

Handling Hamstrings – Prevention and Rehabilitation

Hamstring Injuries

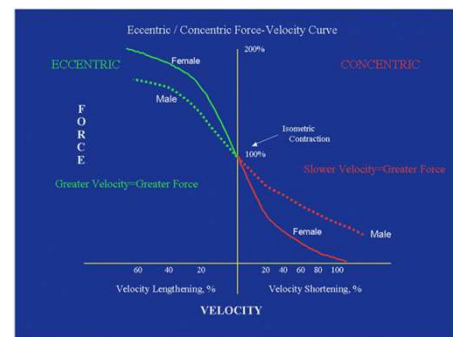
You Have a Hamstring Injury – Now What?

- Two Key Questions
 - What Caused the Injury?
 - What Will We do to Speed Healing and Assist in Recovery?

Why Did it Happen?

Finding the Cause of a Hamstring Injury?

- Common Causes
 - Biomechanical Misalignments
 - Poor Acceleration/Sprint Technique
- Common Misconceptions
 - (Bad) Luck was Involved
 - The Hamstring was “Weak”
 - Why Hamstring Strengthening Doesn’t Work
 - Hamstring Function
 - Eccentrics and Concentrics
 - Tension Levels



Biomechanical Misalignments

- Anterior Pelvic Tilt
 - Anatomically - Seldom the Only Cause.. Technical Issue Produced
 - Sometimes a Contributor
 - Due to Tight Hip Flexors and Lumbar Spine
- Problems in the Lower Leg
 - Talus Misplacement
 - Misplaced Head of the Fibula
 - Tightness in the Thoracic Spine

Solutions – Anterior Pelvic Tilt

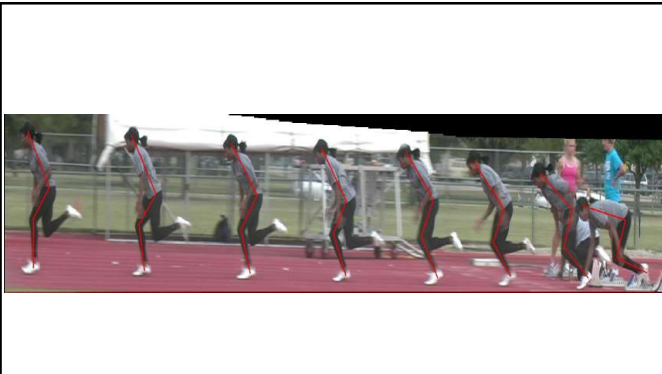
- Dynamic Flexibility Training
- Diversity of Training
- Proper Weight Training Technique

Solutions

- Testing
 - The Flip Test
 - Manipulating the Foot
- Solutions
 - Dynamic Flexibility Training
 - Diversity of Training
 - Soft Tissue Work
 - Chiropractic Adjustment

Acceleration / Sprint Mechanic Problems

- Anterior Pelvic Tilt
 - Implicated in 95% of Hamstring Injuries
 - Posture - A Skill, Not a Condition
- The Cause
 - Failure to Properly Progress Body Angles in Acceleration
 - Torso Angle Exceeding the Shin Angle



Prevention – So What's the Answer?

- Teach Acceleration Mechanics Correctly
- Sprint Athletes at All Times to Maintain Tissue Load
 - Sprint at Maximal Velocity When Possible
 - Use Acceleration Development When Maximal Velocity Isn't Safe
- Avoid Hamstring Isolation Exercises
 - They Don't Provide Enough Tissue Load
 - They Produce Fatigue and Increase Risk

Rehabilitation

Rehabilitation – General Guidelines

- Stay on the Program
- Many Things will be Unaffected - Possibilities
 - Vertical Plyometrics
 - Olympic Lifts from Hang Position or Boxes
 - Circuit Training

Prophylactic Approaches

- Address Pelvic Mobility Through
 - Dynamic Flexibility Work
 - Movement Based Exercises – Pelvic Tilt Work
- Address Foot and Ankle Mobility Through
 - Mild Barefoot Jumps in Sand
 - Mild Barefoot Work of Other Forms
- Soft Tissue and Chiropractic Work

Do's and Don'ts

- Avoid
 - Stretching
 - Static Lifting Exercises
 - Manual Therapies Directed at the Injury Site
- Begin
 - Functional Exercise Rehabilitation Program
- Allow
 - Manual Therapies Directed Away from Injury Site (Directed at Root Causes)
 - Any Pain Free Training Previously Done

Functional Exercise Rehabilitation Program

- Understanding the Healing Process
 - The Blood Supply
 - Understanding Collagen Cycling
- The Buildup Run Program
 - Begin Immediately
 - Done Daily
 - 8-12 Runs of 30-50 Meters
 - Below Pain Threshold
 - Progressively Increase Intensity as Pain Threshold Rises

Functional Exercise Rehabilitation Program

- Employing Resistance
- In Later Stages of Rehabilitation - Using the Sled to
 - Increase Training Intensity
 - Keep Velocities and Angular Velocities in Safe Zones
- Resistance Values
 - Start Heavy
 - Progressively Lighten

Special Cases

- The Twitching Hamstring
- The Adductor Magnus
- Tendon Involvement
- Scar Tissue Masses
- Spinal Involvement
- The Lingering Hamstring

The Twitching Hamstring

- Likely Causes
 - Microtrauma
 - Body's Failure to Prioritize
- Solutions
 - See the Doctor, Take the Shot
 - "Deep" Strength Training

The Adductor Magnus

- Often Mistaken for a Hamstring
- Differentiating
 - Hamstrings - Pain On the Upstroke
 - Adductor Magnus – Pain on the Downstroke
- Solutions
 - Soft Tissue Work
 - Breaking Adhesions

Tendon Involvement

- A Two Step (Sequential) Process
 - Soft Tissue Rehabilitation
 - Tendon Rehabilitation
- Tendons and Collagen
- High Load Levels In Most Cases
 - Eccentrics
 - Sprinting and Jumping
- Isometrics – High Risk Cases

Scar Tissue Masses

- Solutions
 - Sprint Work to the Threshold of Discomfort
 - Immediately Ceasing the Effort
- Rationale
 - Creation of Microtears – Enabling Tissue Remodeling
 - Excessive Intensity - Excessive Adjacent Tearing
 - Insufficient Intensity – No Remodeling Take Place

Spinal Involvement

- Pain is Rooted In Spinal Dysfunction
- Constant, Bilateral, or Radiating Pain Can Be a Clue
- Medical and/or Chiropractic Treatment Is Needed
 - "Cooling off" the Spine
 - Traction Possibilities

The Lingering Hamstring Problem

- The Good News – It's Likely Nothing Acute
- Could Be
 - Failure to Identify Causal Factors
 - Scar Tissue Masses
 - Lingering Inflammation – Medical Approaches
 - Stretch Receptor Dysfunction
 - Potential Solutions
 - Elastic, Creative (Jump Based) Loading

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