

EID424: Controversies in Sports Medicine

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1 Stretching

- Preventing injuries and strength loss
- Need to think about what types of injuries, but most studies don't look at types of injuries (e.g., breaking a bone)
- Seems that stretching does prevent the types of injuries that you think it would prevent
- Stretching vs. some kind of warmup
- Strength loss tends to happen, but the torque-angle curve gets changed, may actually have strength gain at longer lengths
- Also dynamic vs. static stretching controversy

2 Concussions

- A mild traumatic brain injury
- Defined by its effects, not what it is
- Signs and symptoms:

- Amnesia
 - Loss of consciousness
 - Headache
 - Dizziness
 - Blurred vision
 - Attention deficit
 - Nausea
 - Generally "foggy"
- Mechanism: rapid acceleration (w/ or w/o impact)
 - Direct impact: "contrecoup"
- Does not show up on imaging
 - Different than bleeding, which will show up on imaging
- Pathophysiology
 - Brain banged around -> neuron damage -> loss of potassium and calcium -> increased need for energy -> increased glycolysis
 - Decreased cerebral blood flow
 - Mismatch (severe deficiency in the brain) puts brain at increased risk for subsequent injury
- Second impact syndrome
 - Potentially fatal condition that can occur after a trivial second head injury
 - Loss of cerebral autoregulation
 - Probably doesn't exist -> debunked by McCrory
- Post-concussion syndrome
 - Headache
 - Vertigo
 - Dizziness
 - Nausea
 -

- Treatment:
 - * Classically: sit in a dark room and do nothing (bad)
 - * Don't do activities that exacerbate the symptoms
 - * Do exercise that doesn't cause symptoms
 - Graded exercise prescription
 - * Antidepressants and beta blockers (which regulate blood pressure) tends to help
- Diagnosing the concussion
 - Ask many questions about the situation
 - Controversy over determining severity
 - * Loss of consciousness (LOC) has nothing to do with severity of concussion
- Controversy over return to play
 - Best: neuropsych test (ImPACT); requires baseline before injury
- NFL Concussion Committee Position Statement
 - Lots of bad conclusions and falsified data
- Now high school students with concussions have to be cleared by doctor in NY
 - Will probably result in many over-conservative treatments

3 Misc.

- Brain bleed will kill you due to pressure buildup inside skull
 - Worst headache