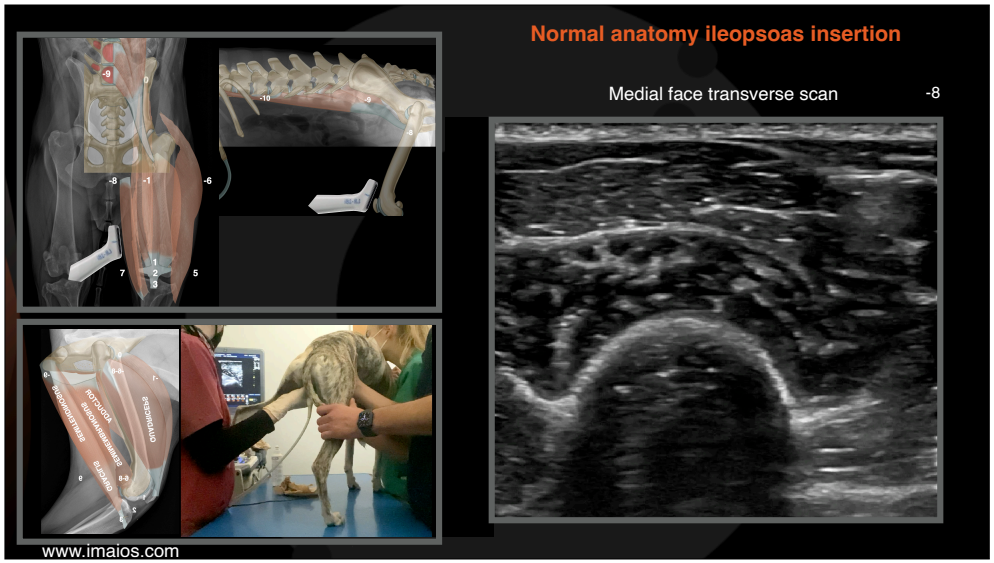
RESEARCH PAPER

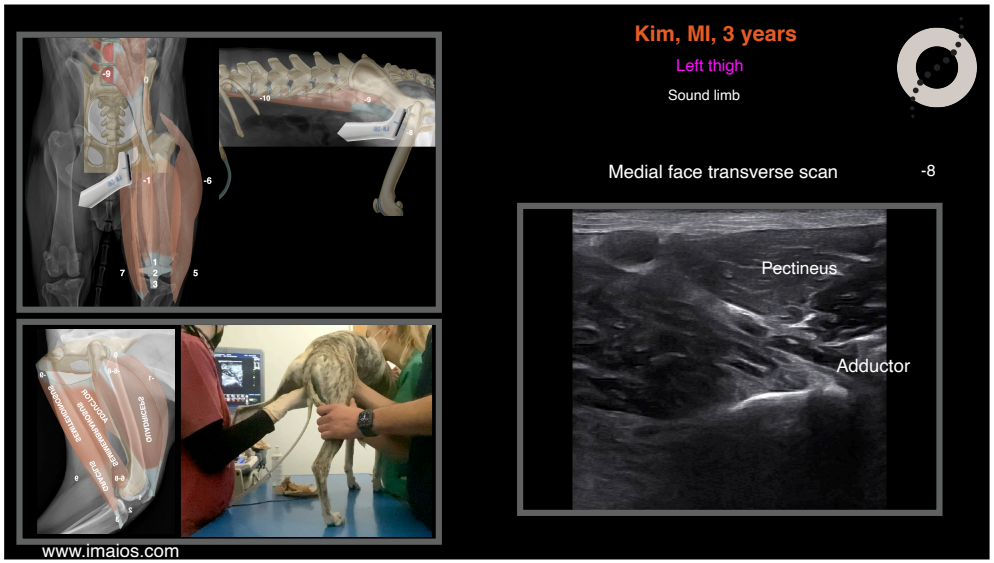
Anatomical and ultrasonographic study of the femoral nerve within the iliopsoas muscle in beagle dogs and cats

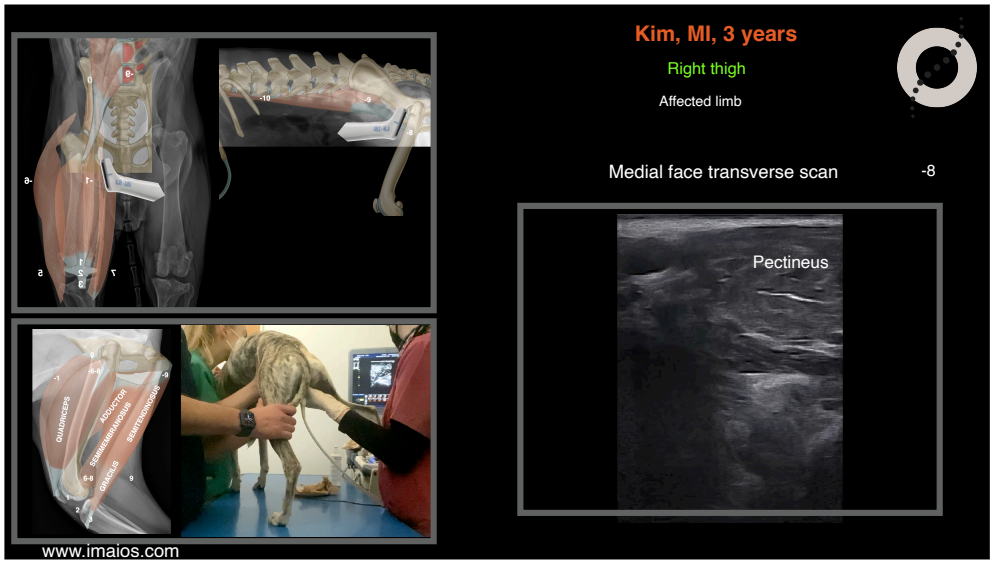
Giovanni Mogicato*,†, Catherine Layssol-Lamour‡, Stephan Mahler§, Maxime Charrouin*, Guillaume Boyer¶, Patrick Verwaerde¶ & Géraldine Jourdan¶

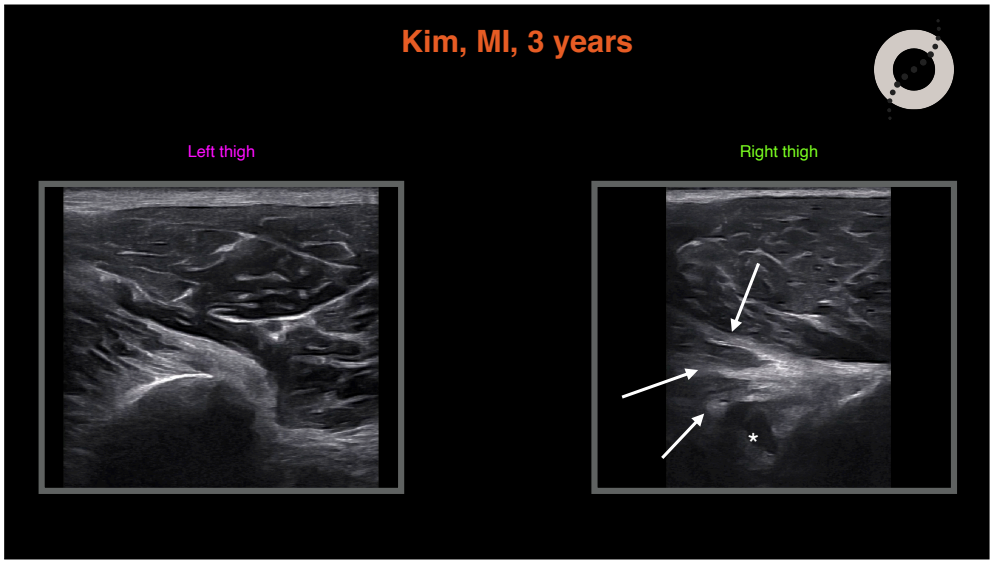
www.imaios.com




Normal anatomy ileopsoas insertion
Medial face transverse scan
-8
www.imaios.com


Kim, MI, 3 years
Left thigh
Sound limb
Medial face transverse scan
-8
Pectineus
Adductor
www.imaios.com


Kim, MI, 3 years
Right thigh
Affected limb
Medial face transverse scan
-8
Pectineus
www.imaios.com


Kim, MI, 3 years
Left thigh
Right thigh
*

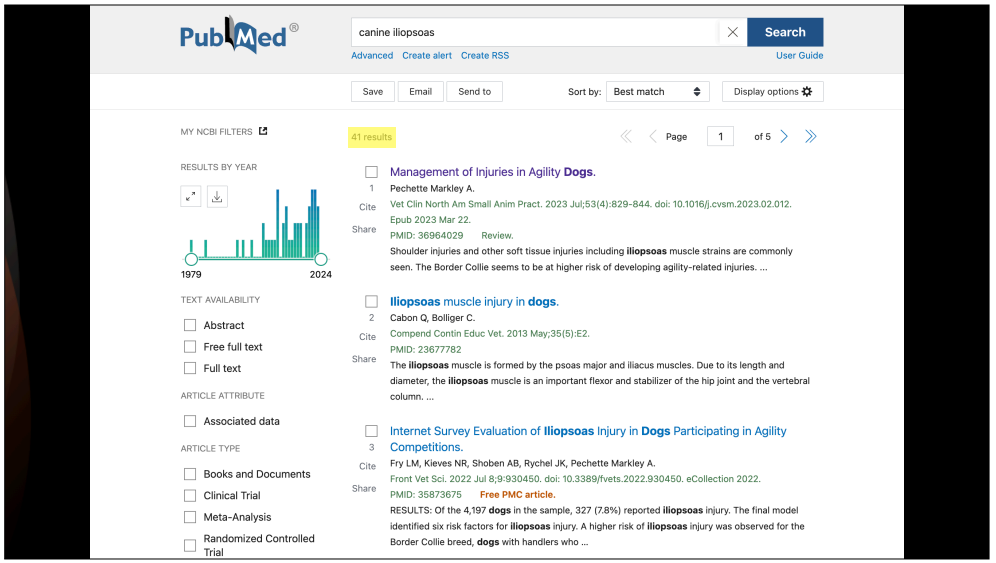
Kim, Australian Kelpie, MI, 3 years

Ultrasonographic diagnoses:

- Partial rupture of the right iliopsoas teno-junction

Conclusions

Physiotherapy and change in training



Article
The Canadian Journal of Veterinary Research 2023;87:196–201

Iliopsoas strain demographics, concurrent injuries, and grade determined by musculoskeletal ultrasound in 72 agility dogs

Danny Sack, Debra Canapp, Sherman Canapp, Stephanie Majeski, Jeff Curry, Angela Sutton, Robert Cullen

Abstract

The objective of this study was to describe patient demographics associated with iliopsoas strains, frequency of common concurrent injuries, and associated strain grades based on musculoskeletal ultrasound.

The medical records of 72 client-owned agility dogs that had an iliopsoas musculoskeletal ultrasound (MSK-US) between 2009 and 2015 were retrospectively reviewed. Analyses included patient signalment, physical examination, and diagnostic findings.

Twenty-four breeds of canine athletes from 1.5 to 10 y old (median: 5 y, SD: 2.2 y) were included in the study. Of the 72 records reviewed, border collies were the most common breed (27.8%, 20/72) reported. Isolated iliopsoas strains occurred in 26.4% (19/72) of cases. Concurrent pathology was noted in 73.6% (53/72) of cases. Cranial cruciate ligament (CCL) instability was the most common concurrent pathology, representing 27.8% (20/72) of all cases, with hip (8.3%, 6/72), lumbosacral (23.6%, 17/72), other non-CCL hind limb (6.9%, 5/72), and forelimb (6.9%, 5/72) pathologies making up the remainder of cases with concurrent pathology. In patients with a concurrent hind limb injury, 96.7% (30/31) of dogs had their most severe iliopsoas strain grade on the same limb.

MSK-US revealed Grade I strains in 54.2%, Grade II strains in 22.2%, Grade III strains in 5.2%, and chronic changes in 18.1% of cases. There were no statistically significant associations between iliopsoas strain grade and age, body weight, sex, breed, concurrent pathology, anatomic location of concurrent pathology, or sidedness of concurrent pathology.

Iliopsoas strains are one of the most common agility dog injuries; however, patient demographics, prevalence of concurrent injury and correlation with MSK-US findings have not been previously reported. To the authors' knowledge, this is the first retrospective analysis reporting iliopsoas strain demographics, concurrent injury frequency and correlation with MSK-US evaluation in agility dogs. Although 26.4% of iliopsoas strains occurred as isolated injuries, 73.6% had concurrent injuries, with CCL instability present most commonly, occurring in 27.8% of cases.

Dogs should be thoroughly evaluated for concurrent injuries when presenting with an iliopsoas strain.

Table I. Musculotendinous grading scheme for dogs.

Grade	Description
I	"Mild strain," < 5% muscle involvement, focal edema/hemorrhage
II	"Moderate strain," > 5% muscle involvement, mild fiber tearing, increased edema/hemorrhage
III	"Severe strain," significant fascial tearing, marked to complete muscle fiber disruption, marked edema/hemorrhage
Chronic	Hyperechoic fiber pattern, hyperechoic changes and/or debris within bursa, > 5% muscle involvement, mild fiber tearing

Internet Survey Evaluation of Iliopsoas Injury in Dogs Participating in Agility Competitions

Frontiers in Veterinary Science | www.frontiersin.org 1 July 2022 | Volume 9 | Article 930450

Lindsey M. Fry[1], Nina R. Kieves[2], Abigail B. Shoben[3], Jessica K. Rychel[1] and Arielle Pechette Markley[4]*

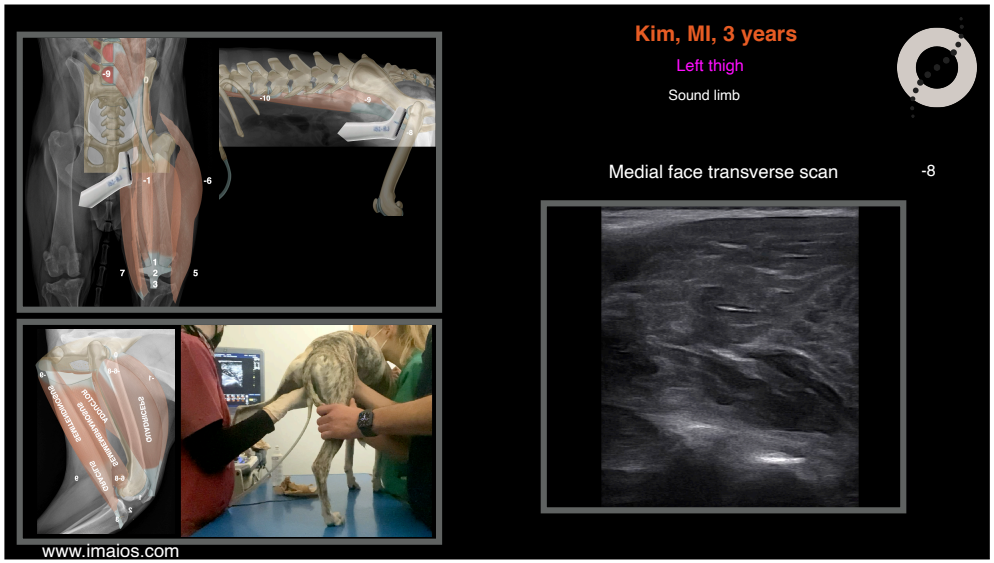
[1] Red Sage Integrative Veterinary Partners Rehabilitation Clinic, Fort Collins, CO, United States, [2] Department of Veterinary Clinical Sciences, College of Veterinary Medicine, The Ohio State University, Columbus, OH, United States, [3] College of Public Health, Division of Biostatistics, The Ohio State University, Columbus, OH, United States, [4] Veterinary Medical Center, The Ohio State University, Columbus, OH, United States

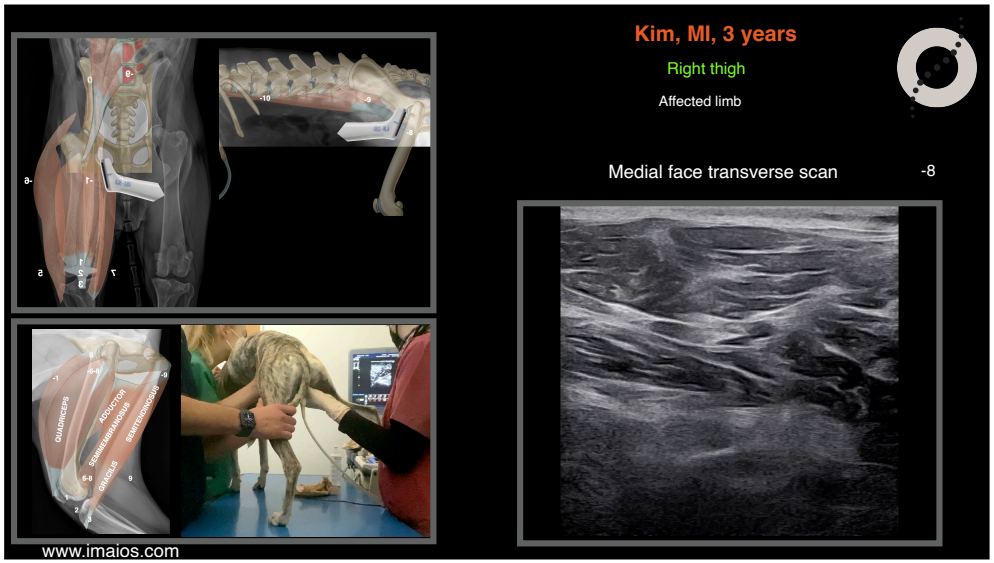
Results: Of the 4,197 dogs in the sample, 327 (7.8%) reported iliopsoas injury. The final model identified six risk factors for iliopsoas injury. A higher risk of iliopsoas injury was observed for the Border Collie breed, dogs with handlers who are veterinary assistants, dogs competing on dirt, dogs competing on artificial turf 6+ times a year, and dogs that trained with the 2 × 2 method for weave poles. Dogs that were not acquired with agility in mind were observed to have a decreased risk of injury. Factors like number of competition days and jump height were not significantly associated with risk of iliopsoas injury. Owners sought veterinary care for 88% of dogs with iliopsoas injury, including specialty care for 63%. Treatment most often included rest, home rehabilitation, formal rehabilitation, and/or oral medications. Most dogs (80%) were able to return to sport within 6 months, while 20% were out for longer than 6 months, or retired.

Kim, Australian Kelpie, MI, 3 years

Four months later

- Back to work
- Performing at the same level than before the injury

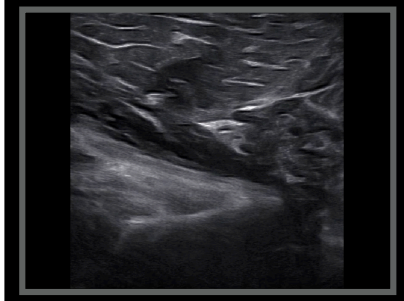

Kim, MI, 3 years
Left thigh
Sound limb
Medial face transverse scan
-8
www.imaios.com


Kim, MI, 3 years
Right thigh
Affected limb
Medial face transverse scan
-8
www.imaios.com

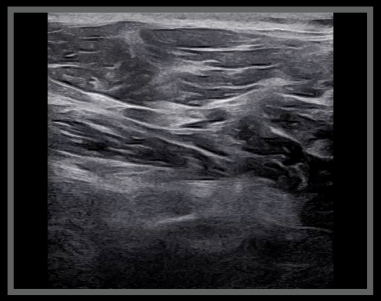
Kim, MI, 3 years

Four months later

Left thigh



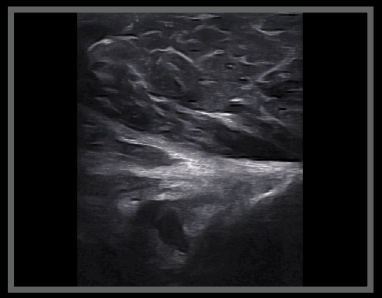
Right thigh



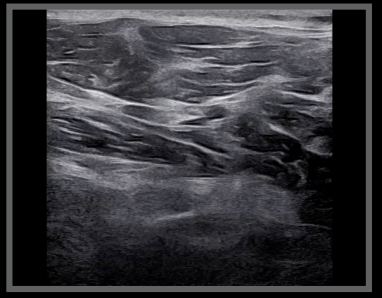
Kim, MI, 3 years

Acute VS Chronic lesions

Right thigh Time 0



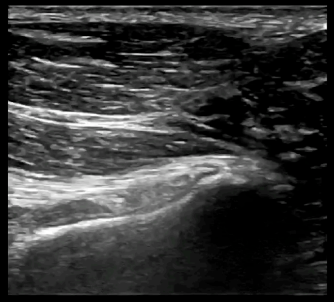
Right thigh Four months later



Iliopsoas tendon injuries personal grading

WNL

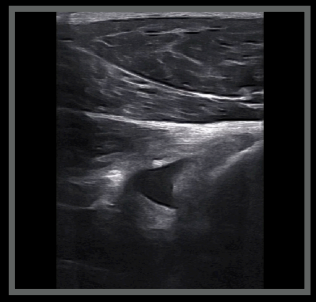
1. Fine fibrillar pattern
2. Well-defined from the surrounding tissues
3. Well-defined bony surface
4. No hyperechoic surrounding tissues - No mineralisation



Iliopsoas tendon injuries personal grading

Acute injury

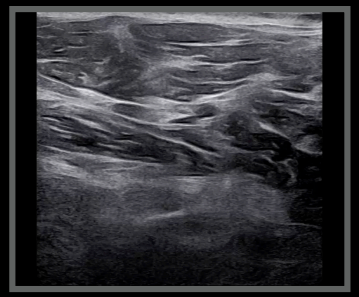
1. Focal loss of the fibrillar pattern
2. Effusion
3. Scattering artifact
4. Reduced distinction with the surrounding tissues

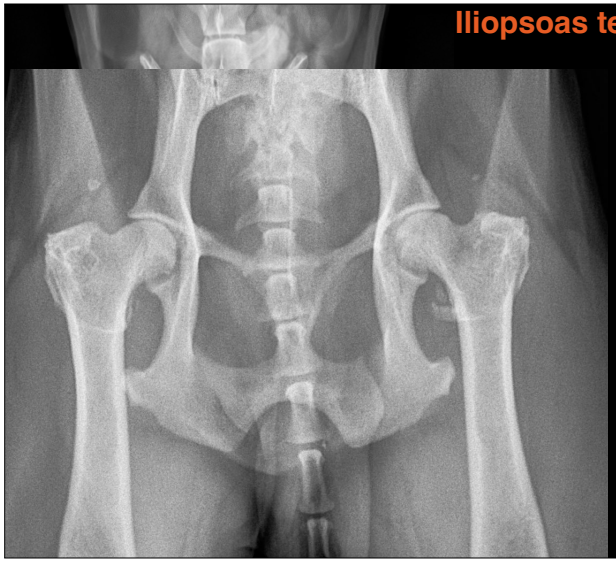


Iliopsoas tendon injuries personal grading

Chronic injuries

1. Less fine and defined fibrillar pattern
2. Markedly reduced distinction with the surrounding tissues
3. No scattering artifact, no effusion
4. +/- Mineralisation



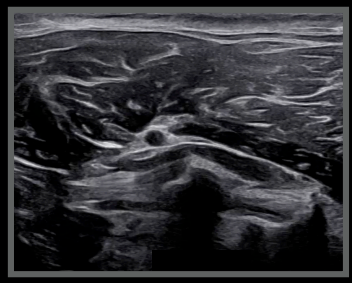


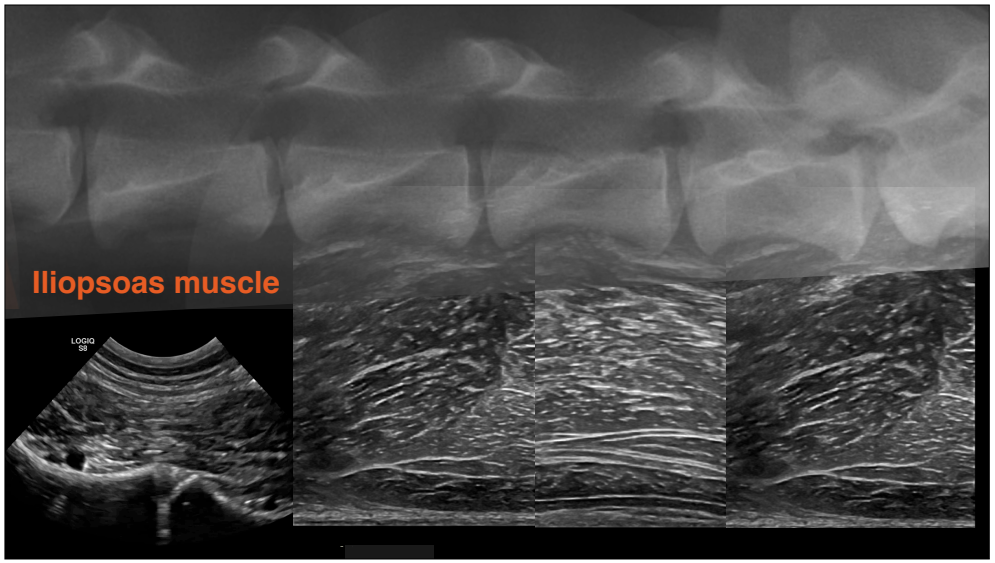
Iliopsoas tendon injuries personal grading

Chronic injuries

Omuk, MI, 4 years

Shortening gait, pain hip extension and internal rotation





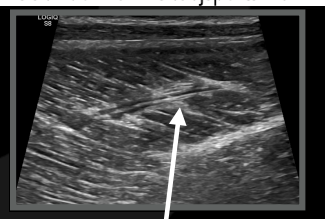
Consensus statement

OPEN ACCESS

Terminology and classification of muscle injuries in sport: The Munich consensus statement

Hans-Wilhelm Mueller-Wohlfahrt,[1] Lutz Haensel,[1] Kai Mithoefer,[2] Jan Ekstrand,[3] Bryan English,[4] Steven McNally,[5] John Orchard,[6,7] C Niek van Dijk,[8] Gino M Kerkhoffs,[9] Patrick Schamasch,[10] Dieter Blottner,[11] Leif Swaerd,[12] Edwin Goedhart,[13] Peter Ueblacker[1]

Mueller-Wohlfahrt H-W, *et al*. *Br J Sports Med* 2013;**47**:342–350. doi:10.1136/bjsports-2012-091448



Thank you

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