

## Learning Lab Abstracts

### 1 **Orthotics in Sports**

Abstract: This learning lab will give the ATC a review and update of the use of custom orthotics in sports, provide an opportunity to review current casting techniques, and what is involved in the selection of the right orthotic for the athlete and sport. Athletic shoe considerations are also presented for maximum biomechanical control and custom fit for the respective sport. An appreciation of how podiatric sports medicine and biomechanics are applied to orthotic therapy for the athlete and the role to the ATC in the process is emphasized.

Objectives:

- 1) review current casting techniques for custom orthotics for athletes
- 2) review selection of sport specific orthotics for the athlete
- 3) trouble shoot orthotic problems in athletes: modifications and adjustments
- 4) considering the athletic shoe for orthotic fit and control
- 5) the purpose of the sport specific orthotics and evidenced based sports medicine

### 2 **Muscle Energy Techniques for the Lumbar Spine**

Muscle energy techniques are a valuable tool for treating lumbar spine somatic dysfunctions in athletes. This learning lab will consist of a lecture explaining the basic principles of muscle energy technique as applied to the lumbar spine and a lab providing guided practice in identifying lumbar somatic dysfunctions and applying appropriate muscle energy techniques to treat them. At the end of this learning lab, the athletic trainer should have a working knowledge of basic muscle energy techniques for the lumbar spine.

### 3 **UE Functional Immobilization**

Functional Cast Therapy is an immobilization technique to stabilize and limit motion of an extremity while maximizing muscle function. Learn fundamentals of upper extremity immobilization and how a polyester tape with other materials used to construct DME devices that are ideal for the treatment of athletic injuries. The two hour leaning lab will consist of a lecture and hands on for the attendees to work with the materials.

### 4 **LOWER EXTREMITY REHABILITATION: TRAINING AROUND THE INJURY**

It's about the athlete, not the injury. For many ATC's and PT's the primary rehabilitation focus is on the injury. From an athlete management perspective we need to focus on athletic development; and realize there is significant work to be done "around" the injury. Ultimately the athlete must fully be able to thrive when they return to the competitive environment.

**Course objectives:**

1. Develop a plan on managing an athlete's comeback from injury.
2. Look carefully at alternative rehab, reconditioning, and performance training concepts and how they fit into a comprehensive plan.
3. Practical Session: Experience innovative and coachable training programs for the lower extremity.

### 5 **Functional Balance and Outcome Assessments for the Lower Extremity- Phillip**

The Star Excursion Balance Test (SEBT), a lower extremity functional test measuring dynamic postural control, and the Balance Error Scoring System (BESS), a multifactorial assessment of static postural control, have been employed as effective diagnostic tools for evaluating postural control deficits in lower extremity pathologies, assessing outcomes after rehabilitation, and for predicting injury risk. It is important for Athletic Trainers to become aware of the prognostic and diagnostic abilities of the SEBT and the BESS in assessing lower extremity functional deficits. Attendees will be able to apply the information to develop more efficient prevention, evaluation and rehabilitation strategies for lower extremity pathologies.

### 6 **Specialty Taping for the Performing Artist**

- 1) Explore the concept of tissue unloading using tape

- a) The ATC will learn the concept of tissue unloading and its effects on nerve conduction and pain management
- 2) Explain the various obstacles to tape application in the performing arts setting
  - a) The ATC will understand the different environments and restrictions of tape application in the performing arts setting
    - i) Type of show environment, costume limitations, attitudes toward tape application with the performing artists.
- 3) Tape application techniques
  - a) Demonstrated skills in application of tape in respect to
    - i) Pathology present
    - ii) Functional and therapeutic goals for tape application
    - iii) Satisfying costume, attitude issues with tape application

## 7 **Postural relationships to Athletic Injuries: Pilates as Prevention**

“Posture follows movement like a shadow” (Sherrington 1906). Before, during and after any movement, there are unnoticed actions of the body that ensure precision of the movement. In this workshop, we will consider the background to movement where the supporting structures function before, during and after the staging of a movement. The players in this staging are often invisible to the untrained eye, but can be coached into action with the right Pilate’s props and cueing. In certain circumstances athletes often lose the orderliness of the unnoticed actions and the evolution of movement suffers. The background becomes the foreground. This workshop will teach you how to see the background and keep the shadow alive.

## 8 **Getting to the Core: Assessment and Intervention Strategies**

**Course Description:** The purpose of this course is to introduce a conceptual framework identifying what is core stability. This conceptual framework is fundamentally based in the literature. Bridging the gap between the scientific literature and clinical practice, this information is then presented for clinical application incorporating and considering intervention progressions from the baseline intervention through sport related functional activities.

**Course Objectives:** To be able to identify, discuss, and demonstrate the principles of core stability as applied to a clinical population:

- To identify and be able to define “local” or intrinsic and “global” or extrinsic core stability
- To understand the importance of coordinated intrinsic and extrinsic core stability
- To be able to demonstrate utilization of an assessment strategy for identifying intrinsic and extrinsic core stability
- To be able to demonstrate a successful intervention strategy for intrinsic and extrinsic core stability
- To be able to demonstrate and intervention strategy for incorporating other components of a core stabilization program to produce functional stability

## 9 **Neural Tension Techniques for the Upper Extremity**

The role of adverse neuromechanics of the upper / lower limbs and the trunk has received much attention over the past several years. Altered neuromechanics has been linked clinically to acute / chronic neck, low back, upper and lower limb pain and dysfunction. Tension testing of neuromechanics is more than a diagnostic tool. It plays a far greater role in testing neural mechanics and physiology of the nervous system during movement. Tension testing involves an ordered sequence of movements, with the addition of sensitizing maneuvers that places neural tissue under tension reproducing the athletes and or patients symptoms. If mobility is impaired not only could symptoms arise from neural structures, but neural information could be impaired to other non-neural structures creating pain and dysfunction. The purpose of this seminar will be to: 1) recognize the possible role of adverse neural tension in musculoskeletal dysfunction; 2) assist the certified athletic trainer in developing the basic skills necessary to adequately evaluate and treat neural tissue immobility (laboratory component); and 3) evaluate the current evidence based literature for neural tension testing and treatment.

- 10 Shoulder Biomechanics – A Problem Solving Approach Mark**  
A unique approach to shoulder injury assessment and treatment that applies to daily challenges in traditional, industrial, or clinical work settings. The concepts emphasize updated, evidence-based literature with the key element of shoulder mobility serving as both a functional model and the marker of patient/athlete progress. In addition, clinically effective assessment and manual techniques for subscapularis tightness, selected trigger points and AC joint restrictions are discussed and applied in the lab setting. Finally, the emerging principles of scapular synergy are analyzed for scapular mobility timing and muscular control.
- 11 Sport-related concussion: Navigating the latest research findings and clinical recommendations**  
Research in the area of cerebral concussion has provided the athletic training community with valuable new knowledge in recent years. As a result, certified athletic trainers and team physicians have been forced to re-think their management strategies. The purpose of this learning lab is to provide clinicians with a summary of these latest findings, as they pertain to injury epidemiology, biomechanics, clinical care, and return to play decisions. The objectives include: 1) providing an overview of the changing injury rates for sports concussion within several sports; 2) providing clinicians with evidence based recommendations on managing concussions and making return to play decisions; 3) providing an update on the 2008 Zurich Guidelines for concussion management. The session will make reference to the NATA's Position Statement on Management of Sport-Related Concussion (released in 2004). Bridging the gap between research and clinical practice is the key to reducing the incidence and severity of sport-related concussion and improving return to play decisions. This session should provide valuable information to clinical athletic trainers, researchers, and clinical educators.
- 12 Mechanistic Approaches to Prevent ACL Injury in Female Athletes**
- Discussion of in vivo, in vitro and computer simulated data to delineate the most likely mechanism(s) of ACL injury
  - Sequence the pathways which anatomical, hormonal and neuromuscular risk factors likely act synergistically to contribute to these “high risk” mechanisms
  - Presentation and practice of neuromuscular “field” screening techniques that can be used to identify “high risk” athletes
  - Presentation and practice of techniques to target “high risk” athletes for the prevention of ACL injury
- 13 Spinal Mobilization Techniques Utilizing SNAGS and NAGS**
- Description of normal and abnormal spinal motion
  - Description of the Mulligan Concept and philosophy of SNAGS and NAGS
  - Presentation and practice of indications, contraindications and application of SNAGS and NAGS
  - Presentation of self management tools to teach your patient/athlete
- 14 Differential Diagnoses for the Wrist and Hand**
- Brief review of anatomy, biomechanics and palpation of wrist and hand
  - Discussion of the implications of ulnar variance with wrist pain
  - Presentation of key signs and symptoms that can differentiate pathologies of the wrist and hand
  - Presentation and practice of special tests to differentiate major pathologies of the wrist and hand
- 15 Functional Performance Testing: A Patient-Oriented Approach**
- Provide the necessary background and relevance for incorporating functional performance testing into clinical practice
  - Presentation of physiological and biomechanical factors necessary to perform functional performance testing

- Presentation and practice of selected functional performance tests that can assist the clinician in making return to play/activity decisions
- Presentation and discussion of the validity and reliability of selected functional performance tests and how these concepts may impact clinical implementation

**16 Lower Extremity Kinetic Chain Evaluation and Mobilization Techniques**

- Discussion of the components of kinetic chain lower extremity evaluation
- Presentation of a compare/contrast model and application of functional movement concepts to assessment and rehabilitation
- Presentation and practice of position specific mobilizations to address biomechanical/functional deficits

**17 Yoga for You**

- Discussion of the importance of stress management for the athletic trainer
- Presentation and practice of yoga postures and breathing exercises that can be utilized to reduce stress
- Presentation and practice of yoga postures that can be utilized in rehabilitation to improve muscular strength, endurance and flexibility

**18 Mobilizing the Acute Ankle: Fighting Chronic Ankle Instability**

- Discussion of possible joint dysfunctions associated with acute lateral ankle sprains with specific emphasis on the fibula, talocrural and subtalar joints
- Discussion of the alterations in joint biomechanics that are thought to alter protective proprioception
- Presentation of current theories and available evidence for mobilizing the acute ankle
- Presentation and practice of specific manual techniques and adjunctive options to maintain optimal position during the healing process

**19 PNF Techniques for the Upper Extremity**

- Discussion of the philosophy of PNF
- Presentation and application of selected PNF relaxation and strengthening (direct and indirect) techniques for the UE
- Presentation and practice of UE PNF advanced treatment techniques for stability

**20 Positional Release Therapy**

- Presentation of the theory of Positional Release Therapy (PRT)
- Discussion of applications of PRT techniques and how they can improve therapeutic outcomes
- Presentation and practice of PRT techniques utilized to treat common athletic injuries and somatic dysfunction

**21 Kinesio-Taping Techniques in Athletic Training Clinical Practice**

- Presentation and application of the principles of kinesiotaping
- Discussion and application of kinesiotaping techniques used on common athletic ailments
- Discussion of self-management techniques to teach your patient/athlete

**22 Physical Examination of the Acute Abdomen**

- Discussion of the characteristic symptoms and clinical signs associated with specific acute abdominal injuries/conditions
- Presentation and application of assessment techniques in a clinical evaluation of the abdomen

- Discussion of decision-making skills as related to the implementation of emergency care/management procedures and medical referral of acute abdominal injuries/conditions
- Presentation of acute abdominal injuries/conditions seen in the athletic population that could represent potential disqualifying or limiting conditions for sports participation