# Overview of injuries in general sports medicine

## Addressing the most common minor and major injuries athletes face today

Neck injuries. Heat illness. Sudden cardiac death.

These are among the most common — and troubling — types of injuries confronted by today's male and female athletes.

In his lecture entitled "Overview of Injuries in General Sports Medicine," Dr. Mark D. Miller, MD assesses the diagnosis and management of general sports injuries in 2022 America. Dr. Miller serves as the S. Ward Casscells Professor of Orthopaedic Surgery and the division head for Sports Medicine at the University of Virginia School of Medicine in Charlottesville, VA. His brisk yet detailed 19-minute lecture was recorded exclusively for AudioDigest using virtual teleconference software, in compliance with COVID-19 social distancing guidelines, on June 15, 2021.

"If you're the team doctor, make sure you embody the concept of a team," states Dr. Miller toward the conclusion of his talk. "You should all work together, including the athletic trainers, the other doctors, and yourself. The priority is always the patient over the team — to do the right thing and be their doctor. You should look out for the athlete-patient first."

While this expert-level lecture is ideal for physicians, physician assistants, nurse practitioners, and support staff working in the sports medicine and orthopedic fields, it contains a wealth of information and insights that can provide great value to each and every medical professional. A close listen can illuminate:

- The most common types of injuries that athletes encounter today
- Effective, recommended, and controversial techniques for treating sports injuries
- Signs the patient is improving — or when/if additional help is needed

After listening to and absorbing this program, you'll be more equipped to not only determine whether an athlete can return to play based on the severity of the injury and contraindications, but also recognize non-musculoskeletal conditions that may require treatment. This CME-accredited course also qualifies for *AMA PRA Category 1 Credits™* for 35 months from the date of its original publication (Sept. 7, 2021).

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Wolters Kluwer

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## Protect the neck: Cervical spine injuries

While chronic traumatic encephalopathy (CTE) has garnered the bulk of the recent headlines when talk turns to injuries from football, neck, spine, and cervical injuries have also become all-too-common consequences of an inherently aggressive, hard-hitting, and even violent game.

Legendary quarterback and recent Pro Football Hall of Fame inductee Peyton Manning underwent a high-profile neck injury (and a series of resultant surgeries) during the final years of his 18-season career in the National Football League (NFL). As far back as 1999, one Journal of the American Academy of Orthopaedic Surgeons (AAOS) study postulated that cervical spine injuries will occur in about 10 to 15 percent of football players, with linemen and linebackers the most vulnerable to such conditions.

Dr. Miller points out that neck injuries are "common in football" — and delineates proper protocol for carefully immobilizing and transporting a player who has suffered an on-field spinal cord injury during the course of competition.

"Neck injuries occur commonly in football, and it's necessary when this occurs to carefully immobilize the patient," states Dr. Miller.

As Dr. Miller explains, movement of an injured neck increases the risk for hyperlordosis and additional spinal cord injury. Dr. Miller then describes best practices for the treatment of athlete neck injury, including lateral radiography of the cervical spine (CS) at a regional trauma center. Dr. Miller also details contraindications for return to sport (RTS) and addresses the long-used football terms "stinger" and "burner" during his lecture — along with the more recently coined "spear-tackler spine."

"A stinger or a burner is often a temporary injury," says Dr. Miller. "They usually can return to play once their symptoms resolve. Spear-tackler spine is associated with tackling with the head first, and that's why rule changes have tried to reduce this."

The previously referenced 1999 Journal of AAOS study stated "avoiding techniques that employ head-down "spear" tackling and wearing properly fitted equipment markedly reduce the risk of serious injury."

## Hot topic: Heat illness and heat stroke

Another "hot topic" in sports medicine injuries today is heat illness. As Dr. Miller explains in his lecture, ice-water immersion and IV fluid administration are "critical" when it comes to treating heat exhaustion and other heat-related illnesses. This is especially true when it comes to the most serious of such conditions, known as a heat stroke.

"Heat stroke is associated with a temperature over 106 degrees Fahrenheit or 40 degrees Celsius," explains Dr. Miller while discussing heat stroke symptoms. "This requires emergency IV fluids, cooling, and transport to an emergency department."

A 2017 scholarly article in the American Heart Association (AHA) Journals dove deeper into the increased risks of heat stroke, heat exhaustion, and other serious heat illnesses, including their ever-enhanced impact and frequency in the era of climate change and global warming. That same article also groups athletes in with a wide-ranging array of at-risk populations that includes "military personnel" and "occupations exposed to extreme heat, such as mining."

Dr. Miller also touches on exercise-associated hyponatremia, which is common in marathon runners who drink too much water without any minerals, drastically diluting their sodium levels. Treatment options here include administration of hypertonic fluids.

"The key for all of these (heat-related illnesses) is to get patients into an ice-water immersion and use IV fluids," states Dr. Miller. "You want to get the temperature under 102 degrees Fahrenheit or 39 degrees Celsius as quickly as possible."

## The heart of the matter: Sudden cardiac death

At the extreme end of the spectrum of common sports medicine injuries lies cardiac arrest, particularly sudden cardiac death.

"Sudden cardiac death occurs, unfortunately, in athletes," states Dr. Miller.

What causes this fatal cardiac arrest? Dr. Miller explains that the most common causes of cardiac arrest deaths are headlined by hypertrophic cardiomyopathy, which is associated with the thickening of the ventricular wall, particularly the septum. Dr. Miller also notes that this condition is most frequently found in African-American male basketball players.

A 2009 scholarly article in the American Heart Association (AHA) Journals analyzed 1,866 deaths of young competitive athletes spanning the years 1980 through 2006. The athletes represented nearly 40 different sports, and the most common cause of sudden death was cardiovascular disease (1,049 deaths, or 56 percent). Among those 1,049 deaths, the highest number in a single year was 76 (in the final two years of the study), with an average of 66 deaths per year over the study's final six years. The cited data also demonstrated that following hypertrophic cardiomyopathy (36 percent), congenital coronary artery anomalies (17 percent) were responsible for the second-most cardiovascular-related deaths.

In his lecture, Dr. Miller also addresses commotio cordis, which occurs from a sudden, extreme blow to the chest and results in ventricular fibrillation. He also outlines some helpful diagnostic, treatment, and lifestyle options to hopefully prevent these tragic athlete deaths, including echocardiography and cessation of smoking.

"The third most common cause (of athlete sudden cardiac death) is the standard coronary artery disease," explains Dr. Miller.

## More... in store

To learn more about these and additional sports injuries, listen to Dr. Miller discuss more of the most common injuries athletes face today — and how to best treat their conditions.

You can also tap into additional orthopedic insights whenever and wherever you choose by purchasing an AudioDigest Orthopedics CME/CE Gold Membership or ordering the Best Lectures CME Collection for Orthopedics. Related lectures available from renowned experts and thought leaders include "Case Studies in Treatment of Pediatric ACL Injuries" by Benjamin R. Wilson, MD.

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