


www.westfieldhighschoolsportsmedicine.com




Prevention and Treatment of Injuries

Chapter 21
The Thigh, Hip, Groin, and Pelvis
Westfield High School
Houston, Texas

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighschoolsportsmedicine.com




The Femur

- Is the longest and the second strongest bone in the body and is designed to permit maximum mobility and support during locomotion.

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighschoolsportsmedicine.com




Quadriceps

- Vastus Lateralis
- Vastus Medialis
- Vastus Intermedius
- Rectus Femoris

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

Hamstrings



- Biceps Femoris
- Semimembranosus
- Semitendinosus

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

Medial Thigh Muscles




- Adductor Longus
- Adductor Brevis
- Adductor
- Pectineus
- Gracilis

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

Quadriceps Contusion



- Usually develop as the result of a severe impact to the relaxed thigh that compresses the muscle against the hard surface of the femur. The extent of the force and the degree of thigh relaxation determine the depth of the injury and the amount structural and functional disruption that takes place.

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

Quadriceps Contusion

- **GRADE I:**
 - Superficial intramuscular bruise that produces mild hemorrhage, little pain, no swelling, and mild point tenderness
 - There is no restriction to ROM

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

Quadriceps Contusion

- **GRADE II**
 - Contusion is deeper and produces mild pain, mild swelling, and point tenderness
 - The athlete is able to flex the knee no more than 90 degrees.

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

Quadriceps Contusion

- **GRADE III**
 - Is of moderate intensity, causing pain , swelling, and a range of knee flexion that is 45 to 90 degrees with an obvious limp present.

Westfield High School Sports Medicine
Home of the Mustangs

Quadriceps Contusion



- **GRADE IV**
 - Represents a major disability
 - Blow may have been so intense as to split the fasciae latae, allowing the muscle to protrude (muscle herniation)
 - Pain is severe, and swelling may lead to hematoma.
 - Movement of the knee is severely restricted with 45 degrees of flexion or less, and athlete has a decided limp.

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

Quadriceps Contusion



- **Management Includes:**
 - Immediately placing knee in flexion to avoid muscle shortening
 - RICE
 - NSAIDs
 - Ice after exercise
 - Protective Padding
 - Avoid heat to prevent myositis ossificans.

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com



Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

Myositis Ossificans



- Too Aggressive of treatment of a contusion to the thigh.
- Pain, muscle weakness, soreness, swelling and decreased muscle function, along with decreased ROM
- TREAT EXTREMELY CONSERVATIVE
- Surgically removed after a year

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

Quadriceps Muscle Strain



- Caused by sudden stretch or sudden contraction. Usually caused with a weakened quad or one that is over-constricted.
- Point tenderness, more painful with deeper strains, little discoloration, spasm, loss of function
- Could lead to complete tear.

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com



Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

Quadriceps Muscle Strain



- Management:
 - RICE
 - Crutches if needed
 - Cryotherapy
 - Stretching should not begin until the muscle is pain free
 - Neoprene sleeve and or tight shorts

Westfield High School Sports Medicine
Home of the Mustangs

Hamstring Strain



- Athletes suffer more strains to the hamstrings than to any other thigh muscle
- Exact cause is not known, but causes could be fatigue, muscle imbalance, tight hamstrings, and poor mechanics.

Westfield High School Sports Medicine
Home of the Mustangs

Hamstring Strain



- Can involve muscle belly or the bony attachment. Can be from a few fibers to complete rupture or an avulsion fracture.
 - Hemorrhage, pain and immediate loss of function vary according to degree of trauma. Discoloration may occur a day or two after injury.

Westfield High School Sports Medicine
Home of the Mustangs

Hamstring Strain Symptoms



- GRADE I
 - Muscle soreness during movement, point tenderness, difficult to detect until muscle has cooled down.
 - Fewer than 20 percent of fibers are torn in GRADE I strain

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

Hamstring Strain Symptoms



- GRADE II
 - Partial tearing of of muscle fibers, identified by a sudden snap or tear of the muscle accompanied by severe pain and loss of function during knee flexion.
 - Fewer than 70 percent of fibers are torn

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

Hamstring Strain Symptoms



- GRADE III
 - Rupturing of tendinous or muscular tissue, involving major hemorrhage and disability. More than 70 percent of fibers are torn
 - Severe edema, tenderness, loss of functions, ecchymosis and palpable mass or palpable gap in the muscle.

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

www.westfieldhighsportsmedicine.com

Hamstring Strain Treatment

- GRADE I
 - RICE
 - NSAIDs
 - Full Function restored is a must
 - Wrap and or shorts
 - Hamstring curls

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

Hamstring Strain Treatment

- GRADE II and III:
 - Should be treated extremely conservative
 - RICE 24 to 48 hours / 48 to 72 Hours
 - Isometric
 - Cryotherapy
 - Ultrasound
 - GENTLE stretching with pain limits
 - Bike, easy jogging, isokinetic (high Speeds)
 - May take one month to a year

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

Hamstring Strain Treatment

- Prevention includes a flexibility program with a strength program. It is important to maintain the hamstring strength while increasing the strength of the quadriceps.
- Listen to the athlete when they complain about hamstring injuries, they may linger on longer if ignored.

Westfield High School Sports Medicine
Home of the Mustangs

Hip Pointers / Hip Contusion



- Iliac crest contusion and contusion of the abdominal musculature commonly known as a hip pointer, occurs most often in contact sports. It is a result from a blow to an inadequately protected iliac crest. It is considered one of the most handicapping injuries in sports and one that is difficult to manage. A direct force to the unprotected iliac crest causes severe pinching action to the soft tissue of that region.

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

Hip Pointers / Hip Contusion



- Produces immediate pain, spasms, and transitory paralysis of the soft structures. The athlete is unable to rotate the trunk or to flex the thigh without pain.

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

Hip Pointers / Hip Contusion



- Treatment:
 - RICE
 - Severe cases could need bed rest
 - Ice massage / Ultrasound
 - NSAIDs
 - Recovery ranges from one to three weeks
 - Wear Padding over hips, even to practice!

Westfield High School Sports Medicine
Home of the Mustangs

www.westfieldhighsportsmedicine.com

Groin Strain



www.westfieldhighsportsmedicine.com

- Difficult to diagnose
- The adductor longus is most often strained.
- One of the most difficult injuries to care for in sports
- Produces pain, weakness, and internal hemorrhage

Westfield High School Sports Medicine
Home of the Mustangs

Groin Strain



www.westfieldhighsportsmedicine.com

- Treated with:
 - RICE
 - NSAIDs
 - REST, whirlpool, cryotherapy, progressive resistive exercises, functional progression, sport specific drills.
 - Pain free to return!

Westfield High School Sports Medicine
Home of the Mustangs
