

# 2022 NATA On-Demand Program

## THEMES

- Diversity, Equity, Inclusion, Accessibility
- Emerging Concepts in Injury Prevention
- General Medical

## Lectures

### Functional Movement Paradigms for Concussion Management: Moving Beyond the Clinic and Onto the Field, (II, IV), Advanced

Landon Lempke, PhD, LAT, ATC, Boston Children's Hospital  
Robert Lynall, PhD, LAT, ATC, University of Georgia

Athletic trainers are often the primary health care provider implementing concussion assessments and return-to-sport management. Clinical measures are important for monitoring recovery, but may be limited for determining return to sport as growing research indicates functional movement deficits well beyond return to sport. This presentation will compare and contrast clinical and emerging functional concussion assessments, describe current functional assessments and discuss what functional assessments may mean for clinical practice. Discussing functional concussion assessments and their potential utility will help attendees critically appraise current concussion health care practices and bring awareness to the potential value of functional assessments for determining return to sport post-concussion.

At the end of this session, attendees will be able to:

- Compare critically the value of clinical and functional assessments for concussion management
- Recognize the current state of post-concussion functional assessment paradigms in the scientific literature
- Prepare and discuss the future utility of functional assessments for determining return to sport following concussion

## Injury Prevention Coordination: The Relationship between Athletic Trainers and Strength and Conditioning Coaches, (I), Advanced

Eric McMahon, MEd, CSCS\*D, RSCC\*D, National Strength and Conditioning Association

This session will provide athletic trainers with insight into the benefits of integrating strength and conditioning specialists into their practice. In order for such coordination of care to be effective, collegial relationships between AT and S&C must be developed. Opportunities for shared work between athletic trainers and strength and conditioning coaches include pre-season screening, injury prevention initiatives, returning injured athletes to participation and helping athletes reach peak performance. Integration of the two fields can be impactful for providing high-quality patient-centered care.

At the end of this session, attendees will be able to:

- Describe ways in which the athletic trainer and strength and conditioning coach can cooperate to prevent injury
- Develop plans for the coordination of initiatives to meet the goals of a variety of settings and situations
- Understand the impact of collegial relationships between AT and S&C on patient care

## Treating Sick Muscles After ACL Injury: Translating the Science Into the Clinic, (IV), Advanced

Lindsey Lepley, ATC, University of Michigan

Atrophy that occurs after anterior cruciate ligament (ACL) injury continues despite being actively engaged in exercise. Recognizing the multitude of factors and cascade of events that are present and negatively influencing the regulation of muscle mass after ACL injury will likely enable clinicians to design more effective interventions. This session will present the mechanisms by which muscle mass is lost after ACL injury and evidence in support of alternative exercise interventions to optimize muscle recovery after injury.

At the end of this session, attendees will be able to:

- Develop an rehabilitation protocol that directly targets insufficiencies in neural activity and muscle morphology after ACL injury
- Summarize how mechanically engaging muscle is beneficial to targeting adaptations in muscle size and composition
- Understand the time course of muscle dysfunction after injury so that the timing of the intervention is the most effective

## Surgical Intervention: Lumbar Spine Discectomy, (II, IV), Advanced

Robert Watkins, IV, MD, Marina Spine Center

The most commonly performed procedure for treatment of radiating pain caused by disc herniation is a discectomy. Discectomies are found to have very high rates of success. This presentation will include live video of a discectomy procedure narrated by the surgeon who performed the intervention. The technique for appropriate evaluation of lumbar spine injury including sensory and motor deficits will be described. Both surgical and non-surgical treatment options will be discussed and compared. A variety of patient cases will be presented with a range of symptoms and severity. Determination of surgical need, surgical recovery timelines and risk of recurrence will also be addressed.

At the end of this session, attendees will be able to:

- Describe the anatomy of the spine and discs.
- Recognize and diagnose injuries related to the spine and discs.
- Differentiate the surgical options and employment of surgical procedures for disc injuries.

## Pathology and Diagnosis of Cyclic Vomiting Syndrome and Cannabis Hyperemesis Syndrome in NFL Players, (I, II), Advanced

Julie Frymyer, DPT, MS, ATC, NFL Enterprise

Cyclic Vomiting Syndrome (CVS) and Cannabis Hyperemesis Syndrome (CHS) are characterized by debilitating episodes of extreme nausea, vomiting, and abdominal pain lasting hours to days followed by symptom free intervals. Additionally, CHS is also characterized by the chronic use of cannabis. Pathology includes a disturbed regulation between the gut and brain, migraine headaches, abdominal migraines, and mitochondriopathy. Identifying the syndrome, maintenance medicine to decrease frequency, and finding abortive medicine to stop an episode are paramount. Currently there is no research about athletes with CVS or CHS or guidelines for returning athletes to sport after an episode.

At the end of this session, attendees will be able to:

- Describe the 5 Diagnostic Criteria for cyclic vomiting syndrome and cannabis hyperemesis syndrome.
- Describe the 4 phases of cyclic vomiting syndrome and cannabis hyperemesis syndrome
- Identify and list trigger mechanisms for cyclic vomiting syndrome
- Summarize the treatment goals and describe treatment/medication options for each of the 4 phases in CVS and CHS.

## What's in Your Medicine Cabinet? Topicals Versus Orals, (I), Essential

Robert Nickell, PharmD, Pharmco Inc.

Ashley Anderson, RPh, MBA, Banner Health

Keaton Higgins, ATC, CEImpact

Athena Cannon, PharmD, Indian Health Board Medical Clinic

The session will focus on providing attendees with an update on common pharmaceutical agents, modes of delivery and side effects. Attendees will hear about gabapentin, ketorolac, ketamine, ketoprofen,

naproxen, diclofenac, lidocaine, methyl salicylate and capsaicin. Discussion will include differences between drugs, when to use or recommend each and why one dosage form is preferred in certain circumstances. Attendees will also compare compounded medication to commercial medications, learn which drugs absorb through the skin and which don't as well as review systemic versus localized actions.

At the end of this session, attendees will be able to:

- Comprehend the differences in therapeutic value between topicals and oral medications
- Summarize the impact of common pharmaceutical agents on athletic patients
- Understand differences between NSAIDs, anesthetics, irritants and pain products
- Identify common side effects that relate specifically to athletes

## Providing Athletic Training Services to Paralympic Athletes, (I, V), Advanced

Brian Farr, MA, ATC, CSCS, University of Texas at Austin

Jenna Street, MS, ATC, U.S. Olympic and Paralympic Committee Sports Medicine

The awareness of adaptive sport worldwide has increased due, in part, to more than 1,000 hours of coverage of the 2021 Paralympic Games. With this increased awareness and inclusion of athletes with diverse abilities, there are greater opportunities to participate in adaptive sports in high schools, college, recreation leagues and beyond. Although there are many similarities treating the able-bodied and adaptive patient, there are also some stark differences. This session will explore basic principles of working with adaptive athletes that can be applied during your next patient encounter as well as provide information on pathways to work with adaptive sports.

At the end of this session, attendees will be able to:

- Describe the unique features of athletic training services within para-sport
- Identify the classification structure of para-sport
- Discover opportunities for athletic trainer para-sport involvement

## Overcoming Barriers To Creating an Inclusive LGBTQIA+ Environment, (V), Essential

*Presented by the LGBTQ+ Advisory Committee*

Meredith Decker, PhD, LAT, ATC, University of Texas at Arlington

Rebecca Lopez, PhD, LAT, ATC, University of South Florida

The NATA Code of Ethics states athletic trainers have a duty to treat all patients, regardless of individualized factors, such as sexual orientation, gender identity, etc. ATs often utilize strategies to facilitate an inclusive environment, especially for lesbian, gay, bisexual, transgender, queer, intersex and asexual (LGBTQIA+) patients. Efforts to create a more inclusive facility and staff environment aren't always well-received and may be met with challenges that limit or halt these efforts. This session will address common barriers to creating an inclusive environment and provide strategies to overcome these challenges when implementing inclusive practices.

At the end of this session, attendees will be able to:

- Recognize challenges and barriers to creating an inclusive LGBTQIA+ environment
- Identify and explain the need for inclusive practices in health care facilities
- Apply strategies to overcome challenges presented when creating an inclusive LGBTQIA+ environment

## Goldilocks and the Loading Barriers of Good Knee Health, (I, IV), Advanced

*Don't Stop Until You Step Enough*

Caroline Lisee, PhD, University of North Carolina at Chapel Hill

Walk Smarter and Harder

Brian Pietrosimone, PhD, ATC, University of North Carolina at Chapel Hill

The relationship between knee loading and joint health is complex. Multiple clinically relevant parameters including loading magnitude (i.e., measured with movement biomechanics) and frequency (i.e., measured with physical activity) influence joint tissue health and long-term patient-reported outcomes in those with an anterior cruciate ligament reconstruction (ACLR). Novel assessments and interventions can be used to address excessive and insufficient of the knee joint to promote long-term health in patients post-ACLR. This presentation will 1) describe optimal loading for promoting knee health following ACLR and 2) describe the evidence surrounding cutting-edge interventional strategies to normalize loading for everyday tasks and sport activities.

At the end of this session, attendees will be able to:

- Describe and identify the effects of excessive and insufficient loading following ACL injury and ACLR on poor knee joint function and long-term joint health
- Describe innovative assessment techniques to quantify excessive or insufficient loading follow ACL injury and ACLR
- Describe novel intervention strategies that target aberrant gait biomechanics and inadequate physical activity to promote optimal knee joint function and long-term joint health

## Conversations About Organizational Conflicts for the Real World, (V), Essential

*Presented by the NATA Early Professionals' Committee*

Communication During Conflict and Negotiations: Advocating Your Needs

Stacy Walker, PhD, ATC, FNATA, Ball State University

Conflict Resolution for the Athletic Trainer: Coach, Parent, Co-worker, Athlete and Beyond

Jason Cates, LAT, ATC, Cabot Public Schools

The NATA Early Professionals' Committee aims to provide support to athletic trainers as they're introduced and transition into the workforce. Previous research and young professionals have expressed the need for resources and education in common career challenges and conflicts. This session is aimed to address important real-world conversations about organizational conflicts, such as disagreements with colleagues and leadership. The goal of this session is to educate and foster confidence in the early professional to strengthen interpersonal communication skills and build lasting relationships throughout their athletic training careers.

At the end of this session, attendees will be able to:

- Identify conflicts from situations, behaviors and interactions that need to be addressed
- Utilize resources and tools that are available to the early professional to address and resolve the identified conflict
- Assess how the conflict resolution was achieved and establish if a follow up is needed

## Appraising Athletic Trainers' Approach to the Clinical Assessment of Lateral Ankle Sprains and Associated Return-to-Sport Decisions, (II, IV), Essential

Ryan McCann, PhD, ATC, CSCS, Old Dominion University  
Eamonn DelaHunt, PhD, BSc, University of College Dublin

Athletic trainers commonly care for lateral ankle sprain (LAS) patients, but often provide return-to-sport clearance before all injury-associated impairments have resolved. The persistence of injury-associated impairments contributes to the development of chronic ankle instability. Thus, ATs must conduct comprehensive clinical assessments to ensure the resolution of injury-associated impairments before providing return-to-sport clearance. Despite numerous expert recommendations for LAS evaluation, emerging evidence indicates that numerous personal and environmental barriers prevent ATs from evaluating all relevant impairments before providing return-to-sport clearance. Continued discussion of recommended clinical assessments to guide return-to-sport decisions will help ATs optimize care for LAS patients.

At the end of this session, attendees will be able to:

- Explain how athletic trainers' return-to-sport decisions can influence the future prognosis of LAS patients
- Describe clinician and patient-oriented outcomes that should be incorporated by ATs in their clinical assessment of LAS patients
- Describe common barriers to the implementation of comprehensive LAS clinical assessments and strategies for their mitigation

## Shoulder Instability - Surgical Interventions, (II), Advanced

John Kelly, MD, Penn Medicine

A common injury athletic trainer's treat is shoulder instability. Most instability related problems pertain to injury to the anterior stabilizing structures – capsule and labrum. Superior (SLAP) and posterior labral injuries may also occur, albeit less frequently. This presentation will focus chiefly on the surgical treatment of anterior shoulder instability with a focus on the exam under anesthesia, indications for surgery and rationale for arthroscopic treatment. Glenoid and humeral head bone loss will be addressed as well as anatomic restoration of the capsule-labral complex.

At the end of this session, attendees will be able to:

- Describe the anatomy of the glenohumeral joint
- List indications for surgical treatment of anterior shoulder instability
- Summarize the surgical solutions for restoration of labral, capsular and bone injury.

## Workplace Injury Prevention and Follow Up Care: Giving ATs More Room To Move, (I, IV, V), Advanced

Tiffany McGuffin, MS, LAT, ATC, Pivot Onsite Innovations

Zachary Prater, MS, LAT, ATC, Pivot Onsite Innovations

Developing an injury prevention program can lead to increased ergonomic awareness within workers. The current literature isn't definitive on the effectiveness of pre-shift stretching alone to reduce work-related injuries, but developing a holistic prevention program can address the needs of both the worksite and clients to improve client outcomes and improve patient satisfaction. This session will give ATs working in all settings that utilize workers' compensation the tools to develop a standardized program to prevent work-related injuries, and then use that program to provide subsequent follow-up care within the operational standards of Occupational Safety and Health Administration (OSHA).

At the end of this session, attendees will be able to:

- Compare outcomes of traditional pre-shift programs most practiced in the industrial and occupational sites to strengthening wellness programs
- Illustrate ways that a sitewide wellness program can be utilized after a work-related injury has occurred to keep within the confines of OSHA first aid
- Discover ways that a solid injury prevention program can integrate the AT more fully into the site's safety culture and initiatives
- Develop a program that will be able mitigate recordability within the team members
- Identify barriers to implementing workplace injury prevention programs

## The Esports Athlete and the Role of the Athletic Trainer, (I, IV), Essential

Nicholas Grahovec, PhD, ATC, CSCS, Northern Illinois University

Tyler Wood, PhD, ATC, Northern Illinois University

In recent years, colleges and universities added more than 200 esports teams to their list of intercollegiate and club activities. The esports student athlete may not resemble the traditional student athlete, but they suffer a variety of health concerns ranging from upper extremity dysfunction to mental health disorders. As institutional incorporation of esports may vary, so does the role of athletic trainers with esports-related injuries. Thus, the athletic trainer may have limited knowledge of this new area of active individuals. The aim of this session is to introduce esports and elaborate on the potential role of athletic trainers with esports student athletes.

At the end of this session, attendees will be able to:

- Describe esports and its entrance into modern intercollegiate athletics
- Identify the potential role the athletic trainer has with the esports student athlete
- Discover ways to incorporate the esports student athlete within current health care and sports medicine programs

## 'De-ICED': Weaning Athletic Trainers off Their Dependency on Rest-Ice-Compression 2022 and Beyond, (III, IV), Advanced

Thomas Kaminski, PhD, ATC, FNATA, University of Delaware

Rest, ice, compression, elevation (RICE) was a term first introduced in 1978 by Dr. Gabe Mirkin as the treatment of choice for acute sports injuries. RICE has become a cornerstone of acute therapies in athletic training for decades, yet the evidence supporting its usage and effectiveness has been inconsistent and, in some instances, controversial. In fact, rest, ice and compression may actually delay the healing process and become an impediment to the natural inflammatory process. The shift to mild movement (passive, active-assisted, active) helps to heal tissues faster and facilitate the body's own immune responses in support of the inflammatory mechanisms. While ice, such as cryotherapy, has shown some analgesic benefits, active recovery involving movement to assist the body's own natural healing mechanism is becoming better understood and use in sports health care emerging. The phrase "just ice it" is taking on a completely new meaning in sport-injury care circles in the 21st century and athletic trainers have a very influential role in creating the contemporary changes taking place. The purpose of this session is to provide athletic trainers with a historical look at RICE in treating athletic injuries, provide counter arguments against RICE based on solid scientific and medical evidence and provide alternative treatment solutions involving active recovery that will benefit athletic trainers in a variety of clinical settings.

At the end of this session, attendees will be able to:

- Gain knowledge and understanding of the concept of acute injury inflammation from a treatment intervention perspective
- Distinguish and comprehend which physiological processes and systems (circulatory, immune, lymphatic, musculoskeletal) that are most important in acute sport-injury management
- Review the history of RICE in acute sport-injury management and decode the myths associated with rest, ice and compression, especially the concept of "secondary cellular death," by using contemporary evidence-based research and offer alternative solutions to athletic trainers involved in acute sport-injury management
- Gain a greater appreciation/understanding for tissue preservation and regeneration, along with the functional restorative processes in the human body

- Gain a greater understanding of the importance of active (controlled) movement post-acute injury and the timetable and benchmarks for promoting treatment progressions

## We Can't Expect Equal Outcomes with Unequal Resources: Addressing Barriers to Concussion Care through a Health Equity Lens, (II), Essential

### *Race and Concussion Outcomes*

Jessica Wallace, PhD, LAT, ATC, University of Alabama

Social determinants of health (SDOH) are social factors that can have direct or indirect effects on health, and they play a fundamental causal role in understanding health outcomes. Specifically, where individuals live, learn, work, play, etc. powerfully shape health; and, these SDOH have a strong connection to athletic training healthcare. More specific to concussion as a sphere of athletic training healthcare, consensus statements and published literature advocates for individualized patient care considering that a concussion injury itself is highly heterogeneous. With this concept, understanding how SDOH may affect or impact care for a concussion is highly necessary. Ways in which different SDOH have been documented in concussion literature include racial, socioeconomic, and athletic training access disparities that drive disparities in concussion knowledge, attitudes, reporting behaviors, symptoms, baseline assessment measures, and outcomes. Understanding these disparities and barriers can help to improve patient-centered care and health equity pertaining to concussion.

At the end of this session, attendees will be able to:

- Gain knowledge in disparities and barriers to improve patient-centered care and health equity pertaining to concussion.
- Describe social determinants of health and their role in understanding health outcomes.
- Describe disparities in concussion knowledge, attitudes, and reporting behaviors.

## Let's Talk About Sex(ual Conduct): The Position of Power, (I, V), Advanced

Dani Moffit, PhD, LAT, ATC, Idaho State University

Jamie Mansell, PhD, LAT, ATC, Temple University

Athletic trainers are health care providers committed to practicing in alignment with the NATA Code of Ethics and BOC Standards of Professional Practice. In a patient-provider relationship, the power dynamics can place either individual in the position of power. The patient is vulnerable due to injury or illness, and expects the provider to act in their best interest. However, the athletic trainer may also be vulnerable in situations in which someone else exhibits power, such as a coach or athlete. As a profession, there needs to be a clear stance on the primacy of the patient and the protection of all members.

At the end of this session, attendees will be able to:

- Discuss the gray areas of sexual exploitation

- Determine the best way to protect themselves from sexual exploitation
- Share their experiences and contribute to better understanding of how to be better in this area
- Implement a plan for ending power situations in their place of employment

## Factors That May Influence the Response to Critical Incidents and Biopsychosocial Elements of Self-Care for the Athletic Trainer, (I, II, III, V), Essential

*Presented by the NATA ATs Care Commission*

### *Biopsychosocial Elements of Self-Care for Athletic Trainers*

Timothy Neal, MS, ATC, CCISM, Concordia University at Ann Arbor

### *Recognizing Compassion Fatigue in Athletic Trainers*

Mark Cairns, LAT, ATC, PRT, Neu Physical Therapy

The athletic trainer is involved in critical incidents (e.g., emergencies occurring to athletes or patients) throughout their career. The psychological response by the athletic trainer to a critical incident is a vital concern in navigating the aftermath of the incident, and may well influence their overall well-being and retention in the athletic training profession. Two areas for consideration in the aftermath of a critical incident for the athletic trainer are compassion fatigue and burnout that may exacerbate their response to a critical incident, and the biopsychosocial elements of self-care. This session will address the issues that may affect the athletic trainer's response to a critical incident and offer biopsychosocial considerations to enhance their hardiness and well-being.

At the end of this session, attendees will be able to:

- Describe the prevalence of mental health disorders and their influence on the response to critical incidents
- Recognize compassion fatigue as it relates to athletic training practice and burnout
- Implement the biopsychosocial elements of self-care for themselves and others to prevent burnout

## Dry Needling: What's the Point?, (I, IV), Advanced

Sue Falsone, PT, SCS, ATC, S&F: Structure and Function Education, PLLC

Dry needling is a treatment intervention that is gaining popularity in the U.S. among a variety of health care practitioners, including athletic trainers. Dry needling is a skilled intervention that inserts a thin monofilament needle(s) to penetrate the skin and underlying structures, stimulating the underlying neural, muscular and connective tissues. This insertion creates a healing response within the tissue that can be used to treat a variety of neuromusculoskeletal conditions and assist in pain management. This session will explain the physiological pathways of dry needling, discuss safety concerns and demonstrate via video clinical application.

At the end of this session, attendees will be able to:

- Interpret the science of dry needling and how it affects the body
- Explain the technique of using dry needling
- Describe different uses for dry needling while a patient is training
- Describe different uses for dry needling during the rehabilitation process

## Adverse Childhood Experiences and the Athlete: An Introduction to a Trauma-Informed Care, (I), Essential

Ashley Long, PhD, LAT, ATC, Mt. Olive Family Medicine Center

Allison Bickett, PhD, Atrium Health

Adverse childhood experiences (ACE) are traumatic events that occur during childhood, including exposure to violence, abuse, substance use, mental health issues and parental separation. ACE can negatively impact mental and physical health in adulthood. More than 64% of adults report one ACE and 20% report more than three. The impact of ACE can be mitigated with connection to supportive adults and positive activities that promote social-emotional learning and coping. Athletic trainers are uniquely positioned to support individuals who have experienced ACE by assessing mental health, developing a robust referral network and providing trauma-informed care.

At the end of this session, attendees will be able to:

- Define ACE and their impact on mental and physical health
- Implement a trauma-informed approach to the roles and responsibilities of athletic training
- Develop a compendium of developmentally appropriate trauma-informed resources, referrals and brief interventions

## Practical Infection Control Considerations for the Secondary School Athletic Trainer, (I, V), Essential

Thomas Woods, MEd, MS, ATC, Spring Independent School District

Kirsten Hochbert, PhD, Clorox

Identifying and minimizing potential sources of infection is a difficult, but important, task in the secondary school setting. Athletic trainers face a variety of challenges in their quest to protect athletes from illness. Utilizing the BOC Facilities Principles Manual and the BOC Guiding Principles for AT Policy and Procedure Development Manual, this session will address several areas for consideration when implementing a comprehensive infection control program.

At the end of this session, attendees will be able to:

- Identify regulatory entities and resources that address infection control in the provision of athletic health care services
- Describe how various infection control products work to kill pathogenic organisms
- Assess their athletic training facilities for potential sources of disease transmission, along with other programmatic sanitation and hygiene issues
- Develop policies and implement procedures to mitigate the spread of infectious diseases throughout their athletics program

- Develop, implement and document an ongoing in-service and educational program for the mitigation of infectious diseases

## Transgender Athletes, Athletic Trainers and the Law, (I, V), Advanced

*Presented by the NATA Government Affairs Committee*

Sam Johnson, ATC, Oregon State University

Rebecca Lopez, PhD, LAT, ATC, University of South Florida

Multiple states have enacted restrictions on participation in sports by transgender athletes, and over half states have bills restricting participation. As health care professionals, athletic trainers are duty-bound to provide the best care to all patients and thus must consider their role in providing care to transgender patients. To do this, athletic trainers must understand the health disparities experienced by transgender individuals, the common features of transgender athlete laws, how these laws intersect with state practice acts and professional standards of practice and the possible benefits and drawbacks of state athletic training organizations advocating for or opposing these bills.

At the end of this session, attendees will be able to:

- Recognize the common elements of transgender athlete laws
- Interrelate transgender athlete laws and athletic training practice acts, regulations and other professional standards (e.g., NATA Code of Ethics, BOC Standards of Practice)
- Explain the potential impact of state athletic training organizations including transgender athlete laws in their legislative advocacy goals
- Describe the potential impact of transgender athlete laws on patients

## Hispanic/Latinx Patient, Health Care Provider and Health Care System Barriers to Appropriate Care, (V), Advanced

*Addressing Acculturation and Language Barriers in our Athletic Training Practice*

Nancy Uriegas, MS, SCAT, ATC, University of South Carolina

Toni Torres-McGehee, PhD, SCAT, ATC, University of South Carolina

Racial and ethnic health disparities are recognized as significant issue for minoritized groups. While efforts have been made, Hispanics/Latinx face a variety of financial and nonfinancial barriers to obtaining appropriate and timely healthcare. Degree of acculturation, language barriers, discrimination, poverty, and immigration status may directly affect access to healthcare. We must identify barriers faced by healthcare providers and healthcare systems in treating Hispanic/Latinx patients, including cultural competence, culturally appropriate patient education materials, affordability, and cultural orientation. It is critical to identify the barriers that have impaired clinician's ability to deliver appropriate health care to Hispanic/Latinx patients.

At the end of this session, attendees will be able to:

- Identify financial and nonfinancial barriers to health care faced by Hispanic/Latinx groups.
- Distinguish the barriers clinicians may face that impair health care delivery to Hispanic/Latinx groups.
- Improve their health care practices and patient education for minoritized groups.

## Staying Courtside and Out of Court: What Athletic Trainers Need to Know About the Legal Process, (V), Advanced

David Cohen, ATC, Esq., Major League Business, LLC

Tamara Gaw, MS, ATC, Esq., Advantage Rule, LLC

Kacie Kergides, Montgomery McCracken

Law may not be the first thing an athletic trainer considers, but the changing landscape of the law and society is having a major impact on the profession. Recent lawsuits involving the standard of care have put athletic trainers in the legal crossfire. This session will provide an overview of legal principles that affect the athletic training practice, including HIPAA, state privacy laws and laws regarding carrying/dispensing medications. It will also provide an overview of professional liability issues and a discussion on recent legal issues and trends that affect the practice.

At the end of this session, attendees will be able to:

- Explain the basis of a malpractice lawsuit
- Understand strategies to avoid malpractice litigation
- Explain the basis of the U.S. legal system

## Cultural Practices and the Impact of Vitamin D on Health and Performance in the Secondary School Setting, (I), Essential

*Presented by the NATA Secondary School Athletic Trainers' Committee*

The Intersection of Cultural Practices and Athletic Training in the Secondary School Setting

Florence Wasko, MS, ATC, Oceania University of Medicine

The Impact of Vitamin D on Health and Performance

Mark D'Anza, MEd, LAT, ATC, Clark County School District

Cultural competence is essential for providing patient centered care. Cultural practices, traditions and religion can intersect with athletic training. Athletic trainers can navigate medical considerations with traditional and Western worlds. To provide appropriate medical care for secondary school athletes, athletic trainers should educate athletes on nutrition, hydration and dietary supplementation. Vitamin D is an important factor in the overall health of athletes. Vitamin D deficiency is common, especially among ethnically diverse athletes. Increasing knowledge on vitamin D deficiency and sufficiency can help athletic trainers educate athletes on the significance of vitamin D with injury prevention and athletic performance.

At the end of this session, attendees will be able to:

- Discuss culture, tradition and religion and their impact on athletic training practices
- Identify appropriate behavior and expectations when working with student athletes and coaches who identify as "fa'afafine"
- Discuss vitamin D and the impact of deficiency within ethnically diverse patients
- Review the sources and benefits of vitamin D

- Identify the latest research and ways to integrate vitamin D in the secondary school setting

## Functional Medicine for the Athlete and Athletic Trainer, (I, II, IV), Advanced

Adam Cady, ATC, CSCS, PA-C, Cedars-Sinai Kerlan-Jobe Institute

Functional medicine (FM) is a specialty that determines why illness occurs and restores health by addressing the root cause of disease, rather than treating symptoms. The FM framework facilitates an individualized, patient-centered and evidence-based approach. FM framework seeks to improve health by modification of the following personal lifestyle factors: sleep, exercise/movement, nutrition, stress and relationships. This session will provide a current evidence-based review of FM literature. The primary goal is to provide athletic trainers with tools to implement aspects of FM into their current practice, thereby improving athlete health as well as personal health.

At the end of this session, attendees will be able to:

- Utilize current FM evidence to inform practice and improve athlete health
- Utilize current FM evidence to improve personal health and well-being
- Describe to peers and patients the importance addressing root causes of illness rather than treating symptoms

## Efficacy of Neurodynamic Mobilization on Range of Motion and Performance, (I, II, IV), Advanced

Vincent Dicrisio, PhD, ATC, CSCS, Notre Dame of Maryland University

Hamstring strain injuries remain a common occurrence in sport and a challenging issue for the health care clinician to adequately manage while minimizing the risk of reinjury and time to return to play. Adverse neurodynamics is a dysfunction within the nervous system and may play a significant role in the recovery of hamstring strain injuries. Based on current evidence neurodynamic techniques are effective interventions in improving hamstring flexibility while not diminishing performance measures as compared to traditional stretching methods.

At the end of this session, attendees will be able to:

- Compare the efficacy of neurodynamic mobilization to traditional stretching methods for improving range of motion
- Compare the efficacy of neurodynamic mobilization to traditional stretching methods for performance measures
- Discuss the use of neurodynamic mobilization as a reinjury prevention method for hamstring strain injuries

## Current Understanding of the Relationship Between Cumulative Workload and Injury in Youth Team Sport, (I), Essential

Katie Sniffen, MS, ATC, West Virginia University

Internal and external workload exceeding player tolerance or capacity is significantly associated with increased injury risk across a variety of sports, competition levels and age groups. There is a lack of consensus about the threshold of workload capacity and onset of injury in youth team sport. This session will present the current literature on the association between cumulative workload and risk of injury in youth team sports as identified via a systematic review by the authors. Evidence will be discussed in terms of appropriate measures and definitions, current knowledge and future research.

At the end of this session, attendees will be able to:

- Define internal and external workload measures
- Describe the relationship between workload measures and injury risk in youth team sports
- Discuss the limitations of current literature related to the relationship between workload and injury risk in youth team sport
- Discuss the opportunities for future research in improving understanding of the relationship between workload and injury risk in youth team sport

## SIDELINED: Helping Athletes Adapt and Thrive After Medically Forced Exit From Sport, (I, II, III, IV, V), Essential

Jordan Anderson, MS, ATC, North Shore University Health System

Christine Pinalto, Sidelined USA

The transition following unanticipated and involuntary exit from sport is described as disruptive and traumatic. Understanding the patterns of psychological response for athletes no longer able to compete due to career-ending injury, health condition or concussion is essential to patient care. Medically disqualified athletes experience a range of emotional responses such as grief, identity loss, depression, anxiety and suicidal ideation. This session will address the psychological and social domains for athletes experiencing medical disqualifications, implications for loss of athletic identity and risk of related mental health concerns. Emphasis on research and practical methodology to support these athletes in their transition.

At the end of this session, attendees will be able to:

- Identify the three domains of experience that characterize the injured athlete's journey
- Examine most recent data reflecting trends in psychological response and the mental health concerns following medically forced exit from sport as identified in Sidelined USA's 2020 original IRB approved research study
- Explain components of a healthy psychological adjustment following medical disqualification as referenced in Brown & Hogg's Model of Healthy Transition Following Career-Ending Injury

- Discuss ways athletic trainers can support the medically disqualified athlete in six key areas: grief and identity loss, social support, coping strategies, affiliation/competence, rebuilding motivation and mental health concerns
- Identify free support resources available through NATA-sponsored nonprofit Sidelined USA.

## Role of Sports Specialization on Overtraining, Burnout and Mental Health Considerations, (I, V), Advanced

Tamara Valovich McLeod, PhD, ATC, FNATA, A.T. Still University

Early sports specialization has been associated with an increased risk of overuse injury, however, less is known regarding the psychosocial and mental health considerations of sports specialization. This session will review the benefits of sports participation on psychological health, the impact of early sports specialization on overtraining, burnout and mental health and recommendations to reduce the risk of these outcomes. Strategies to screen for overtraining and burnout will be discussed with case examples to illustrate practical considerations.

At the end of this session, attendees will be able to:

- Summarize the benefits of sports on psychological health
- Explain the impact of early sports specialization on mental health conditions and burnout
- Employ strategies to screen for overtraining and burnout
- Develop sports participation pathways to mitigate overtraining and burnout
- Defend existing athlete development models that aim to mitigate overtraining risk

## Considering Sex Differences to Improve Patient Care after Traumatic Knee Injury, (II, IV), Essential

Shelby Baez, PhD, ATC, Michigan State University

Recent evidence indicates that women encounter physical, psychological, and environmental barriers that negatively and disproportionately influence their recovery following traumatic knee injury when compared to men. As a result, physically active women are more likely to experience non-contact knee injuries, are less likely to return to their preinjury level of activity after injury and are at greater risk of experiencing persistent functional limitation when compared to their male peers. This suggests a potential disconnect between the patients' goals and the approach to rehabilitation that results in suboptimal and inequitable outcomes. Further, women also have a higher prevalence of osteoarthritis, as well as demonstrating worse disease severity and disability within the first 1 to 2 decades following injury. Sex differences exist in various biomechanical, strength, structural, and biochemical outcomes following knee injury that may create sex-specific risk factors for the onset of knee osteoarthritis. Therefore, the purpose of this session will be to understand the impact of patient sex on functional limitation, quality of life, and long-term joint health after knee injury. Our session will include a combination of the best current evidence and testimonials from women with knee injury about their lived experiences during and after rehabilitation.

At the end of this session, attendees will be able to:

- Identify physical, psychological, and environmental barriers that disproportionately affect women during the rehabilitation process after knee injury using best current qualitative and quantitative evidence.
- Discuss the influence of patient sex on functional and behavioral outcomes after knee injury.
- Identify sex differences in biomechanics, strength, and osteoarthritis-related biomarkers related to the development of knee osteoarthritis following knee injury.

## Something Else To Blame on Your Parents: Genetic Association to Concussion Recovery, (I), Mastery

Jane McDevitt, PhD, ATC, CSCS, Temple University

Variability in recovery between concussed athletes can be attributed to modifying factors both intrinsic and extrinsic. One risk factor not definitively explored is genetic variation. Genetic variations, such as variable number tandem repeats and single nucleotide polymorphisms, are normal in the population, but can lead to disparities in the amount of protein produced as well as alter function of that protein. This could be presumably disrupting neuronal recovery and increase the risk for prolonged concussion recovery. Understanding genetic markers could help medical professionals counsel patients as well as provide a more individualized approach to the patient's concussion care.

At the end of this session, attendees will be able to:

- Summarize the basic concepts of genetics
- Define different types of genetic variations
- Identify various concussion variability risk factors
- Classify genetic and protein biomarkers
- Analyze genetic variations associated with prolonged concussion recovery

## Want To Improve Your Documentation Patterns? An Educational EMR Can Help!, (V), Essential

Cailee Welch Bacon, PhD, ATC, A.T. Still University

The use of health information technology, including electronic medical records (EMR), has been a core component of health care for two decades. As highlighted in the Athletic Training Research Agenda, EMRs are essential as effective EMR use can improve patient care documentation, promote data use to drive evidence-based decisions and enhance patient care quality. EMRs are important to the success of the profession. While clinicians have expressed strong interest in improving patient documentation skills, they have reported limited resources and training opportunities to do so. An educational EMR offers a flexible and effective platform by which to improve patient documentation skills.

At the end of this session, attendees will be able to:

- Discuss common challenges reported by clinicians associated with patient care documentation in athletic training (i.e., perceived lack of guidance and resources, no incentive, uncertainty, inconsistency, high patient load) and effective use of EMR during clinical practice (e.g., lack of facility resources, limited exposure and repetition to establish habitual practice patterns,

unfamiliarity with health care informatics and health information technology to drive patient care).

- Discuss how the use of an educational EMR can address common challenges and offer an effective way to improve patient care documentation skills. As an active learning continuing education opportunity, the use of an educational EMR may offer an opportunity to develop habitual practice patterns that will easily translate to clinical practice.
- Examine their own patient care documentation patterns to identify opportunities where an educational EMR may improve their documentation skills and engage in the learning opportunities provided by an educational EMR (documentation audit, social determinants of health observation, billing/coding, economic estimates reporting, practice characterization) to reinforce habitual practice patterns and maximize their patient care documentation to drive evidence based decisions and enhance patient care quality.

## Interactive Lectures

### **Make the Adjustment: Risky Throwing Mechanics and Its Effect on Injury in the Pediatric Population, (I), Advanced**

Dennis Coonan, MSE, LAT, ATC, Children's Hospital Colorado  
Matthew Brewer, MS, LAT, ATC, Children's Hospital Colorado

Research has demonstrated that the pediatric population is more susceptible to injury and overuse pathologies. This is more apparent in overhand sports, specifically baseball, due to high forces applied to the upper extremity, along with immature physis and apophysis in the upper extremity. This session will examine three-dimensional modeling and kinematic data from pediatric baseball pitchers. Specifically, data related to the forces applied during throwing, potential injuries associated with faulty mechanics and normative kinematic values will be presented. Intervention/rehabilitation strategies for at-risk patients will be highlighted with the hope of significantly reducing injuries in the future.

At the end of this session, attendees will be able to:

- Identify and ascertain overhead throwing mechanics that are deemed "risky" and could lead to potential injury in the pediatric population
- Ability to demonstrate and apply effective intervention and rehabilitation strategies for athletes who have suffered from risky throwing mechanics, thus resulting in injury
- Understand the normative values of forces applied to the upper extremity in pediatric pitchers
- Explain and decipher the terminology associated with pitching and throwing, following exposure to the use of three-dimensional motion capture analysis

### **Beyond Performance: Motor Imagery in Clinical Diagnosis, Intervention and Injury Prevention, (I), Advanced**

Jody Andersen, PhD, ATC, PT, University of Tampa

Individuals often use motor imagery to improve performance. Further, inclusion of imagery strategies in the intervention plan to treat pain and facilitate functional recovery has been encouraged in textbooks and professional literature. Recent evidence suggests that using a systematic approach to motor imagery can be valuable in diagnosis, intervention and injury prevention for the ankle, knee and shoulder. In this session, the use of a graded approach to motor imagery for musculoskeletal examination and intervention will be presented. In addition, the current evidence related to the use of motor imagery for therapeutic and preventative interventions will be discussed.

At the end of this session, attendees will be able to:

- Identify the components of a graded approach to motor imagery in patients with musculoskeletal injury and for injury prevention
- Illustrate the underlying neurobiological foundations of this approach
- Outline the application of motor imagery as a component of injury prevention and therapeutic intervention programs
- Identify intervention strategies using a graded approach to motor imagery

## Treatment of the Athlete With Mechanical Low Back Pain: Where Does Manual Therapy Fit In?, (II, IV), Advanced

Sayers John Miller, PhD, PT, ATC, Penn State University

There's no clear prescription or protocol for the treatment of mechanical low back pain. This session is designed to provoke discussion on the topic of rehabilitation of athlete with mechanical low back pain, focusing on the role of manual therapy and its interaction with exercise and neuroscience education. Theoretical mechanisms of action as well as current evidence of effectiveness of interventions will be presented. There are no "correct" answers in the literature, so this will be an expert- and evidence-guided exploration of the topic.

At the end of this session, attendees will be able to:

- Explain the mechanisms of the effects of manual therapy on mechanical low back pain
- Defend the use of manual therapy in the treatment of their patients with mechanical low back pain
- Discuss a treatment plan to treat a patient with mechanical low back pain that includes manual therapy, exercise and neuroscience education

## Hamstring Injury Risk Mitigation: New Concepts and Future Directions, (I), Advanced

Thomas Waters, MS, MHPS, LAT, Utah Jazz

Hamstring injuries (HSI) are a major source of person-games lost for a plethora of sports and recreational pursuits. These types of muscle injuries are notoriously difficult to prevent, particularly in repeat-injury scenarios. This session will focus on the latest in evidenced-based and empirical research available to obtain an understanding in end-user athletic trainers can mitigate hamstring injury risk in

athletes and patients. Particular attention will be paid to types of exercise, training loads and techniques that have been shown to significantly lower the risk of HSI.

At the end of this session, attendees will be able to:

- Identify the risk factors that lead to HSI
- Recognize different types of HSI and their return-to-play timelines
- Identify the types of training techniques and exercises that are most effective in reducing HSI risk
- Develop programming that utilizes these techniques and exercises to mitigate HSI risk.

## Using Virtual Reality to Assist in Objective Return-to-Play Decisions in Concussion Management, (I, II), Advanced

Rebecca Bliss, DPT, DHSc, University of Missouri

Emerging evidence in objective measures in concussion management includes the use of virtual reality to measure eye tracking and performance. Objective visual tracking performed via virtual reality can measure attention, target selection, sustained engagement and spatial-temporal working memory as well as predict of required actions of the visual system. This session will introduce the use of technology, including virtual reality systems, to objectively measure common visual and vestibular dysfunction in post-concussion athletes. Active learning methodologies will be utilized to engage the audience and offer live demonstrations for optimal learning and engagement.

At the end of this session, attendees will be able to:

- Describe common oculomotor and vestibular deficits seen following concussion injury that put athletes at risk for protracted recovery
- Differentiate between utilization of clinical measures versus technology assisted assessment measures for return-to-play decisions
- Discuss barriers and facilitators to utilizing technology for assessment and intervention in post-concussive rehabilitation.

## Clinical Virtual Reality To Augment Rehabilitation and Return-to-Sport Testing, (IV), Mastery

Dustin Grooms, PhD, ATC, CSCS, Ohio University

The majority of rehabilitation and return-to-play testing is completed with full focus of attention on the injured joint, exercise or movement test. However, during sport, it's rare to have such dedicated attention to maintaining neuromuscular control. Simple and cost-effective (smartphone-based) virtual reality applications can provide an adjunct to already typically prescribed therapy and return-to-sport tests to better prepare athletes for the neurocognitive complexities of sport in addition to the standard of care of ensuring adequate physical function. Specifically, virtual reality can reduce dependence on visual-cognition for sensorimotor control, engage mirror neurons and allow for enhanced mental practice, target aspects of neural control found to be disrupted after injury but not targeted with current therapy and provide a more engaging platform to complete typical rehabilitation exercises.

At the end of this session, attendees will be able to:

- Understand the virtual reality options available to clinicians
- Evaluate the available literature supporting virtual reality in orthopedic rehabilitation
- Experience various virtual reality clinical exercises

## Say 'Ahh' for the Camera: Strategies for Implementing Telehealth into Athletic Training Practice, (II), Essential

Meredith Madden, EdD, LAT, ATC, University of Southern Maine

Dominique Ross, PhD, LAT, ATC, University of Southern Maine

Telehealth is an important tool for athletic trainers to implement into clinical practice well beyond the COVID-19 pandemic to provide safe and effective patient care as well as equitable access to rural or underserved populations. However, telehealth presents challenges in being able to complete a thorough evaluation due to the limitations on physical examination, non-verbal communication and technology considerations. This session will introduce ATs to telehealth strategies to ensure patient confidentiality, obtain a thorough history and gather objective findings by participating in an introductory lecture and interactive sessions, including a tele-simulation experience using a standardized patient and group debrief.

At the end of this session, attendees will be able to:

- Define telehealth and strategies for establishing a safe and confidential space
- Identify challenges and solutions to implementing telehealth in athletic training practice
- Identify and apply effective approaches to gathering patient history via telehealth
- Demonstrate objective exam by effectively obtaining findings via telehealth