MEDICAL CONSIDERATIONS IN TRIATHLONS

DISCLOSURES

Neither I, David Olson, nor any family member(s), have any relevant financial relationships to be discussed, directly or indirectly, referred to or illustrated with or without recognition within the presentation.

TRIATHLONS

- Swim
- Bike
- Run

- Started in California in ‘70s
- Olympic Sport Since Sydney Games 2000
- Many people involved and a big business
  - Clubs
  - Training
  - Clothing

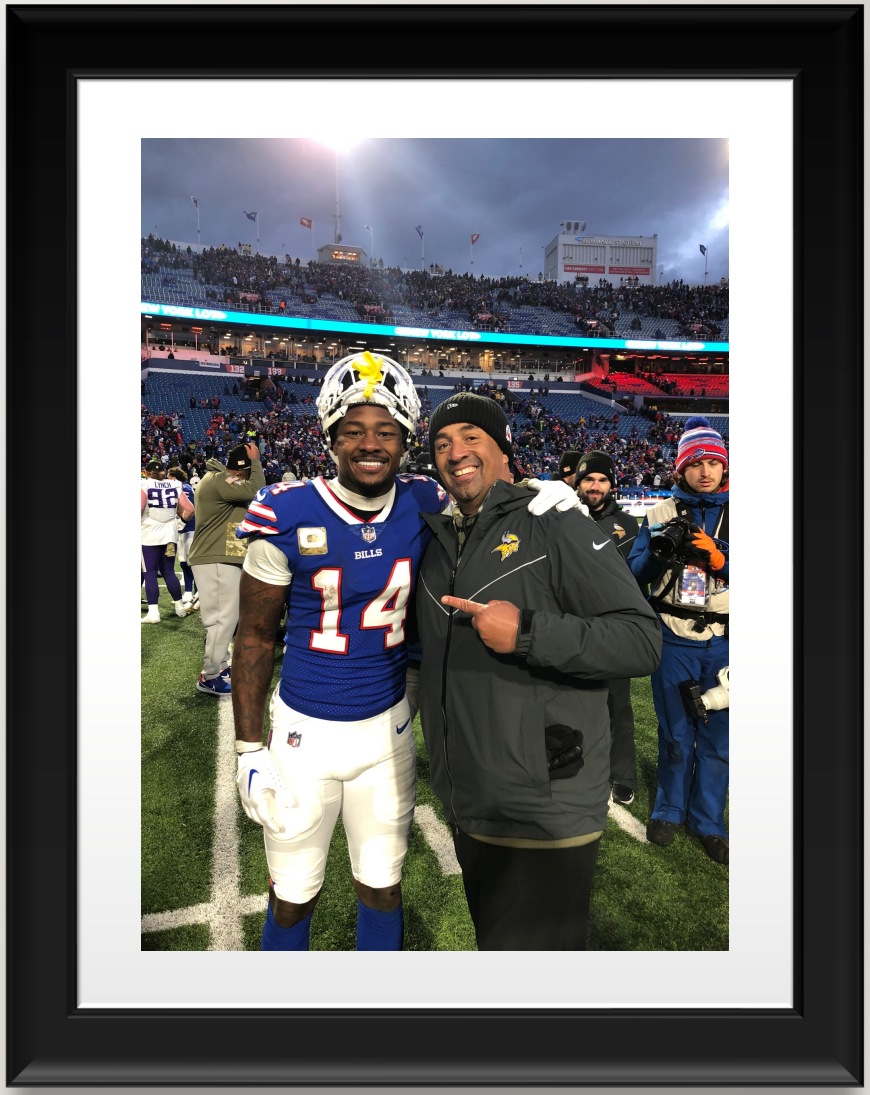
TRIATHLONS

- Many distances
  - Sprint
  - Olympic
  - Ultra/Iron

- Olympic
  - 1500 M Swim
  - 40 K Bike
  - 10 K Run
- IRON
  - 2.4 Mile Swim
  - 112 Mile Bike
  - 26.2 Mile Run

BROAD RANGE OF INJURY POTENTIAL

- MSK/Overuse Injuries
- Medical Issues
- Environmental
- Health Screening Prior to Training!!
- Basically, anything we see in Sports Medicine can happen!!



MSK/OVERUSE INJURIES

Unique to the various events	
Swimming	Shoulder
Bicycle	Trauma
Running	Stress Injuries

SWIMMING

- The most popular aquatic sports discipline
  - Important in Triathlon and Water Polo
- Part of the Summer Olympic Games since 1896
- Equipment
  - Googles
  - Swim Caps
  - Suits

SWIMMING INJURIES

- Sudden Death in Triathlon most likely to occur during the swim portion
- A host of other overuse MSK injuries including tendinopathy, strains and sprains are common
- Ear issues can happen as well
  - Importance of the swim cap

SWIMMING

- Shoulder issues are common
  - Rotator Cuff Tendinopathy
    - Training and technique issues
    - Rehab
    - Technique evaluation and adjustment
    - Nsaids
    - Injection
  - Shoulder Instability
    - A blessing and a curse
    - Tight can be worse than loose!!

SWIMMING INJURIES

- Recognition of injuries
- Adjustment and working on any errors in form are important
- Training errors
- Rehab, Meds, Injections and Surgical interventions may be needed depending on severity

CYCLING

- Traumatic Injuries 38% - 48.5% of Pros
- Overuse Injuries 51.5% - 62% of Pros

CYCLING EQUIPMENT

- Many aspects
  - Helmets
    - Must meet CPSC Safety Guidelines
    - Only designed for ONE crash
  - Bicycle
    - Fit
    - Make
    - Saddle
    - Full conference on this
- Clothing
- Shoe/Cleat/Pedal

CYCLING

- Trauma
- Falls
  - TBI/Concussion
  - Fractures
    - Clavicle
    - Humerus
    - Wrist
  - Abrasions/Lacerations
  - Back pain
  - Neuropathies
    - Saddle, Wrist
- Bike set up is vital!!!

COMMON CYCLING INJURIES

- Foot (Shoe/Pedal)
  - Morton's Neuroma
    - Impingement of interdigital nerves
    - 3rd/4th MT Heads most common
    - Adjust Cleat
    - Wider toe box
    - Strap adjustments
    - Massage/Manual, nsaids, injections or excision as last ditch
- Pelvis/Saddle
  - Perineal Neuropathy
    - Most common urogenital problem
    - Can happen in varying severity in many
    - Can cause Cyclist's Syndrome
      - Pudendal Nerve Entrapment
      - Pain, Burning, Numbness and ED
    - Saddle adjustments
    - Injections, surgical decompression (rare)

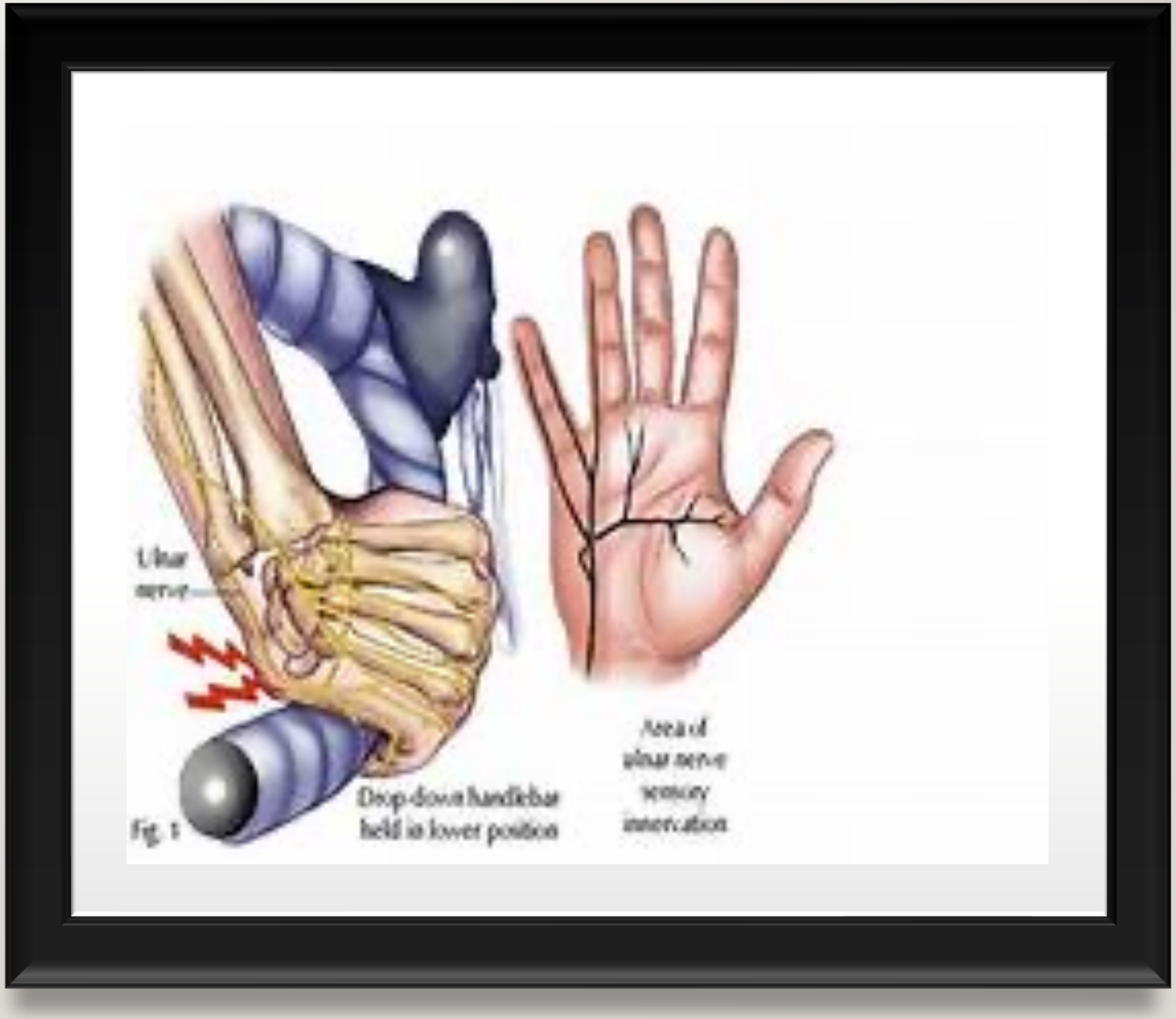
CYCLING INJURIES

- Pelvis/Saddle
  - Saddle Sores
    - Moisture/Friction causing skin issues
    - Chafing – common and mild
    - Ulceration – more sever friction
    - Furuncles/Folliculitis – can limit riding
    - Perineal nodular induration
      - ”3rd Testicle (Or 1st)
      - Severe form with nodule formation

- Pelvis/Saddle
  - Urethritis
  - Hematuria
  - Dysuria
  - Numbness

CYCLING INJURIES

- Hands/Handlebar
  - Cyclist Palsy
    - Compression of ulnar nerve
    - Guyon's canal
    - Change of hand position, training volume and terrain, massage, night splint, injections and surgery



CYCLING INJURIES

- Also Common:
  - Concussion
  - Trauma
    - Fractures
  - Overuse injuries

RUNNING

A series of talks by itself

Overuse

- Stress injuries
- Plantar fasciitis
- Strains

Trauma

- Falls

Environmental

RUNNING OVERUSE INJURIES

- Training errors
- Poor Fueling
- Training with athletes at a higher level
- Footwear
- Poor bone health
- Key is having a plan going in, working with people that know how to train, medical eval prior to training and being able to adapt when needed……

RUNNING

- Gastrointestinal Problems
  - 25% - 50% of runners experience abd cramps, diarrhea, nausea and pain
  - GI bleeding after endurance running can happen
    - 8%-22% of runners can have some clinically detectable bleeding after a race
    - Most be extra cautious in runners with known IBD (Crohn's/Ulcerative Colitis)
- Renal/GU Issues
  - Can also have hematuria after running that usually is not an ongoing issue
  - Traction effect on bladder
  - Psuedonephritis can happen with proteinuria/hematuria especially if not well hydrated

MEDICAL ISSUES IN TRIATHLETES

- Cardiovascular
- Over Training Syndrome/Fatigue
- Bone Health
- Water Intoxication
- Infection
- Diabetes
- Seizure Disorders

CARDIOVASCULAR

- Age
  - Younger athletes – higher concern for congenital issues
  - Older athletes – higher concern for coronary artery disease
  - AED access
    - Multiple locations
    - Staff that is comfortable using
    - Safe use
  - EMS support and transport
    - Hospital awareness of event

OVERTRAINING SYNDROME/FATIGUE

- Common issue in a very motivated population
  - Highly driven cohort selected for in Tri's
- Treatment is Relative Rest
  - Training break or modifications
- Decrease Stressors
- Optimize Nutrition, Sleep, Medical Issues, Recovery
- Training Schedule Adjustments
  - Periodize training
  - Have a detailed plan
  - Monitors

BONE HEALTH/FUELING

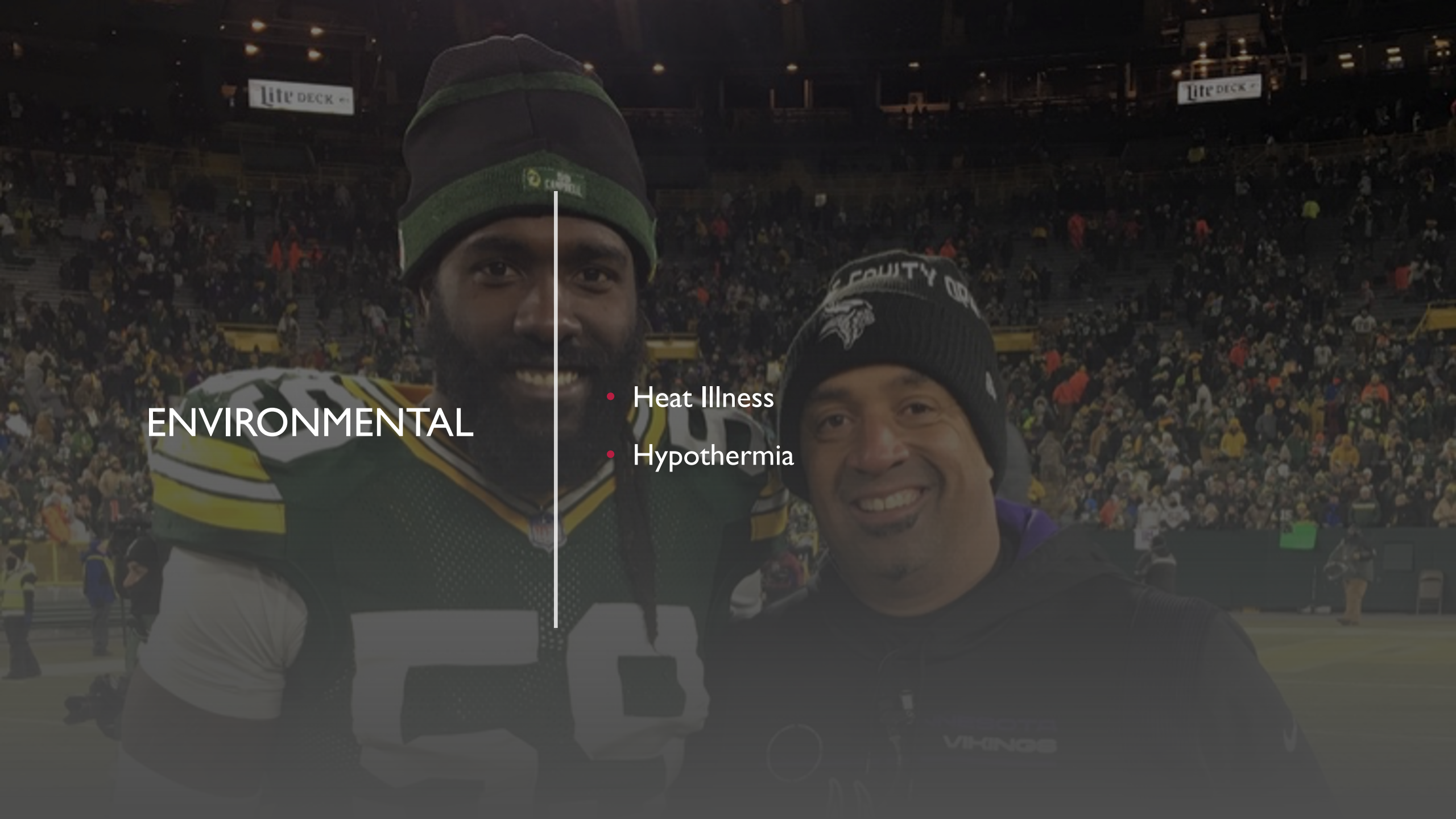
- Same issues as in many other sports
  - Can be more common in elite endurance athletes
- Stress injuries and fractures common
- Screening prior to training is helpful
- Evaluation if issues arise during training
- Fueling is of extreme importance for these endurance events
- Many difficult discussions with athletes

WATER INTOXICATION/HYPONATREMIA

- Education on not over hydrating
- Number of water stations
- 400-800 ml/hour on average is safe
- Water and Sports Drinks can both cause the issue
- Have testing available at these events when covering
- Anti-inflammatories can play a role in causing

INFECTION/DIABETES/SEIZURE DISORDERS

- Important to control all other medical issues in Triathletes
- Close follow up
- Plan for Diabetes care on race day
  - Training is the time to trouble shoot
- Medication tune up!!
- ID wise – no participation if febrile (heat illness/myocarditis risk)



ENVIRONMENTAL

- Heat Illness
- Hypothermia

HEAT ILLNESS

- Wide spectrum from Dehydration to Heat Stroke (life threatening)
- Risk Factors
  - Race day conditions
  - Previous issues
  - Illness
  - Age
  - Fitness level
  - Fluid intake
  - Clothing
  - Medications (Stimulants, Diuretics, Alcohol)
  - Sleep Deprivation

HEAT ILLNESS PREVENTION

- Hydration
- Acclimatization
- Clothing choice
- Modify other risks that you can
- Race Medical Team Modifications
  - Wet Bulb Globe Temp plan

HYPOTHERMIA

- Bike and Run Portion – possible
- Swim is the big risk for hypothermia
- WET SUITS!!!
- Clothing is the key

MEDICAL TEAM COVERING TRI-ATHLONS

- Need solid EAPs (Emergency Action Plans)
  - Environmental (key)
- Review plans and race set up
  - High Risk Areas
- Assemble Team
  - Docs, ATCs, PTs, EMTs, Chiro, Nursing, Massage, Dietician and many Non-Medical

CONCLUSION

- Triathlons are amazing events
- Exceptional Athletes
- Difficult but rewarding to cover
- Knowing about the variety of events and issues unique to them gets us ready to help!!


THANK YOU