Low Back Pain in Athletes: Assessment & Rehabilitation

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PREVALENCE

- Prevalence of Back Pain in Sports: A Systematic Review of the Literature
    - 94% lifetime
    - 64% point prevalence
    - Rowing & country skiing
    - Spine hyperflexion
    - Repetitive mechanical loading
    - Extreme dynamic or static body position
COMMON DIAGNOSES

- Degenerative Disc Disease
  - Discogenic Pain
  - Facet Dysfunction
- Spondylolysis/spondylolisthesis
- Sacroiliac Joint Dysfunction
- Myofascial Pain (sprain, strain)
- Lumbosacral radiculopathy

CLINICAL EXAM

- Range of Motion
  - Directional Preference
  - Symmetry
- Palpation and Referral Patterns
- Kemp’s Test
- Fortin’s Test
- Neurological Exam
- Straight Leg Raise (seated, active, cross)
- Piriformis Testing
- FABER
- SI Joint Compression Tests
- FADIR
- Scour’s Test
- Femoral Stretch Test (Ely’s)
COMPREHENSIVE SPINE CARE

- Medication management
- **Physical therapy – Rehabilitation/Pre-habilitation**
  - Diagnosis and Athlete Specific
- Aquatic therapy
- Bracing
- Manual therapy
- Electrodiagnostics (EMG)
- Interventional procedures
- Surgical intervention
- Acupuncture
- Pain Psychology

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22 yo female soccer player with right thoracolumbar pain and lateral hip/leg aching with activity

**Myofascial Pain**

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[Diagram showing muscle pain patterns]
22 yo volleyball player with chronic left low back and posterior thigh pain, worse with sitting and repetitive jumping, improved with moderate activity

**SI joint dysfunction**
21 yo male basketball with chronic flexion based axial back pain
DDD/annular tear/discogenic pain

17 yo female rower with extension based axial back pain
Spondylolysis
22 yo baseball player (catcher) with extension based low back with left leg pain

**Chronic pars defect with left lumbar radiculopathy**

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**Assessment Framework**

- Mechanism of Injury
- Diagnosis
- Stage of Injury
- Pain Characteristics
- *Extrinsic Factors*
- *Intrinsic Factors*
- Response to Injury
- Management Planning
Rehabilitation Considerations

- **To Help Develop Individualized Sports Specific Recovery & Injury Reduction Strategies**
  - Back pain is complex, often multifactorial and requires targeted intervention
- Body Mechanics Education
- Functional Movement
- **Sport Specific Programs**
  - Pre-habilitation
  - Rehabilitation
  - Return to competition
- Exercise Programs
  - Age & Sports Specific
Classification-based Cognitive Functional Therapy (CB-CFT)

- Mitchell, O’Sullivan, Burnett
- Cognitive Component
  - Therapeutic treatments
  - Risk factor education
  - Managing lifestyle
  - Goal setting
  - Training motor control/body awareness
    - Mirrors, videos, movement training
  - Confront maladaptive behaviors for spinal loading
Spine Biomechanics

Classification-based Cognitive Functional Therapy (CB-CFT)

• Functional Component
  • Specific movement training
    • Athlete specific
    • Feedback – graded exposure
  • Functional integration
    • Team approach
  • Targeted conditioning
    • Skill level, conditioning level, sport and functional deficits
Team Approach

• Perich et al, 2011
  • Adolescent rowers
  • Sitting posture, movement patterns, muscle flexibility, endurance/cardiovascular fitness
  • Education
  • Sports medicine/science
  • 61% reduction in low back pain
  • Improved performance
Recipe-based “cookbook” approaches to new or re-current low back pain in athletes are generally unsuccessful

#1 Challenge

Finding the balance between setting training volumes and intensity to reduce injury risk, but still maintain/improve performance
Case

20 year old baseball player with low back pain worse with running and throwing (catcher). Hamstring tightness over the recent years. Intermittent posterior thigh pain, occasional paresthesias into the right calf.

Assessment - Case

• **Injury Mechanism**: Non-traumatic (overuse)
• **Diagnosis**: Chronic pars fracture/defect, grade I spondylolisthesis L5/S1, normal flexion/extension x-rays, normal neurological exam
• **Pain Characteristics**: Mechanical, aggravated by standing/sleeping prone and running, symptoms improved with flexion and slumped sitting
Extrinsic Factors - Case

• **Training**: Hang cleans and dead lifts
• **Environment**: Reports hamstring tightness especially after catching
• **Additional Demands**: Pressure to remain on the field – maintain starting job, pro career
• **Others**: Previous manual/mobilization treatments, hamstring flexibility, core stabilization has not helped symptoms

Intrinsic Factors - Case

• **Non-modifiable**: Hamstring tightness, spondylolisthesis
• **Biomechanics**: Hyperlordosis, no reversal of lordosis
• **Conditioning**: Tight hip flexors and quadriceps, hip extensor and abductor weakness
• **Physiological**: Decreased sleep (pain and stress)
• **Psychological**: Stress over future, may need surgery, fear avoidance behaviors
• **Response to Injury**: Maladaptive
• **Movement Classification**: Active extension control impairment
Management Process - Case

• Cognitive
• Functional
• Maintaining Fitness
• Strength & Conditioning
• Return to Competition
References


THANK YOU

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