Common Sports Medicine Medical Conditions
Upper Respiratory Infections

- Very common
- Typically training can continue
  - Modify for fatigue
- Hold from training if:
  - Fever - concern for myocarditis
  - Diarrhea/vomiting - risk of dehydration
  - Shortness of breath, severe cough
Mononucleosis

- **Etiology:** EBV/CMV
- **Signs/symptoms:**
  - Fever, fatigue, pharyngitis, lymphadenopathy
  - Splenomegaly common 50-100%
    - Splenic rupture-biggest complication, in first 3-4 weeks
- **Diagnosis:**
  - Monospot (heterophile antibody)
  - EBV/CMV titers-IgM, IgG (acute infection)
- **Treatment:**
  - Supportive, check strep test (25% positive)
    - Avoid amoxicillin, ampicillin-rash
  - Corticosteroids-for airway compromise
Mononucleosis-Return to Play

- Rest for 3 weeks
- Light, non-contact activity at week 4
  - Progress as tolerated, monitor symptoms
- Full return to play at week 5
  - Pending physical condition
- Splenomegaly: physical exam/ultrasound unreliable

Mononucleosis and Athletic Participation: An Evidence-Based Subject Review-2008
In his final moments, Ja’Quayvin Smalls was optimistic and eager to impress his new teammates. “His body language was good, he was saying like, ‘I’m going to show you how we do it in South Carolina’ like he was going to show us he came here to work.”

Strength coach Brad Ohrt oversaw Wednesday’s workouts. He started the session by checking the body fat of new players. He then took them through lifting exercises and then went outside for sprints described as less than full speed.
He basically just wanted them to get their legs underneath them so they ran like two 60 yard strides, two 40 yard strides and then they were running on the 90s. That’s when Ja’Quayvin stopped, on the second 90.

When it happened, no one could really believe it. When he went down he said “Well, I think my legs just cramped up. He was smiling. He was smiling, optimistic, joking around like, ‘Man, it’s just my legs’.

After collapsing 90 minutes into the workout, he was pronounced dead at 7:30 that evening.

August 4, 2009 “WCU now testing for sickle cell disease”
Sickle Cell Trait

- Sickle cell trait is not a disease
- Inheritance of one gene for normal hemoglobin (A) and one gene for sickle hemoglobin (S)
- Does not cause anemia
- Few clinical problems **EXCEPT** during extreme conditions of physical stress/low oxygen
- Can have significant distress, collapse, and death during rigorous exercise
Testing for Sickle Cell Trait

- **Controversial**

- Required by NCAA before participation
  - Division I and II now, Division III soon

- Not required by military
  - Army uses universal exercise precautions

- American Society of Hematology
  - Opposes mandatory testing for athletes
Sickle Cell Trait - Who Is At Risk?

People whose ancestors came from:
- Africa
- South or Central America
- Caribbean
- Mediterranean countries
- India
- Saudi Arabia
- Greece

Present in athletes at all levels

Sickle cell trait is NO barrier to outstanding athletic performance
Complications of SCT

- Gross hematuria
  - Needs to clear before return to play

- Splenic infarction
  - Risk at 5000 foot altitude and above
  - Pain relief, surgery if complications

- Exertional rhabdomyolysis
  - Can be life-threatening
  - Sickled cells cause a “logjam” in the blood vessels in working muscles
  - Made worse by dehydration
  - Need prompt emergency response and access to medical care
When Does Sickling Occur?

- The harder and faster athletes go, the earlier and greater the sickling
  - Can begin in 2-3 minutes of sprinting or any other all out exertion
  - Need to allow them to stop and recover, cannot “condition” it out of them
  - Can recover quickly and if feel fine, can usually return to play the next day
- Athletes complain of muscle pain/weakness, unlike cramping or “locking up” with usual muscle cramps
- May slump to the ground but can still talk-needs emergent transfer to ED for treatment
Precautions for Athletes with SCT

- Set their own pace
- Engage in slow, gradual preseason conditioning
- Build up slowly while training-paced progressions
- Use adequate rest/recovery between repetitions
  - Especially important during “gassers” and intense station drills
- Do not urge to perform all out exertion for longer than 2-3 minutes without a breather
- Be excused from performance tests: serial sprints, timed mile runs if these are not normal activities
- Stay well hydrated at all times, especially if hot/humid
Precautions for Athletes with SCT

- Stop activity immediately if struggling or experiencing muscle pain, abnormal weakness, undue fatigue or breathlessness
- Maintain proper asthma management
- Refrain from extreme exercise during illness, if feeling ill or if experiencing a fever
- Access supplemental oxygen at altitude as needed
- Seek prompt medical care when experiencing unusual distress
Heat Illness

- Heat edema
- Heat “Cramps”
- Heat Syncope/Exercise Associated Collapse
- Heat Exhaustion
  - Body temp 104 (40.5)
  - No significant mental status changes
Heat Illness

- Exertional Heat Stroke
  - Medical emergency
  - Body temperature $> 104 \ (40.5)$
  - CNS dysfunction
    - Mental status changes
    - Ataxia, seizure, syncope, coma
  - “Cool first, transport second”
  - Cold water immersion provides the fastest whole body cooling rate and the lowest morbidity and mortality for EHS-ACSM Position Statement
Prevention of Heat Illness

- Heat acclimation-10-14 days
- Monitor environmental conditions
  - Restrict activity in dangerous conditions
- Adjust workout schedule
  - Time of day, intensity, duration, breaks, location
- Clothing
  - Light/less, light-colored, less equipment
- Close monitoring
- Stay hydrated, frequent water breaks
- No practice if ill-fever, dehydrated
Pre-Game IVF Hydration

- NFL study-75% use pre-game IVF hydration
- Hyper-hydration (before competition)
  - No advantage over euhydration
  - Possible complications from IVF hydration
- Oral rehydration-superior to IVF hydration
- Number 1 reason for IVF
  - Player request
Causes of Sudden Cardiac Death

For ≤ 35 years:
- Hypertrophic Cm (48%)
- Idiopathic LVH (18%)
- Coronary Anomalies (14%)
- Ruptured Aorta (7%)
- Coronary Hd (10%)
- Unexplained (3%)

For > 35 years:
- Coronary HD (80%)
- Hypertrophic CM (5%)
- Valvular HD (5%)
- MVP (5%)
- Unexplained (5%)

Pre-participation Screening

- History
  - Exertional chest pain/discomfort
  - Unexplained syncope/near-syncope
  - Excessive exertional and unexplained dyspnea/fatigue associated with exercise
  - Prior recognition of heart murmur
  - Elevated systemic blood pressure
  - Premature death before age 50 due to heart disease in > relative
  - Disability from heart disease in a close relative aged < 50 years
  - History of specific cardiac conditions in family members
    - HCM, long QT, Marfan’s, arrhythmias, dilated cardiomyopathy
Pre-participation Screening

Physical

- Heart murmur
- Femoral pulses to exclude aortic coarctation
- Physical stigmata of Marfan syndrome
- Brachial artery blood pressure (sitting position)
Marfan Syndrome

- Arm span > height
- Arachnodactyly
- Ligament laxity
- Kyphosis
- Pectus excavatum
- High arched palate
- Aortic insufficiency murmur
- Mitral valve prolapse
- Lens dislocation
- Myopia
Recently proposed to decrease high rate of false positives associated with AHA 12-elements screening

Suggest newer guidelines
- Fewer false positives
- Evidence based updates
Personal history

Have you ever been diagnosed with any of the following cardiac conditions? (anomalous coronary artery, aortic aneurysm, Brugada syndrome, long QT syndrome, catecholaminergic polymorphic ventricular tachycardia (CPVT), Wof-Parkinson–White syndrome (WPW), hypertrophic-dilated or right ventricular cardiomyopathy (HCM, DCM, ARVC), congenital heart disease, Marfan syndrome, valvular or rheumatic heart disease, heart surgery, Chagas disease)

Has there been more than 1 time where you had discomfort, pain, tightness, or pressure in your chest during exercise?

Have you ever passed out or had a seizure during or after exercise?

Has exercise made you more short of breath and tired than usual for no particular reason (not due to asthma or allergies) while conditioned (in shape) for your sport?

Around the time you are exercising, does your heart ever suddenly go too fast or skip beats (irregular beats, flip flops) and cause you to feel lightheaded or blur your vision?

Has a doctor ever denied or restricted your participation in sports or physical activity for a medical or heart-related reason?

Has a doctor ever told you that you have a heart murmur, high blood pressure, abnormal heart rhythm, or any heart problem?

Has a doctor ever ordered a test for your heart (eg, ECG/EKG, echocardiogram, MRI, or CT)?

Family history

Does anyone in your family younger than 40 yrs have a heart problem (cardiomyopathy, valve problem), abnormal heart rhythm problem, or inherited condition (eg, Marfan, QT disorder)?

Has any family member or relative younger than 40 yrs died suddenly or expectantly, died in an accident (driving, fall, drowning), had a cardiac arrest and/or received cardiopulmonary resuscitation (CPR) (including sudden infant death syndrome), or had a seizure?

Does anyone in your family younger than 40 yrs have an implanted defibrillator or pacemaker?

Physical examination

Was a murmur heard today (any diastolic murmur and/or a systolic murmur that is greater than soft or is holosystolic or late systolic or increases with Valsalva)?
Better than history and physical in identifying possible cardiac abnormalities
  ▪ Good sensitivity
Many changes are benign due to training and normal adaptations
  ▪ Cause false positives
  ▪ Poor specificity
  ▪ Not routinely used
ECHO-time, expense, false positive
Genetic screening?
Sudden Cardiac Death-Secondary Prevention

- Have an AED on-site
  - Know where it is and how to use it
  - Train staff and coaches
  - Regular maintenance
  - Check before every event you cover
    - Check batteries, pads, turn it on
  - Place on every unconscious athlete
Commotio Cordis

- Blunt trauma to chest wall
- Occurs during ventricular repolarization just prior to peak of T wave
- Leads to Ventricular Fibrillation
- Most common in males < age 18
- Brief period of consciousness (<10 seconds) or instantaneous collapse
- Treatment-immediate defibrillation
  - 3% survival if resuscitation started after 3 minutes
MRSA-Methicillin Resistant Staph Aureus
MRSA

- It is **NOT** a spider bite
- Very painful, pimple or abscess
- Treat with I&D only if <5cm
- Antibiotics:
  - Bactrim, Doxycycline, Clindamycin, Vancomycin, Linezolid
- Return to play
  - 24-72 hours if treated and improving
  - Lesion must be covered
- Cultured from surfaces and athletic equipment
HSV-Herpes Virus
Herpes Virus and Wrestling

- Herpes Gladiatorum
  - Grouped vesicles on an erythematous base
  - Very contagious
  - Any individual exposed to the outbreak 3 days prior to its development, should be isolated from direct contact with other athletes for 8 days.
    - Examine daily for potential Herpes Gladiatorum.
  - “Skin check”-medical exam done early on day of competition
  - Treat with acyclovir or valcyclovir x 10 days
Return to Wrestling after HSV

- **Primary Infection**
  1. Wrestler must be free of systemic symptoms of viral infection (fever, malaise, etc.).
  2. Wrestler must have developed no new blisters for 72 hours before the examination.
  3. Wrestler must have no moist lesions; all lesions must be dried and surmounted by a FIRM ADHERENT CRUST.
  4. Wrestler must have been on appropriate dosage of systemic antiviral therapy for at least 120 hours before and at the time of the meet or tournament.
  5. Active herpetic infections shall not be covered to allow participation.

- **Recurrent Infection**
  1. Blisters must be completely dry and covered by a FIRM ADHERENT CRUST at time of competition, or wrestler shall not participate.
  2. Wrestler must have been on appropriate dosage of systemic antiviral therapy for at least 120 hours before and at the time of the meet or tournament.
  3. Active herpetic infections shall not be covered to allow participation.

- **Questionable Cases**
  1. Tzanck prep and/or HSV antigen assay (if available).
  2. Wrestler’s status deferred until Tzanck prep and/or HSV assay results complete.

Wrestlers with a history of recurrent herpes labialis or herpes gladiatorum could be considered for season long prophylaxis. This decision should be made after consultation with the team physician.
Tinea Corporis
1. A minimum of 72 hours of topical therapy is required for skin lesions.
2. A minimum of two weeks of systemic antifungal therapy is required for scalp lesions.
3. Wrestlers with extensive and active lesions will be disqualified. Activity of treated lesions can be judged either by use of KOH preparation or a review of therapeutic regimen.
   - Wrestlers with solitary, or closely clustered, localized lesions will be disqualified if lesions are in a body location that cannot be “properly covered.”
4. The disposition of tinea cases will be decided on an individual basis as determined by the examining physician and/or certified athletic trainer.
Psychiatric Conditions

- Depression, Anxiety-common
  - Treatment failures
  - Secondary to injury
  - End of career issues
- Eating Disorders
  - 90% female
  - Stress fractures
  - Many other systems affected
- Great to have a sport psychologist on your team!