Hamstring Strain Cheat Sheet

by Siffi (Siffi) via cheatography.com/122609/cs/26208/

Causes of hamstring strains

- See Upper leg muscle cheat sheet for anatomy
- Strain caused by excessive load during eccentric contraction/extreme stretch
- Bicep femoris most commonly involved
- Sports that involve sprinting and jumping most likely to sprain hamstrings (eccentrically) - terminal swing phase just before foot contact
- Stretching injuries involve water skiiing, martial arts and dancing
- Most vulnerable when function rapidly changes from eccentric deceleration of the forward swinging tibia to concentric extension of the hip joint
- Muscle fatigue - insufficient warm up, hx of prior injury, hamstring inflexibility/weakness
- Quads strength overpowers capacity of the hamstring to eccentrically decelerate forward progression of the tibia during terminal swing phase
- FAI - limits hip ROM
- Hypertonicity of the quads, iliopsoas, inadequate control of lumbopelvic muscles , poor running mechanics
- More common with age
- Black people most affected
- Males more affected

Classification

Grade I: Strain without significant fibre tearing

Grade II: Partial muscle tearing

Grade III: Complete muscle/tendon rupture

Presentation

- Most occur during activity
- Tearing feeling + significant pain
- Pain in lower buttock and posterior thigh when straightening leg
- Bruising, swelling present
- Tenderness over the injury
- PROM - may produce pain with passive hip flexion and knee extension
- RROM - pain reproduced with hip extension/knee flexion
- Braggards to differentiate between hamstring injury and lx radiculopathy
- SI /lumbar restrictions
- Neurological exam unremarkable - **IF +ve NEURO FINDINGS, CONSIDER OTHER DIAGNOSIS**

Imaging

- Often unnecessary unless avulsion f# /other bony pathology is suspected (Ischial tuberosity)
- Only MRI if severe and surgical intervention is needed

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- Contusion
- F#
- Neoplasm
- Hip Pathology
- Posterior Compartment Syndrome
- Adductor strain
- Ischial Bursitis
- Herpes Zoster
- Piriformis Syndrome
- Lx referral
- Consider Lx radiculopathy if +ve neuro findings, without trauma or pain extending below knee

Management

- Difficult as healing is delayed with persistant syndromes and moderate re-injury rates
- Proximity of the injury to the ischial tuberosity correlates with recovery (more proximal = longer)
- **Phase I:** RICE, Compression bandage, cryotherapy, immobilisation/crutches for severe injury - avoid sustained knee flexion when using crutches
- SMT/EMT of Lx, SI, LL

Progress to Phase II when patient can walk withiout pain and moderately tolerates resisted knee flexion

- **Phase II:** Increase running to 50% of maximum and avoid sprinting , stationary cycling/swimming , stretching of psoas, hamstring, adductors, quads and lx
- Nerve mobilisation

Progress to Phase III when pt is able to perform pain-free resisted knee flexion and can run at 50% speed without pain

- **Phase III** Gradually increase jogging from 50% to full sprinting, resolve gait abnormalities and orthotices, should not return to sport unless full knee ROM, adequate hamstring to quads ratio and pain free has been achieved
- Advice on proper warm up/cool down

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