

THE CANINE AGILITY ATHLETE: THE SPORT & COMMON CANINE INJURIES

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OBJECTIVES

FOLLOWING THE WEBINAR, PARTICIPANTS WILL HAVE AN IMPROVED UNDERSTANDING OF:

1. THE SPORT OF DOG AGILITY, INCLUDING HOW THE VARIOUS PIECES OF EQUIPMENT ARE PERFORMED & POTENTIAL INJURIES
2. ASSESSMENT & TREATMENT OF 2 COMMON AGILITY INJURIES, SPINAL INJURIES & ILIOPSOAS STRAIN



OUTLINE:

1. REVIEW OF AGILITY EQUIPMENT
 - A) TYPES OF EQUIPMENT
 - B) JUMPING CONSIDERATIONS
 - C) VIDEO OF AN AGILITY RUN
2. REVIEW OF 2 COMMON AGILITY INJURIES
 - A) SPINAL INJURIES
 - B) ILIOPSOAS STRAIN



- o Agility is a challenge and a competition to be enjoyed by handler, dog and spectator. The main elements of the sport are good sportsmanship and fun for the dogs and handler.
- o AAC Agility Trials are open to all four legged dogs capable of demonstrating the element of agility and control and the mental and physical ability to carry out the required tests.

- o Teeter
- o Dog walk
- o A-Frame

CONTACT EQUIPMENT

- o Anti-slip coating
- o Contact zones at start & end of each
 - Per AAC, must touch contact zones ascending & descending with at least 1 paw



- o 10-12" wide
- o 4 feet off ground

DOG WALK



- 3-4 feet wide
- Each side is 9 feet long
- Can have ¼ inch horizontal slats
- Height adjustable between 5'0" & 5'6"
 - Regular height 5'6"
 - Special/veteran height 5'0"

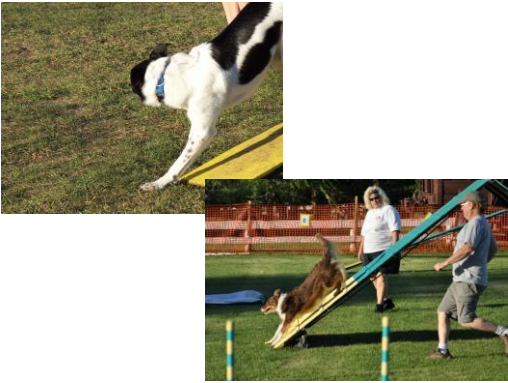
A FRAME



TEETER

- 10-12" wide
- 12 feet long





TUNNELS



o 24 " diameter

FLEXIBLE TUNNEL



Pictures by Aine

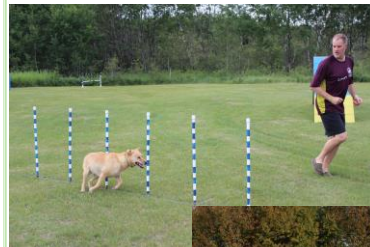
o Rigid tunnel & fabric chute



<http://heresothere.com/images/chutecombo.jpg>



COLLAPSIBLE TUNNEL



OTHER EQUIPMENT





WEAVE POLES

- o 24" apart



- o Lying or sitting
- o 10" or 22" height

TABLE

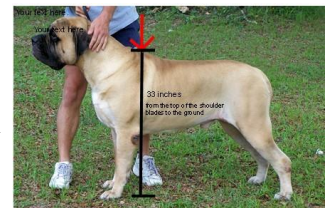


PAUSE BOX



http://workinggermanshepherddogs.com/memoret/photos/workinggerman/shepherddogs/photos/agility/Fkxna/PAUSEBOX_2013-10-24.jpg

- o Dog height → Jump height
 - <12" → 10 or 16"
 - 12-16" → 16 or 22"
 - 16-21" → 22 or 26"
 - >21" → 26"
- o Specials
 - 1 jump height down
- o Veterans
 - 1 or 2 jump heights down



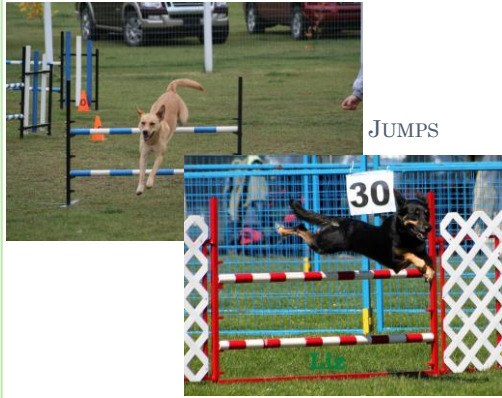
http://www.bluequaker.com/magsa/How_to_measure_height.jpg

BROAD JUMP



- o Breakaway or solid

TIRE JUMP

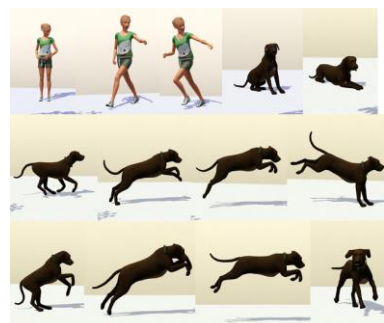


JUMPS



SPREAD JUMPS

JUMPING



DOG AGILITY POSE PACK

BY OLD FELLOW RANCH

http://i.imgur.com/dv8kUCWDuwUjB5Z7z2VtFAAAAAAAAAAAYLeVqYtUmz_Eu640DogAgilityPosePack.png

- 4 feet in contact with ground during final approach stride

APPROACH



- Forelimbs off ground, back feet on ground

TAKE-OFF



- With increased jump height
 - Increased tarsus extension
 - Increased sacroiliac extension
 - Increased radiohumeral flexion
 - Increased scapulohumeral flexion
 - Increased flexion at the base of the neck

- Over the jump

ARC
(BASCULE)



- Increased jump height
 - Increased scapulohumeral & radiohumeral flexion





- o Initial forelimb contact with ground

LANDING



- o Increased jump height
 - Increased landing distance



- o In 22" dogs, up to 4.5x body weight vertical force on landing from a hurdle jump
- o Increased with
 - Increased obstacle height
 - More acute landing angle





- o 4 feet in contact with ground immediately following landing

GET-AWAY



- o Agility run video



PHYSIOTHERAPY MANAGEMENT OF BACK PAIN IN AGILITY DOGS





THE CANINE SPINE

- Cervical spine = 7 vertebrae
- Thoracic spine = 13 vertebrae, sternum and ribs
- Lumbar spine = 7 vertebrae
- Sacrum = 3 vertebrae, ileum
- Tail = 20 – 23 coccygeal vertebrae



THE CANINE SPINE

- Cervical spine:
 - Upper C/S spine – side bending with contralateral rotation
 - C2-C7 – side bending with ipsilateral rotation
- Thoracic spine:
 - Cranial – side bending primarily with some rotation
 - Caudal (T10-T13) – flexion/extension with some rotation
 - T11 – anticlinal vertebrae (transitional)
 - Ribs attach with vertebrae above and below and disc in between



THE CANINE SPINE

- Lumbar spine:
 - Primarily flexion/extension
 - Important for weightbearing and load transmission
 - Facet joint shapes can be highly variable and asymmetrical
- Sacroiliac joint:
 - Very similar to SIJ in humans



ETIOLOGY: BACK PAIN

- Poor flexibility,
- Inadequate warm up
- Intense interval training
- Insufficient breaks or overtraining
- Degenerative disc disease or DJD
- Poor core strength
- Secondary to other musculoskeletal problems



CLINICAL PRESENTATION

- Poor performance on agility field and avoidance of obstacles
- Gait alteration
- Postural changes
- Consistent or intermittent lameness
- Flinching when touched or petted
- Other changes in behavior



ASSESSMENT

- Start with nose to tail scan
- Quality of movement with changes of position e.g. stand to sit
- Active ROM in standing
- Posture
 - Swayback, roaching,
 - Weight bearing status
 - Pelvic symmetry



GAIT ASSESSMENT – WALK, TROT

- ❑ Obvious signs of lameness
- ❑ Pacing – moves right limbs, then left limbs
- ❑ Asymmetrical tail wag
- ❑ Head bob
 - Indicative of front limb injury
- ❑ Butt bob or hip hike
 - Indicative of hind end injury



JUMPING ASSESSMENT

- Use single jump or multiple jumps
- Test in various configurations e.g. line vs tight pinwheel
- Sometimes test above normal jump height



ASSESSMENT

- Palpation
- Spinal and rib accessory movements
- Scapula
- Tail mobility
- Peripheral joints and soft tissue mobility
- Special tests
 - dural tests
 - SIJ provocation tests
 - Trendelenburg



TREATMENT

- Modalities
- Acupuncture
- Manual therapy techniques
- Soft tissue techniques
- Therapeutic exercise
- Home program



THERAPEUTIC EXERCISE



THERAPEUTIC EXERCISE



RETURN TO AGILITY

- Need to provide handlers very specific instructions
- Example:
 - Week 1:
 - Warm up sequence – circles, sit to down three times, light jogging one minutes, cookies to hips x 3 reps.
 - flatwork/shadow handling – 1 minute intervals x 3 reps
 - Set point at 16" – 4 reps (change sides)
 - Grid work at 6 and 10" – 4 reps (change sides)
 - Destination jumping with two jumps preceding table – 3 reps
 - Two tunnels configured in circle – two reps each direction

RETURN TO AGILITY

- Week 2:
 - Warm-up sequence
 - Add dog walk, full speed with lead in jump
 - Add tire jump, 16" x 3 reps
 - Add six weaves – 3 reps
- Week 3
 - As above plus start jumping at competition height.
 - Begin with wing wraps on jumps at specials height
- Week 4
 - Add A-frame at competition height – 3 reps
 - Add 12 weave poles – 3 reps
 - Complete short sequences at full height – 12 obstacles



PREVENTION OF REINJURY

- Education – warm-up and cool down, stretching, general training principles
- Jump heights
- Competition goals



COMMON FINDINGS IN AN AGILITY DOG

- First rib
 - often see poor performance with jumping
 - Associated with decreased and painful glenohumeral extension
- Mid thoracic and lumbar
 - Transitional area is frequently problematic
 - Will see reduced mobility with older agility dogs
- SI joint
 - very common in agility dogs
 - sometimes misdiagnosed as stifle problem



PHYSIOTHERAPY MANAGEMENT OF ILIOPSOAS STRAINS



ETIOLOGY: ILIOPSOAS STRAINS

- Strains may be caused by:
 - poor flexibility,
 - inadequate warm up
 - fatigue
 - sudden forceful contraction
 - strength imbalances
 - intense interval training
 - insufficient breaks or overtraining
 - Sand agility surfaces



Clin Tech Small Anim Pract. 2007 Nov;22(4):183-94.



PATHOPHYSIOLOGY

- The iliopsoas originates from the lumbar vertebrae and cranioventral ilium it inserts on the lesser trochanter to flex the hip
- Strains most often affect the muscle origin or insertion
- Typically happen at the musculotendinous and teno-osseous junctions

Clin Tech Small Anim Pract. 2007 Nov;22(4):183-94.



CLINICAL PRESENTATION

- Clinical presentation may include the following:
 - Gait alteration: shorter step length on the affected hind leg
 - Consistent or intermittent lameness varying from mild to non weight bearing

Vet Comp Orthop Traumatol. 2005;18(2):105-9.



ASSESSMENT

- Subjective history from owner
 - Activity where lameness began, environment, sport, training conditions etc
 - Previous surgeries or injuries (stifle)
- General observations
 - Weight bearing, (shifted standing)
- Passive Range of Motion
 - Will have reduced and painful hip extension in internal rotation of the hip

Clin Tech Small Anim Pract. 2007 Nov;22(4):183-94



ASSESSMENT

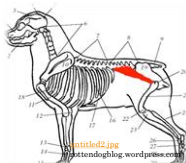
- Clinical Examination
 - Tendon insertion palpation
 - Cranial to its attachment to the lesser trochanter of the femur
 - Hip extension and Internal Rotation
 - Reduced range or pain with this stretch

Vet Comp Orthop Traumatol. 2005;18(4):247-53



ASSESSMENT

- Gait – walk, trot
 - Looking for shorter step length and external rotation of the hip
 - Jumping
- Other related conditions
 - Stifle, SI joint, Hip, abdomen
 - Quadratus lumborum
 - Gracilis



Vet Comp Orthop Traumatol. 2005;18(4):247-53.



TREATMENT

Goals of Treatment:

- Decrease pain
- Increase function
- Improve ROM
- Improve strength
- Return to Activity/ Sport
- Prevention of Re-Injury

Clin Tech Small Anim Pract. 2007 Nov;22(4):183-94.



TREATMENT

- Follow soft tissue healing timeframes
 - Hemorrhagic phase (first 3-5 days). Rest and ice, use of modalities such as low dose laser, non-thermal US
 - Regeneration phase (5 days to 15 weeks)
 - Goals: help new fibers align, strengthen the structure, promote circulation, encourage tissue regeneration and metabolism, restore coordination and body awareness
 - Remodeling phase (commences at week 6)
 - Build strength, enhance joint mobility and proprioception, return to sport

Clin Tech Small Anim Pract. 2007 Nov;22(4):183-94.



TREATMENT

- Pain free activity and ROM up to day 14
- Early strengthening of the hind limb (3-legged standing)
- Easy concentric muscle contraction
 - Walking over low obstacles

Clin Tech Small Anim Pract. 2007 Nov;22(4):183-94.



TREATMENT -

- Progressing to eccentric muscle contraction
 - Walking down hill
- Exercising with NMES
- Proprioceptive training

Clin Tech Small Anim Pract. 2007 Nov;22(4):183-94.



TREATMENT

- Strengthening
 - Repetitive sit to stand
 - Walking on hind legs (supported)
 - Core strength

Clin Tech Small Anim Pract. 2007 Nov;22(4):183-94.



TREATMENT

- Return to Sport
 - Gradual return to activities with lower speeds and less challenges progressing to more challenge and more speed
 - Avoidance of sand surfaces

Clin Tech Small Anim Pract. 2007 Nov;22(4):183-94.



TREATMENT

- Prevention of Re-injury
 - Education regarding warm up, stretching, activities and environments to be aware of, appropriate training times and methods





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