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**Robert P. Astorino**  
Westchester County Executive  
Sherlita Amler, MD, Commissioner  
Department of Health

# 2016 CHILDREN'S CAMP WORKSHOP

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A presentation by the Westchester County Department of Health

April 21, 2016



County Executive Robert P. Astorino uses three guideposts (The Three P's) to manage Westchester County:

- **Protect Taxpayers**
- **Preserve Essential Services**
- **Promote Economic Growth**

# Agenda

**Introduction, NYS Injury/Illness Statistics, and 2015 Camp Season Recap**

*Mario Polvere, Chief Sanitarian, Westchester County Department of Health*

**Communicable Diseases**

*Ada Huang, M.D., Deputy Commissioner, Disease Control*

*Westchester County Department of Health*

**Current Trends in Concussion**

*Mark Herceg, PhD, Commissioner, Westchester County Department of Mental Health*

**7-2 Amendments: Justice Center Regulations**

**Camp Application: Amusement Devices, Odds & Ends**

**New and Selected Camps: Overview**

**Q & A**

*Mario Polvere, Chief Sanitarian, Westchester County Department of Health*

# Westchester County Department of Health Bureau of Public Health Protection

Mt. Kisco District Office  
25 Moore Avenue  
Mt. Kisco, NY 10549  
Phone: (914) 864-7330

**24/7 Emergency Telephone Number:**

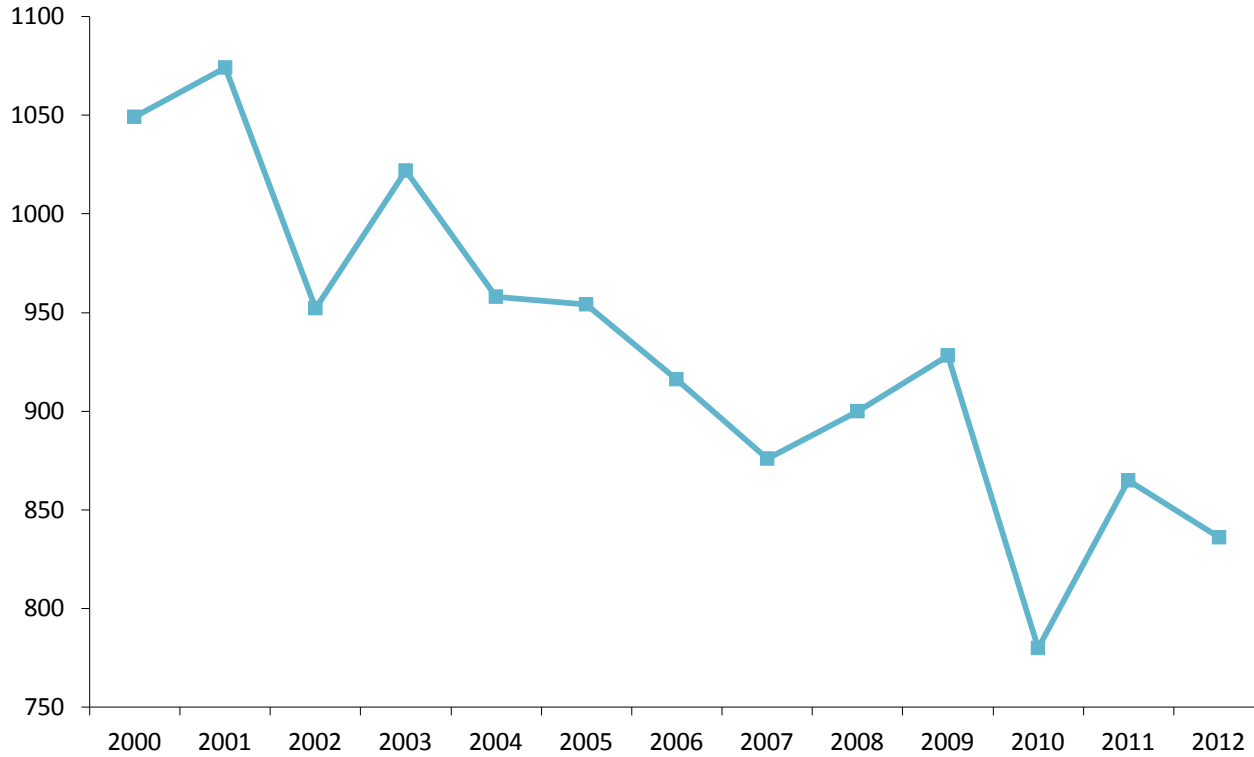
**914-813-5000**

# NYS Injury/Illness Statistics



The following slides provide data from the Children's Camp Incident Summary Report, 2012

# Camp Injuries by Year



## Alleged Abuse Victims by Year



# Potential Rabies Exposures by Year

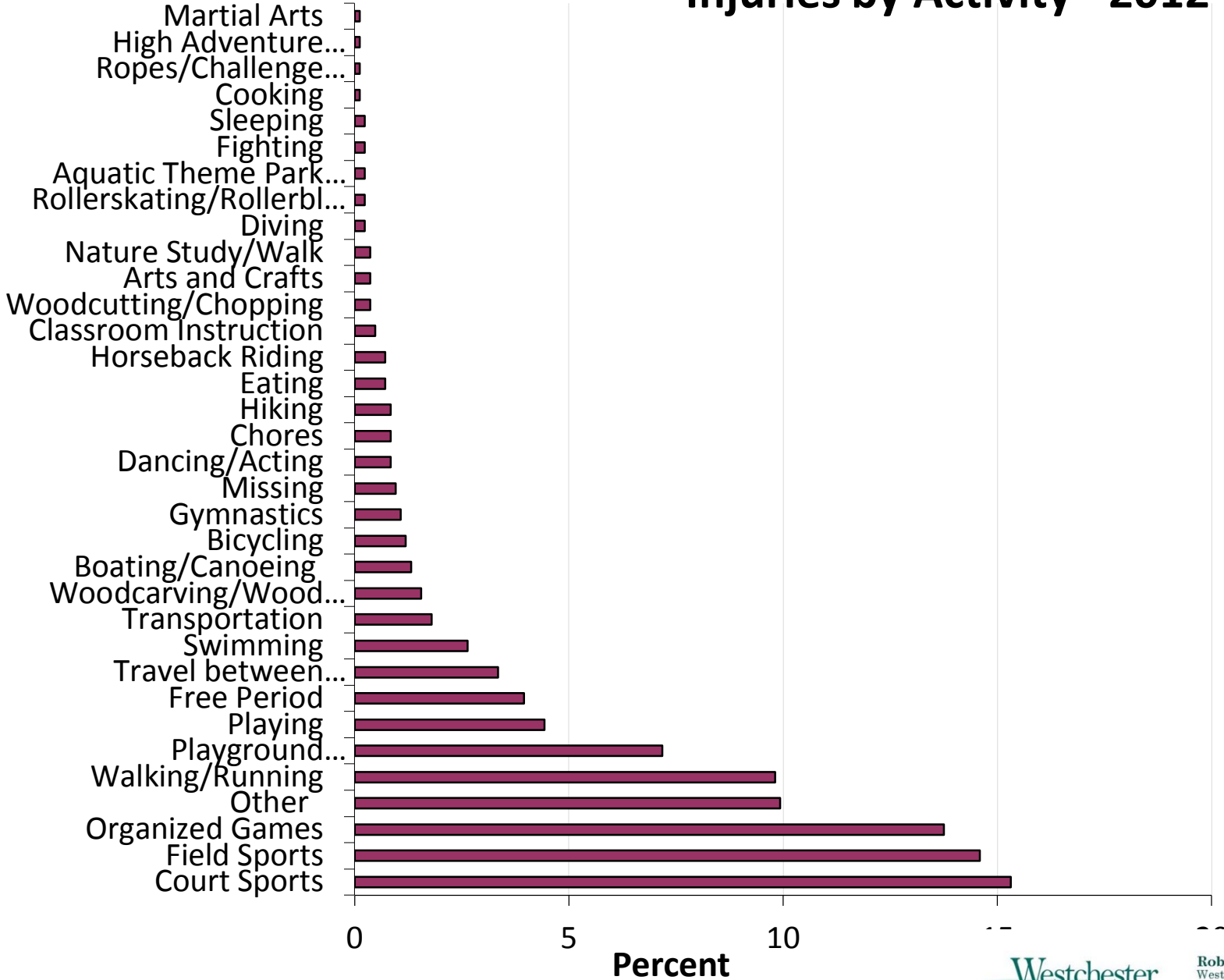




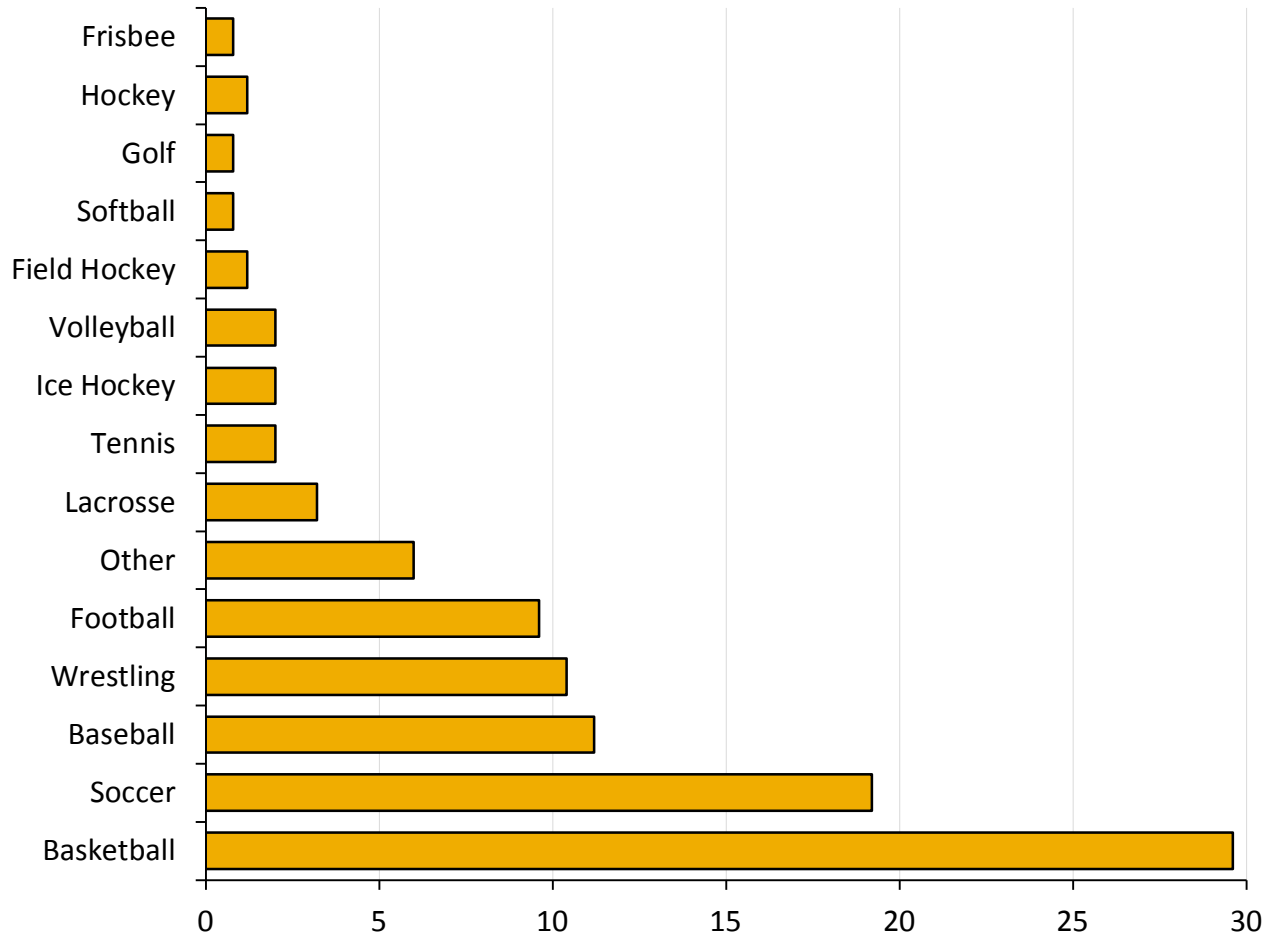
# Epi-Pen Administrations by Year



# Injuries by Activity - 2012



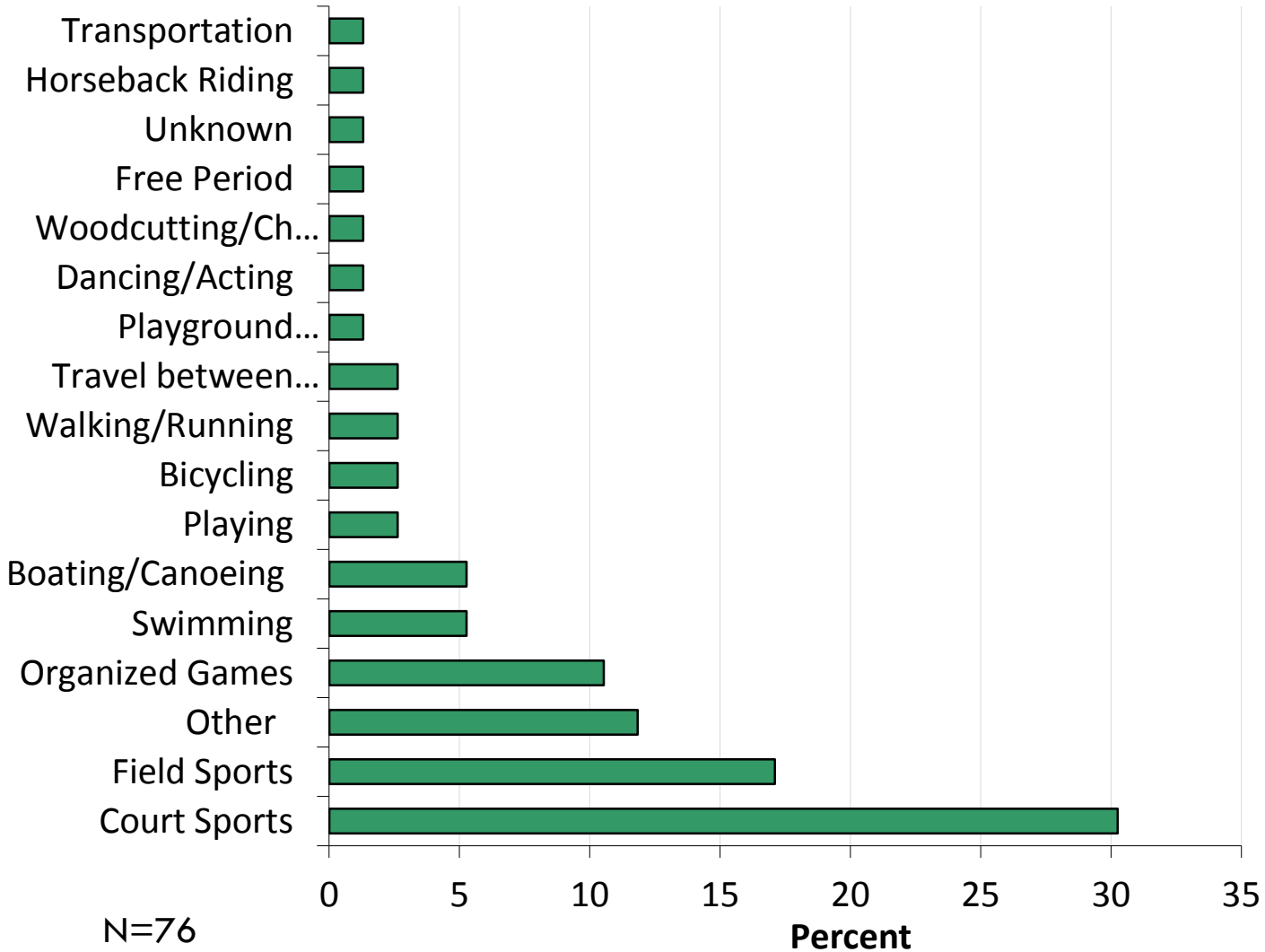
# Sport Injuries by Activity - 2012



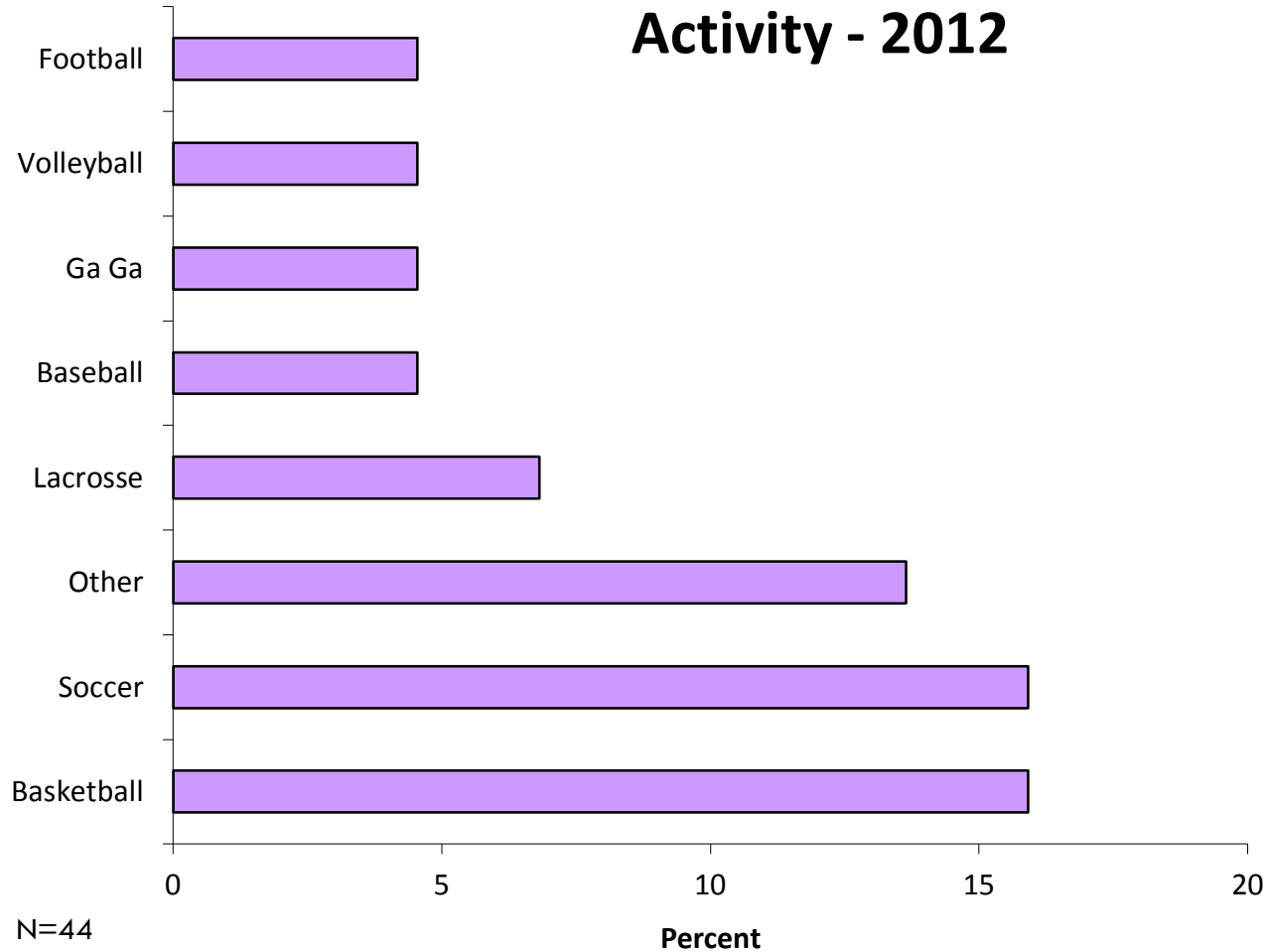
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Percent

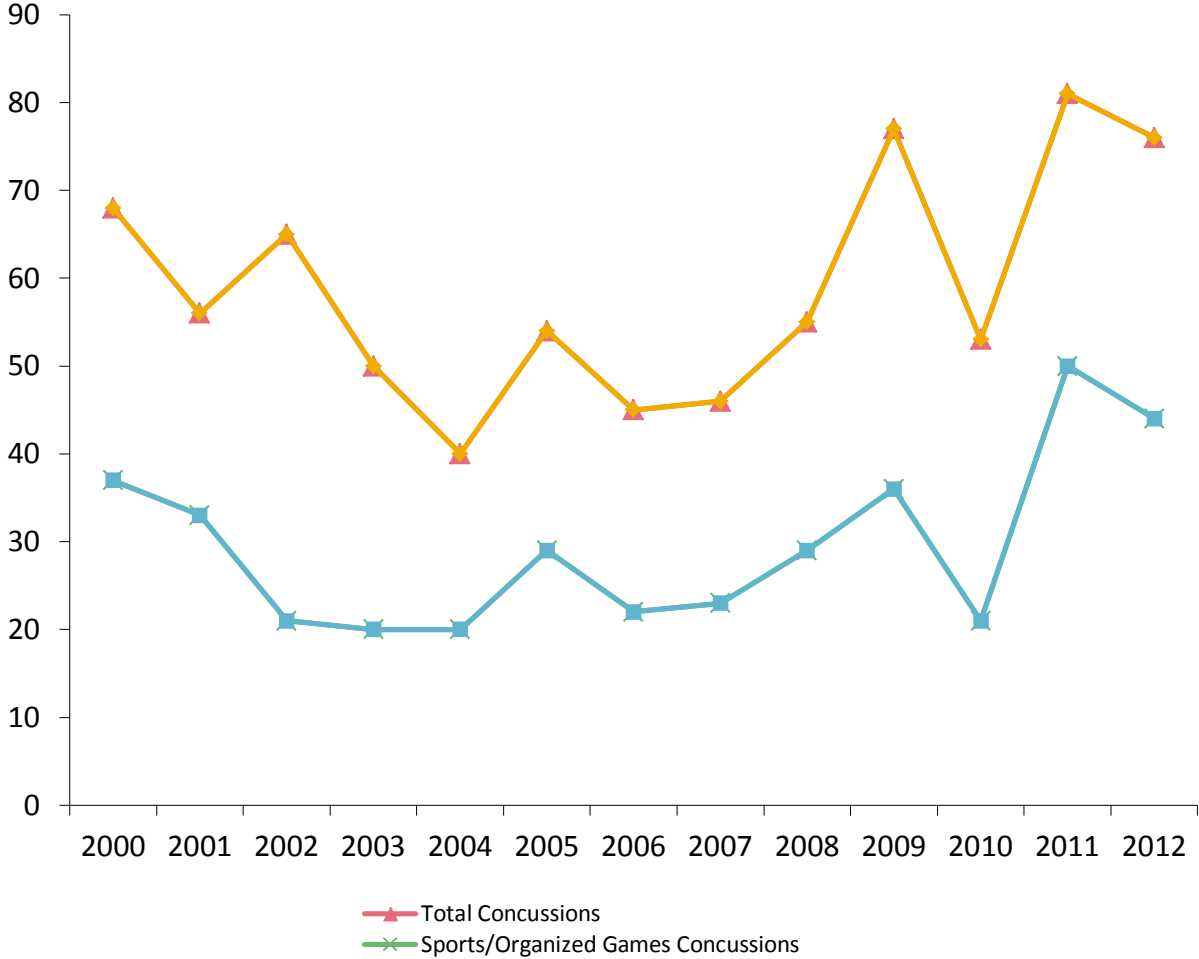
# Concussion Injuries by Activity - 2012



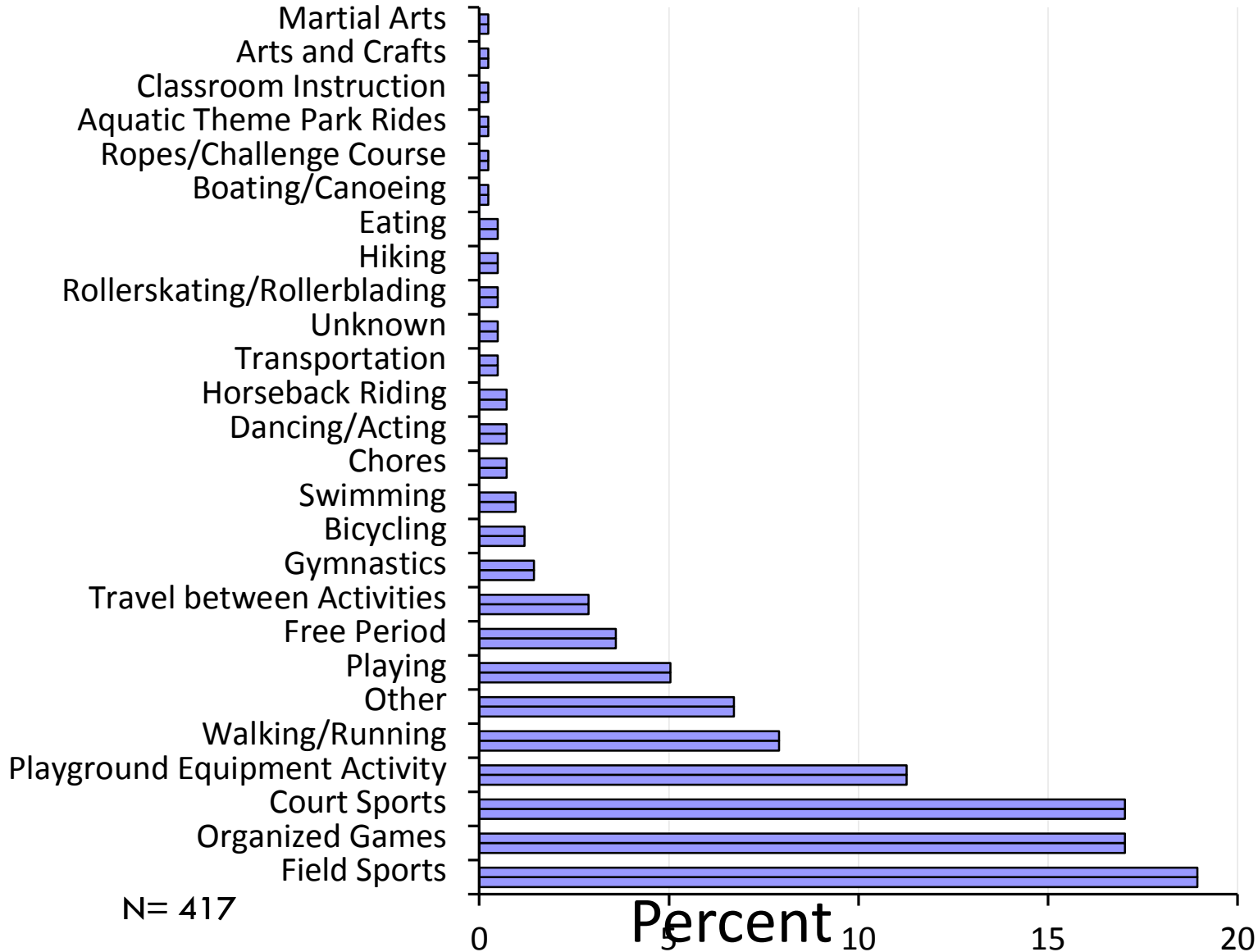
# Concussion Injuries by Sport and Game Activity - 2012



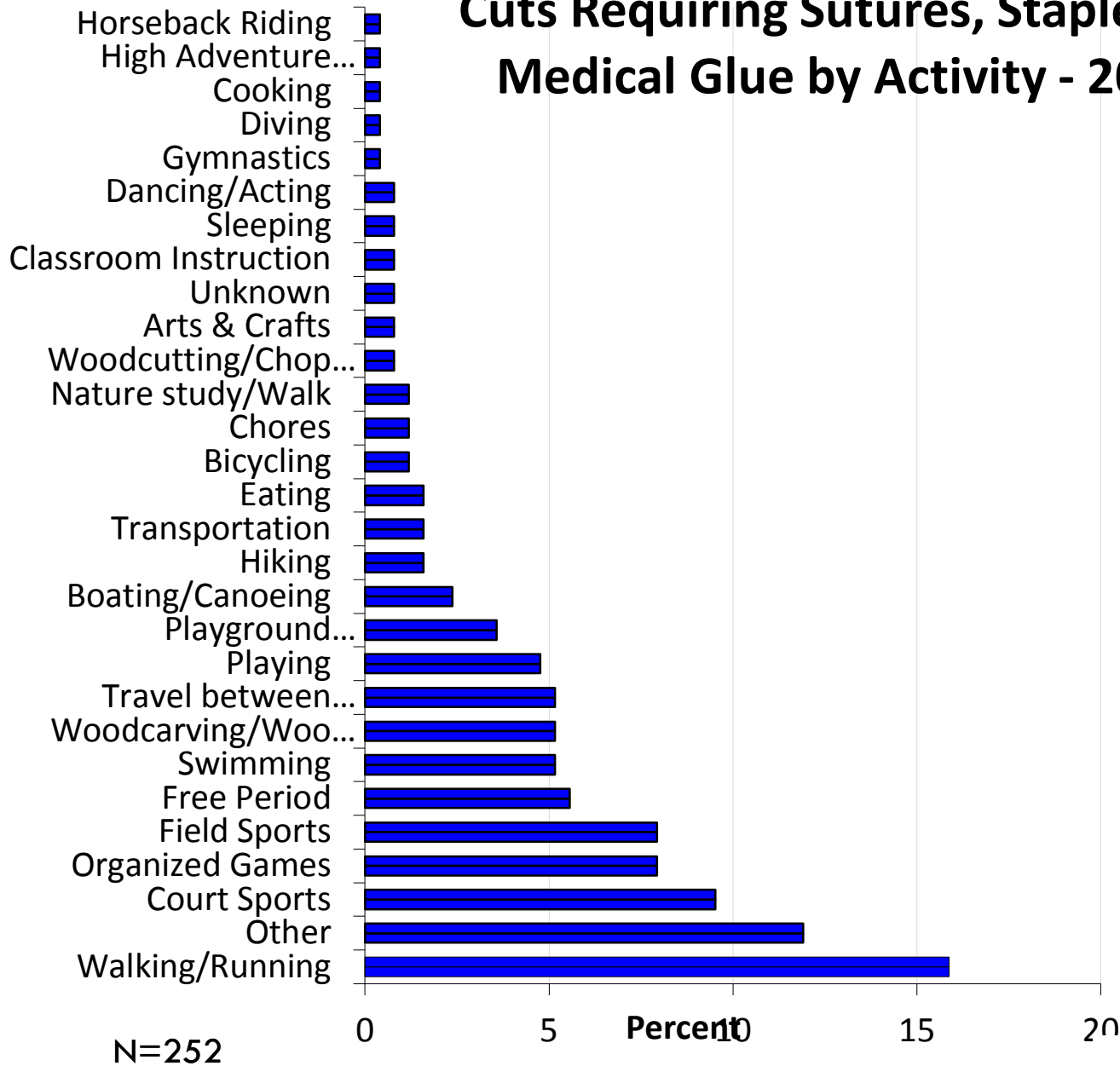
# Concussions by Year



# Fractures by Activity - 2012

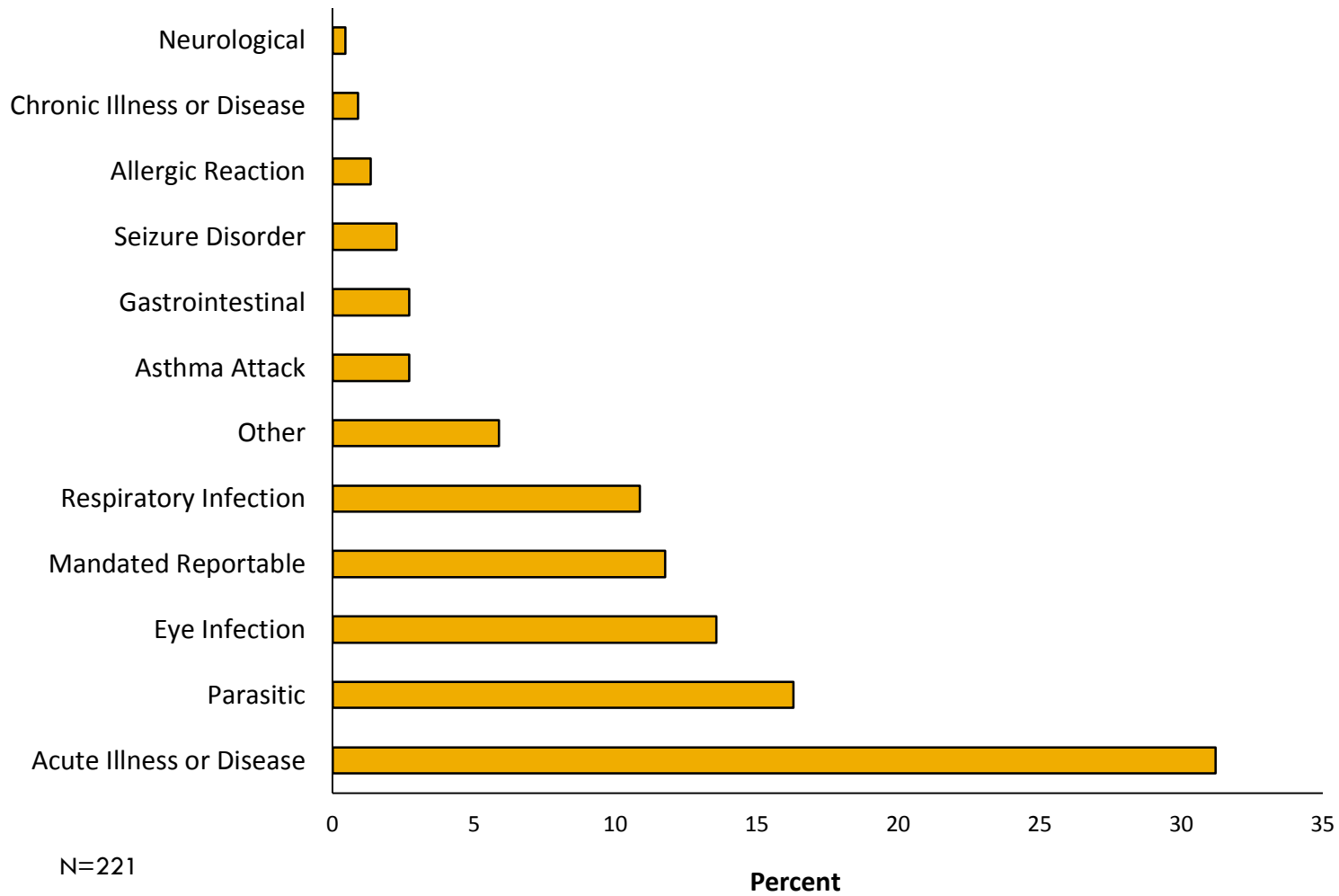


# Cuts Requiring Sutures, Staples, or Medical Glue by Activity - 2012

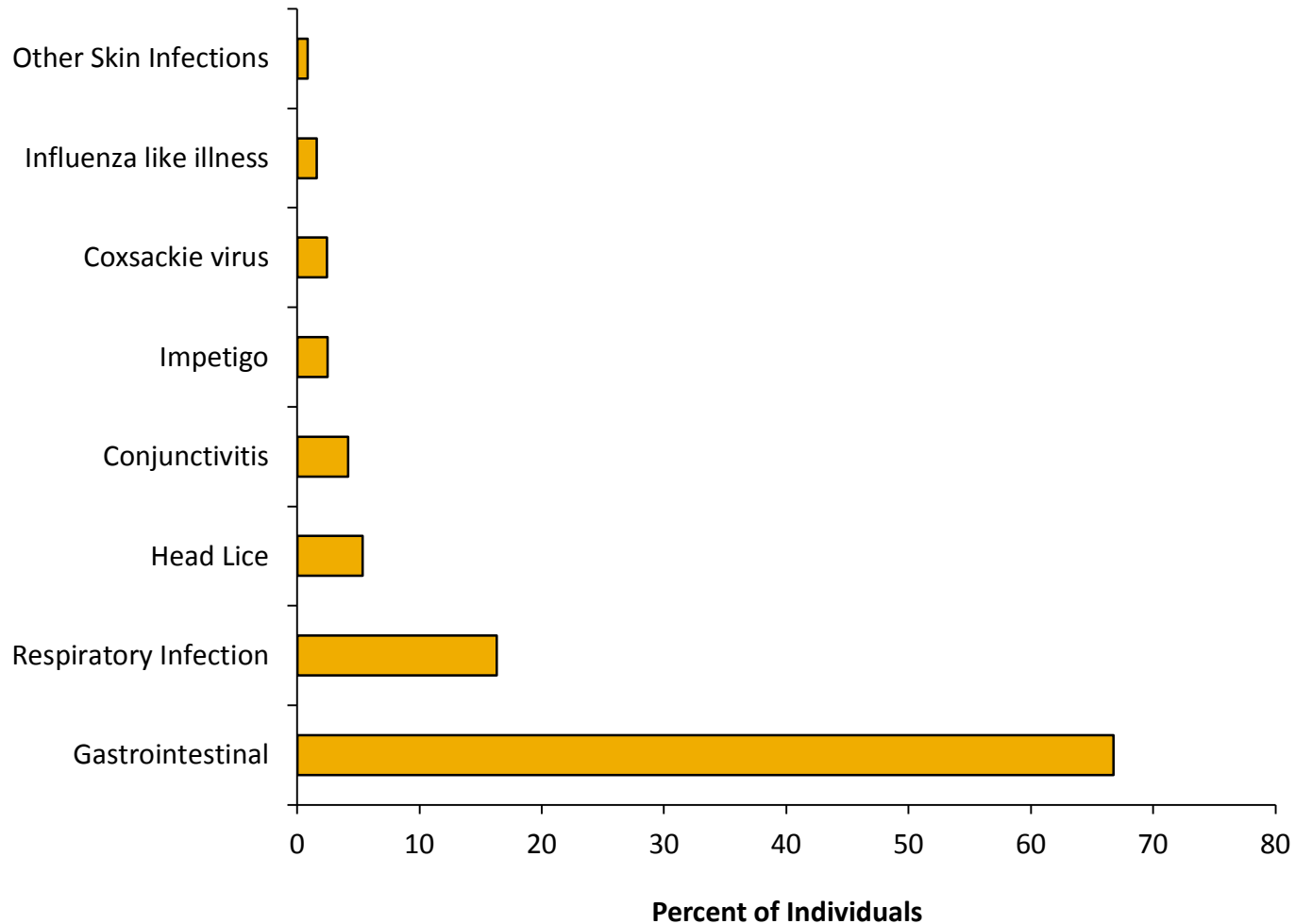




# Individual Illnesses - 2012



# Outbreak Illnesses - 2012



N=1365 Individuals, 49 Incidents

# Communicable Diseases

## WCDH Website - Camp Operator Page

- Preventing outbreaks of communicable disease protects the health of campers and staff and prevents disruption of camp operations
- Increase in vaccine preventable diseases/outbreaks associated with children's summer camps in past several years.
- Norovirus, Tick Borne Diseases, Rabies

# Vaccine Preventable Diseases

## 2015 NYSDOH Children's Camp Operator Letter WCDH website

**Vaccinations are recommended for all staff and attendees**

NYSDOH and WCDH strongly recommend all staff and attendees be vaccinated as per age appropriate ACIP Guidelines which are available for your reference at [www.westchestergov.com/health](http://www.westchestergov.com/health).

NYS Children's Camp code does not include vaccine requirements for staff or attendees.

# Vaccine Recommendations

Campers  
(Age Appropriate)

- Diphtheria/tetanus/pertussis
- Measles/mumps/rubella
- Varicella (Chickenpox)
- Hepatitis A & B
- Haemophilus influenza, type b
- Pneumococcal
- Polio
- Meningococcal\*

# Vaccine Recommendations

Staff  
(Age Appropriate)

**Note:**

Staff hired from abroad may not have as complete immunizations as those from the U.S.

- Tetanus/diphtheria (Td) or tetanus/diphtheria/pertussis (Tdap)
- Measles/mumps/rubella
- Varicella\*\*\* vaccine if no evidence of immunity
- Meningococcal\*
- Hepatitis B (lifeguards, healthcare workers)

# Communicable Disease-Reporting

## 2015 NYSDOH Children's Camp Operator Letter WCDH website

- **Immediate reporting** of suspected vaccine preventable (and other reportable) diseases to WCDH can prevent outbreaks
- Reporting required under NYS Public Health Law
- Reporting required within 24 hours to local health department under subpart 7-2 NYSSC
- WCDH will work with camps to quickly establish diagnosis and prevent further spread
- Staff training – include symptoms of vaccine preventable diseases and immediate notification of the camp director

# Vector Borne Diseases

- Ticks transmit diseases such as Lyme, Anaplasmosis, Ehrlichiosis and Babesiosis- all of which are present in Westchester County
- Prevention of tick bites includes daily tick checks, wearing long sleeves/long pants
- Mosquitoes transmit infections such as West Nile disease
- Prevent mosquito breeding by emptying any containers that collect standing water



# Zika Virus Epidemiology

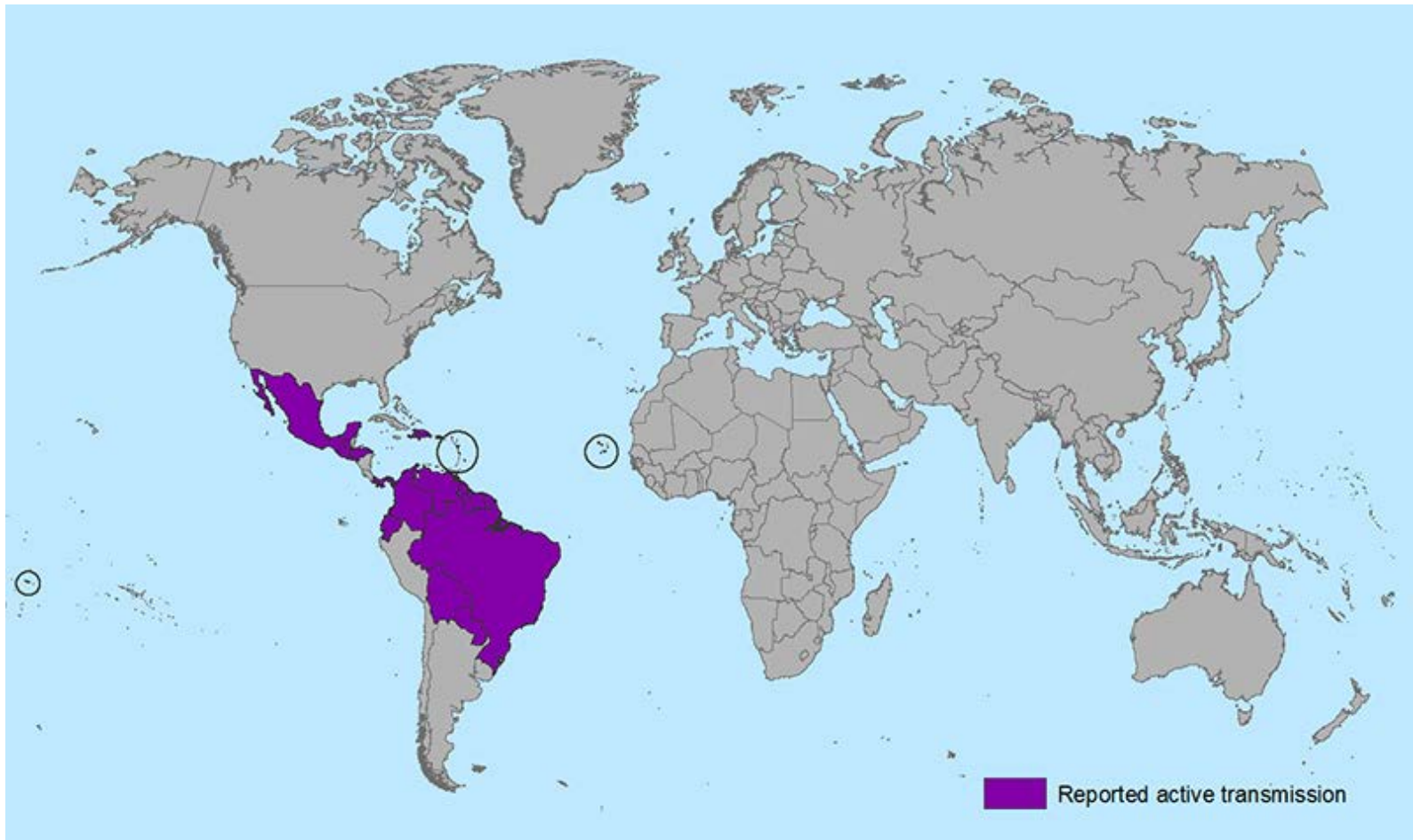
- **Virus closely related to dengue, yellow fever, Japanese encephalitis and West Nile viruses**
- **Transmitted to humans primarily by *Aedes* species mosquitoes**
- **First isolated from a monkey in Uganda in 1947**
- **Prior to 2007, only sporadic human disease cases reported from African and southeast Asia**
- **In 2007, first outbreak reported on Yap Island, Federated States of Micronesia**
- **In 2013-2014, >28,000 suspected cases reported from French Polynesia\***

\*<http://ecdc.europa.eu/en/publications/Publications/Zika-virus-French-Polynesia-rapid-risk-assessment.pdf>

# Zika Virus and Microcephaly

- **Thousands of babies born with a birth defect (microcephaly) since Zika virus first identified in Brazil in May 2015**
- **Microcephaly can have many causes, not just Zika virus**
- **Zika virus recently determined to cause microcephaly**
- **Possible association with neurologic complications such as Guillain-Barré syndrome**

# Zika Virus: Countries and Territories with Active Zika Virus Transmission



# Zika Virus Vectors

Mosquitoes carrying Zika not found in  
NYS/WC at this time

## Aedes Mosquitoes

- **Aedes species mosquitoes**
  - ***Aedes aegypti***: more efficient vectors for humans
  - ***Aedes albopictus***: found in some parts of NYS
- Also transmit dengue and Chikungunya viruses
- Lay eggs in domestic water-holding containers
- Live in and around households
- Aggressive daytime biters
- No mosquito transmission identified in the 50 U.S. states



*Aedes aegypti*



*Aedes albopictus*

# Zika Virus Clinical Disease Course and Outcomes

- **Clinical illness usually mild**
- **Most common symptoms are rash, fever, arthralgia, conjunctivitis (pink eye), myalgia, and headache**
- **Symptoms last several days to a week.**
- **Severe disease requiring hospitalization and fatalities rare**
- **Major complications are to unborn children/severe birth defects**
- **Guillain-Barré syndrome reported in patients following suspected Zika virus infection**

# Zika Treatment and Prevention

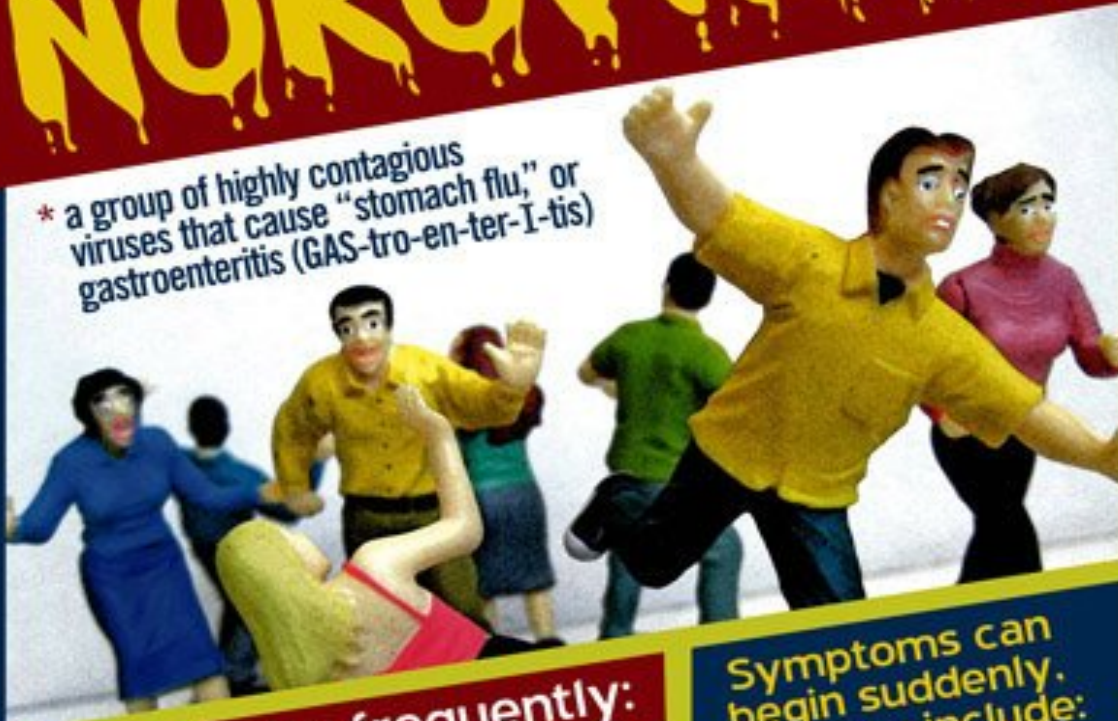
- **No specific antiviral therapy**
- **Treatment is supportive (i.e., rest, fluids, analgesics, antipyretics)**
- **No vaccine or medication to prevent infection or disease**
- **Pregnant women should consider postponing travel to areas with ongoing Zika virus outbreaks**
- **Primary prevention measure is to reduce mosquito exposure**

# Zoonotic Diseases/Rabies

- Diseases can be transmitted to humans by animals
- Rabies – WCDH Camp Operators website
  - Inspections/Bat proofing
  - Avoid exposures
  - Capture the bat!
  - Notify WCDH!
- Proper hand washing before eating, after using bathroom facilities and after handling animals is an important safeguard
- Proper hand washing facilities must be readily accessible to area where animal contact occurs to ensure effectiveness

# ATTACK OF THE NOROVIRUS\*

\* a group of highly contagious viruses that cause "stomach flu," or gastroenteritis (GAS-tro-en-ter-I-tis)



Repel it by frequently:  
with soap + water

Symptoms can begin suddenly, and may include:  
Nausea



# What is Norovirus?

- The stomach bug! A group of highly contagious viruses that cause severe stomach upset, vomiting and diarrhea
- Can lead to severe dehydration, especially among seniors, people with other illnesses and young children



# Quick Facts

## The **NOROVIRUS**

### Each Year in the U.S.

**1/15** Americans contract the Norovirus

**70,000+** Americans are hospitalized

**800** Americans die

# How Does Norovirus Spread?

- An infected person who doesn't wash hands properly after vomiting or using the toilet comes in contact with others
- Norovirus can live on objects and surfaces for days or weeks waiting to strike
- There's no vaccine or treatment, so prevention is paramount



# Prevention

#1 - Washing hands correctly is the best way to prevent the spread of disease

#2 - Staying home when you're sick prevent the spread of disease

# Skin Infections

**MRSA** is a skin infection caused by a common skin bacteria called “staph.” Some staph infections have become resistant to some antibiotics.

Skin infections can be prevented by:

- Regular hand washing
- Covering minor scrapes and cuts with a clean bandage
- Avoiding the sharing of personal items - towels, washcloths
- Having anyone with a skin infection evaluated by medical staff
- Proper use of gloves and bandage disposal by those caring for a skin infection

• **There is no need to exclude anyone with a minor skin infection from general activity.**

# Current Trends in Concussion: From Baseline to Post Injury Management

Mark Herceg, PhD

Commissioner, Westchester County Department of Mental Health

Chair, Westchester County Concussion Task Force

Lecturer, Dept of Epidemiology & Community Health, New York Medical College

Asst. Prof of Psychology in Clinical Neurology, Weill-Cornell Medical College

# Epidemiology

- Centers for Disease Control and Prevention (CDC) estimates 300,000 sports-related concussions occur per year
  - 100,000 in football alone
- An estimated 1.6-3.8 million sports related brain injuries in 2006
- **8 HS football deaths 2013 due to TBI**
- An estimated 45 million children & adolescents participate in organized & recreational sports
- Sports provide positive physical, intellectual & social development, but unfortunate risks, including TBI or SCI



# Epidemiology

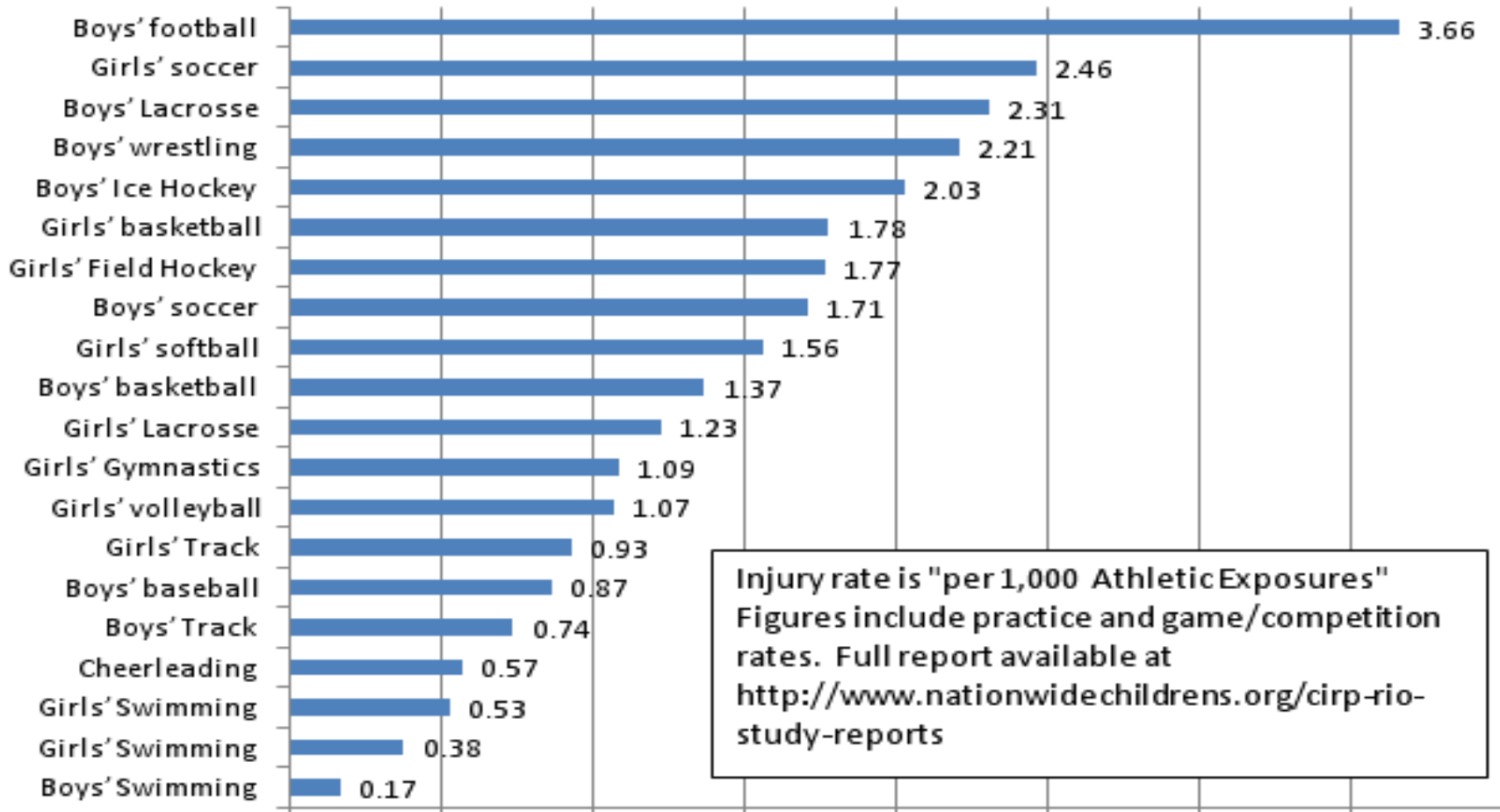
- Risk of concussion in football is 4-6 times higher in players with a previous concussion
- Girls more susceptible (neck?)
  - Soccer
  - Basketball
- A concussed athlete 3X more likely to get another
- Genetic predisposition - APOE promoter gene





## High School Sports Injury Rates by Sport, 2011-12

### NATIONAL HIGH SCHOOL SPORTS-RELATED INJURY SURVEILLANCE STUDY



# Epidemiology

## *Factors associated with recovery:*

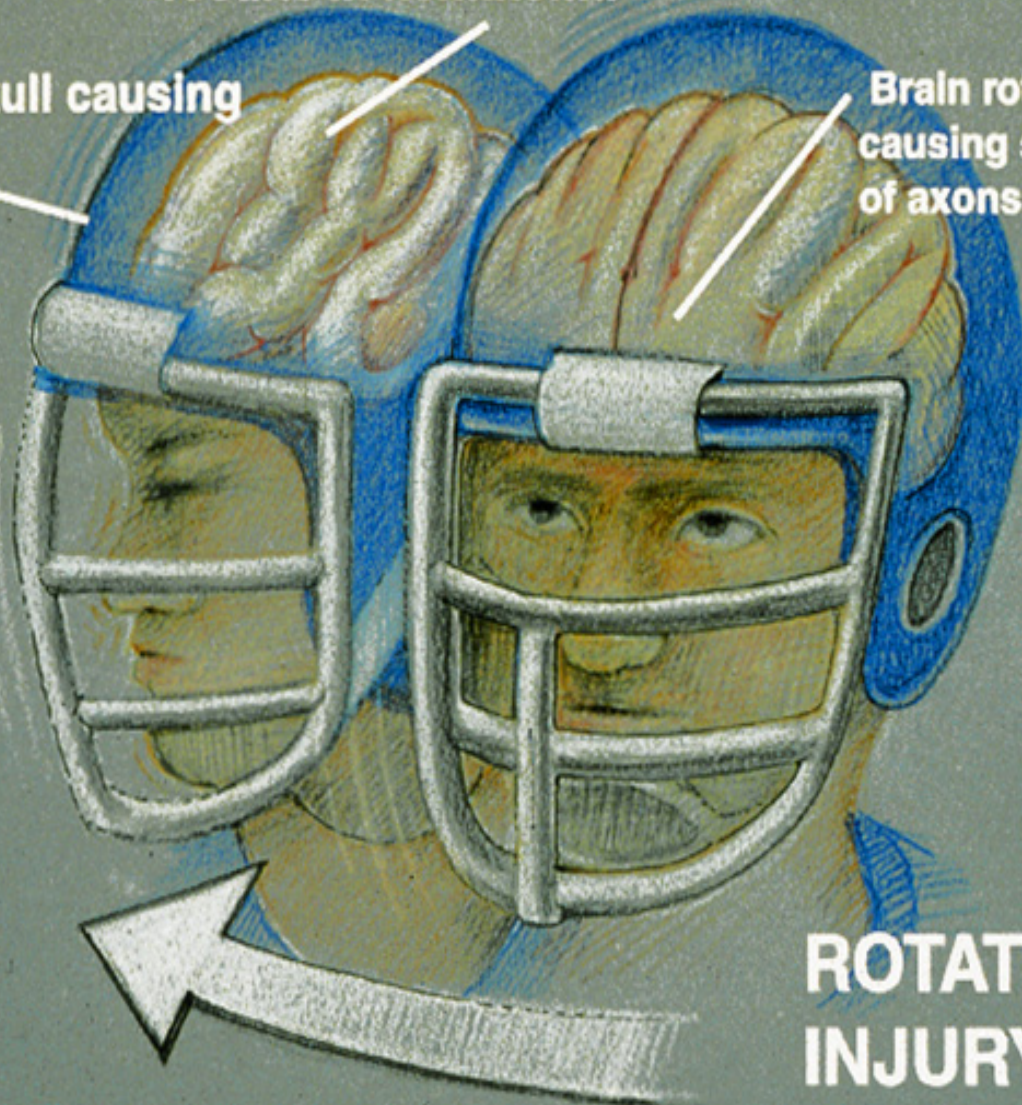
- Previous history of concussion
- Early posttraumatic headache
- Fatigue/fogginess
- Early amnesia, alteration in mental status or disorientation
- Age
- Prior history headache
- Dizziness



**2 Stretching / tearing of blood vessels  
results in hematoma**

**3  
Brain strikes skull causing  
contusion**

**1  
Brain rotates on axis  
causing stretching/tearing  
of axons**

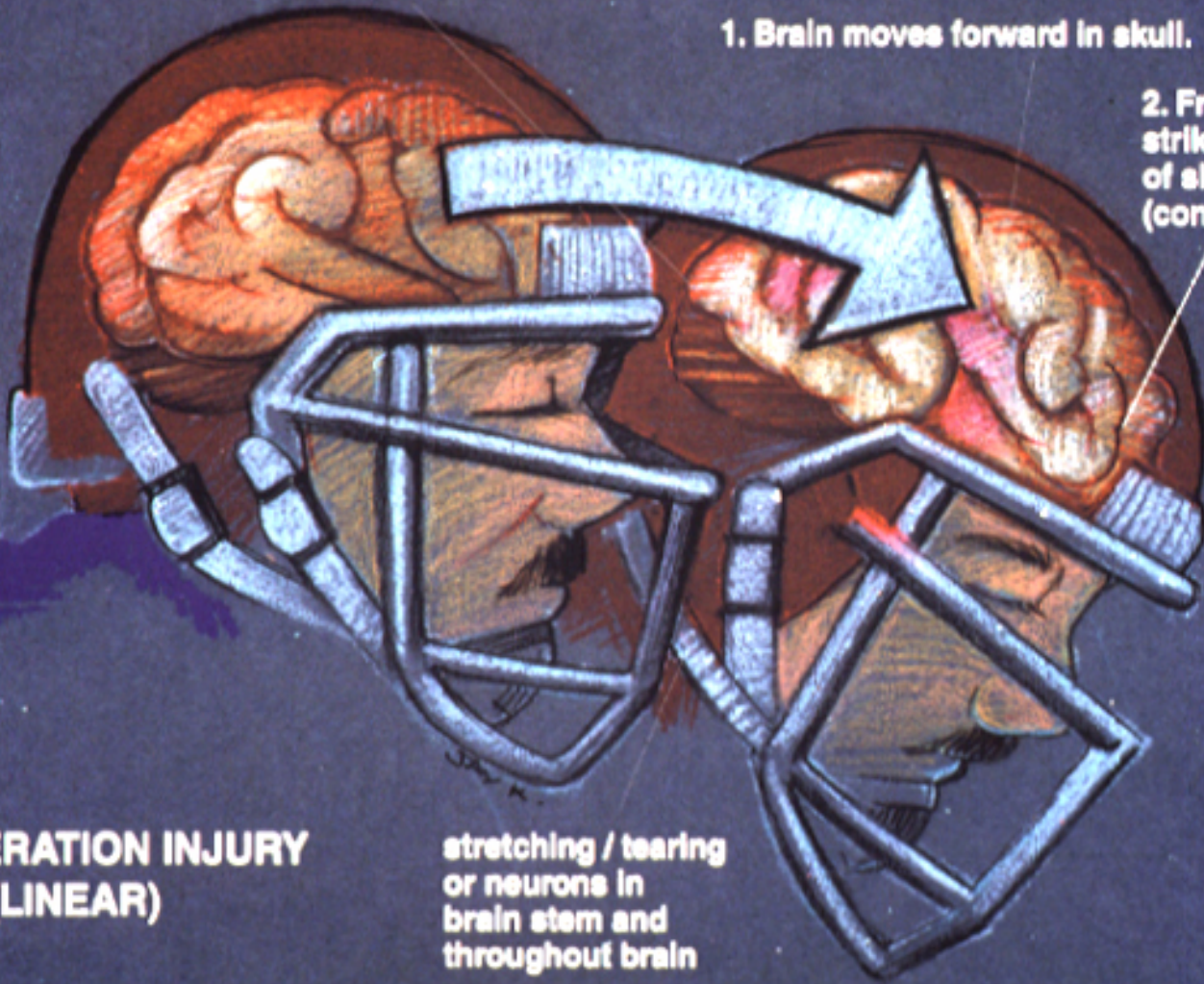


**ROTATIONAL  
INJURY**

3. Rebound (contre-coup) injury to occipital lobe.

1. Brain moves forward in skull.

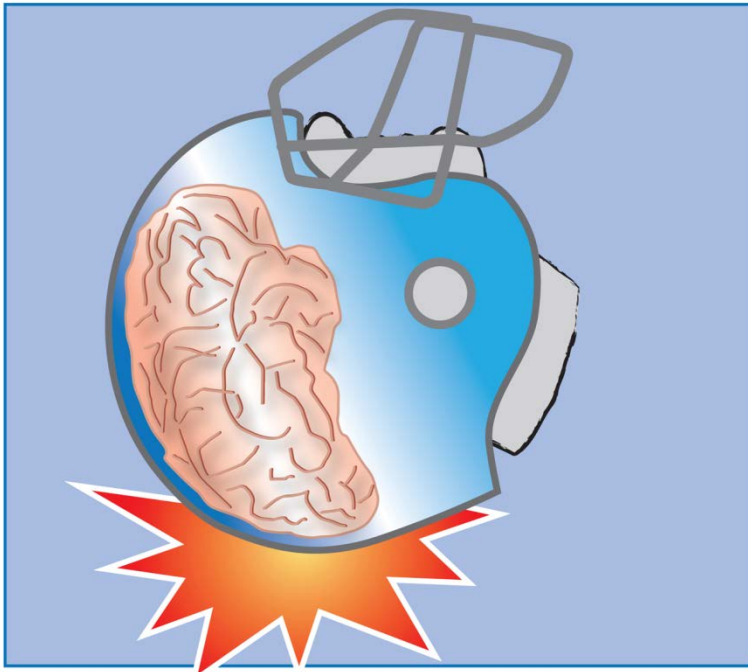
2. Frontal lobes strike inside of skull (contusion)



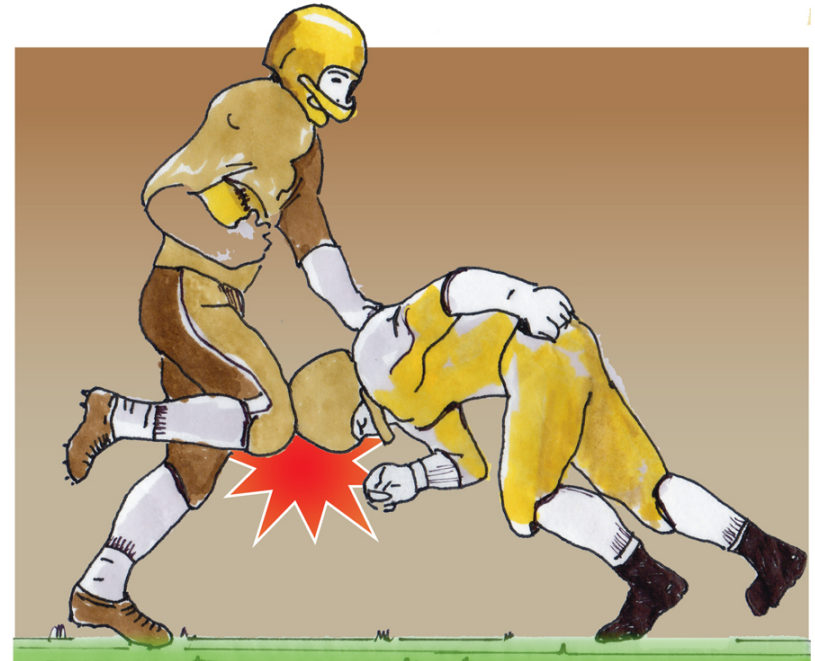
**DECELERATION INJURY  
(LINEAR)**

stretching / tearing  
of neurons in  
brain stem and  
throughout brain

# Impact Deceleration



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© 2012-Innovative CEUs,LLC

# Clinical Symptoms/Presentation

## COGNITIVE

Feeling Mentally Foggy  
Difficulty Concentrating  
Difficulty Remembering  
Repeats Questions

Feeling Mentally Slowed Down  
Forgetful of Recent Information  
Confused About Recent Events  
Answers Questions Slowly

## PHYSICAL

Headache  
Nausea/Vomiting  
Balance Problems  
Numbness/Tingling

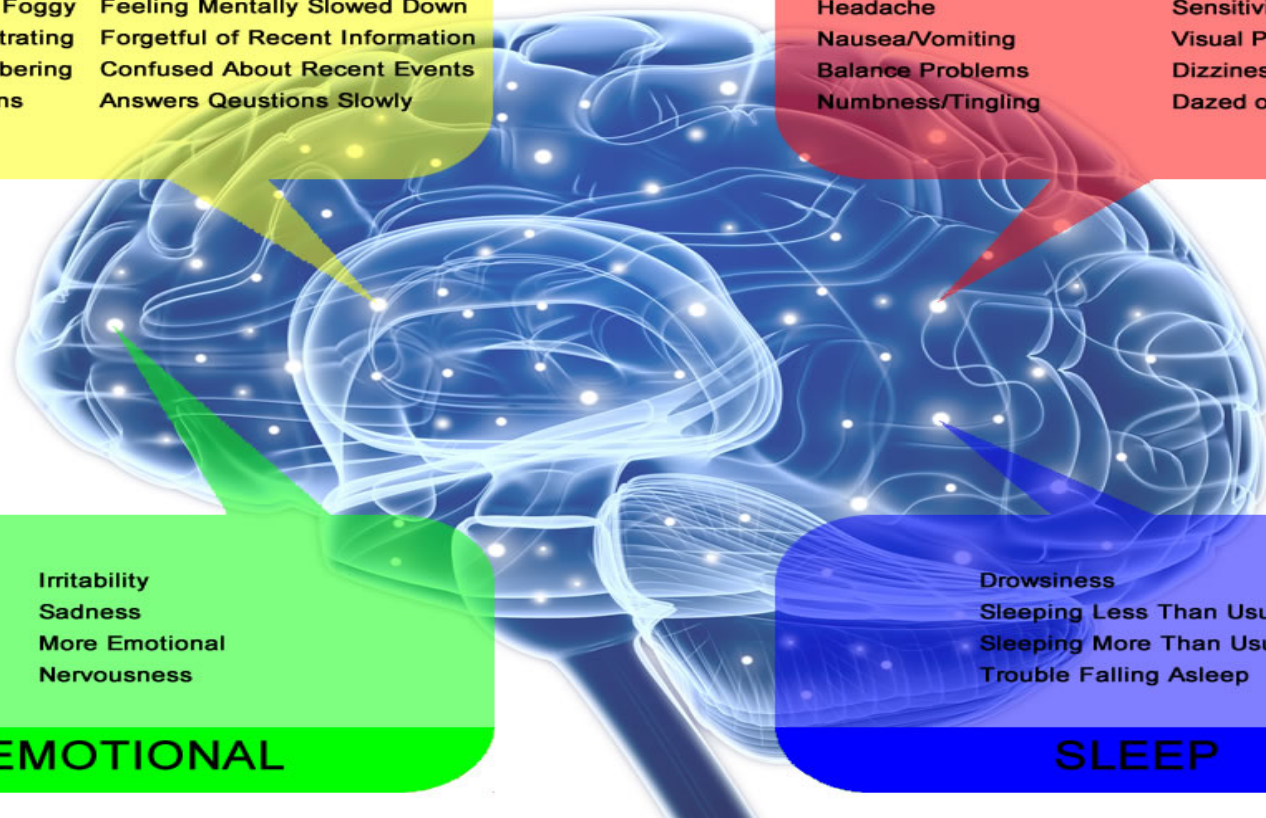
Sensitivity to Light/Noise  
Visual Problems  
Dizziness  
Dazed or Stunned

Irritability  
Sadness  
More Emotional  
Nervousness

## EMOTIONAL

Drowsiness  
Sleeping Less Than Usual  
Sleeping More Than Usual  
Trouble Falling Asleep

## SLEEP



# Signs/Symptoms

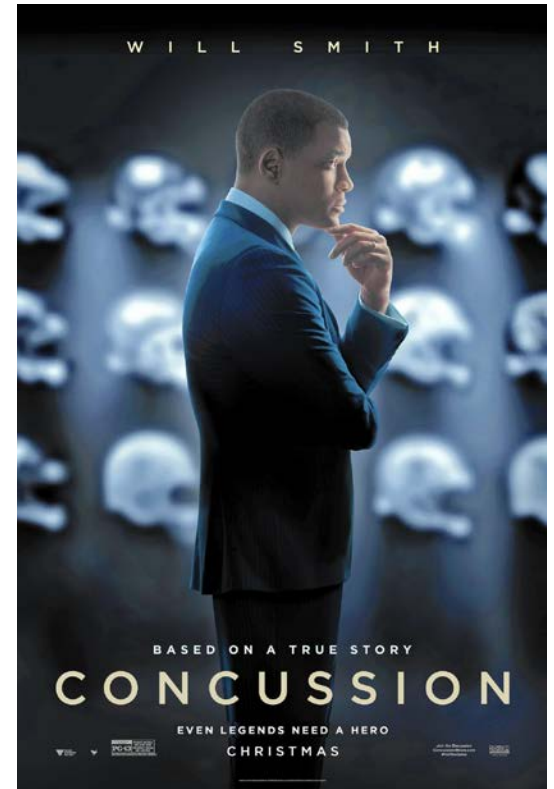
## *Initially:*

- Dazed/confused/stunned
- Answers questions slowly
- Can't state where they are or most recent event
- LOC
- Moves clumsily/unsteadily/wobbly
- Head "hurts"
- Rolling eyes, unfocused

# What to Do If A Concussion Occurs

1. Remove the athlete from play immediately.
2. Ensure that the athlete is evaluated by a health care professional **experienced** in evaluating for concussion.
3. Inform the athlete's parents or guardians about the possible concussion. Provide fact sheet.
4. Keep the athlete out of play the day of the injury and until a health care professional, experienced in evaluating for concussion, says they are symptom-free and it's OK to return to play.





# UVA Mild Head Injury in Football (Barth, et al., 1989)

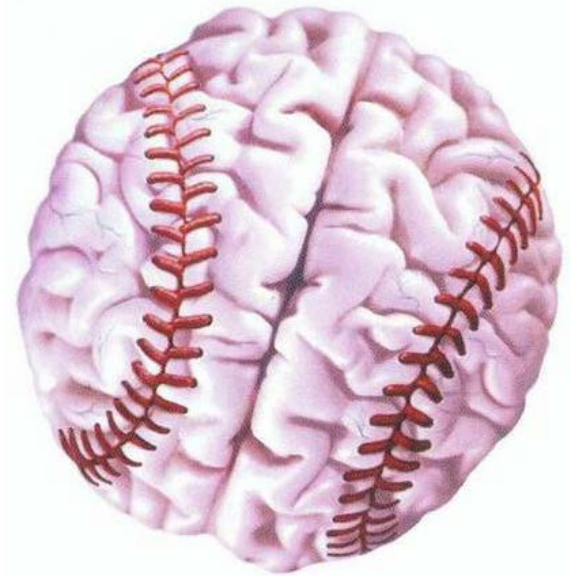
- 10 University Prospective Study (n=2350)
- 195 Concussions
- 107 Student/Red Shirt Athlete Controls
- Single Concussion:
  - Attention and Complex Problem Solving Deficits
  - Inability to Take Advantage of Practice Effect
  - 5 to 10 Day Recovery Curve
- **Virtually every college, high school, and professional study since the UVA study has found similar recovery curves following mild concussion (3 to 10 day recovery times)**

# Recovery and Gender

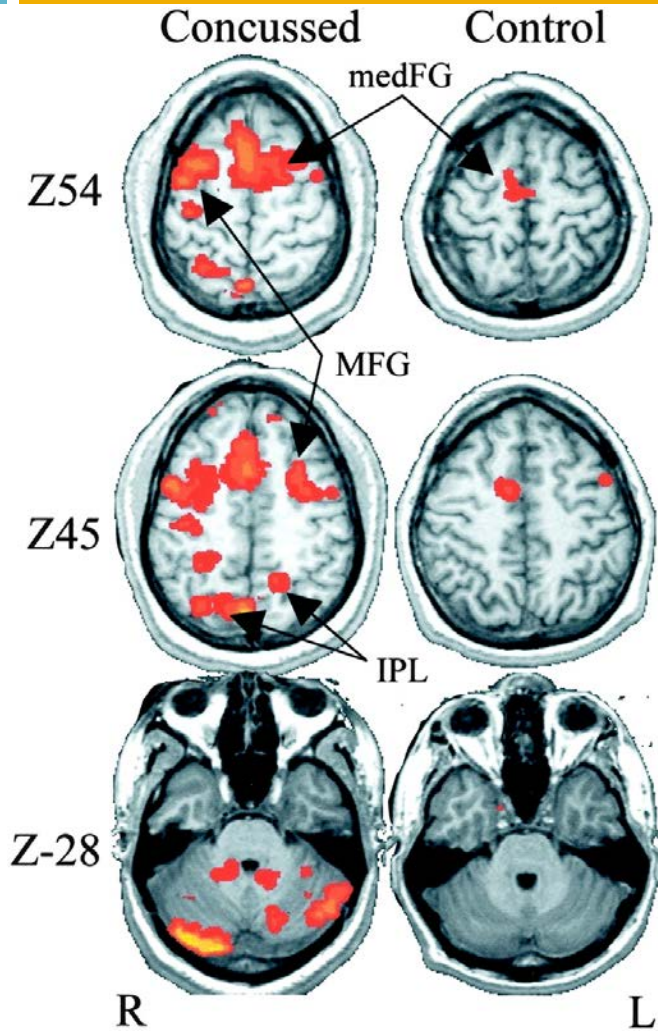
- High school and college female athletes report:
  - more post-injury symptoms after concussion
  - perform worse than male athletes on post-concussion tests of visual memory
- A 2007 study found longer recovery times for HS girls than boys
- A 2009 study found that girls with a previous history of concussions reported more and different concussion symptoms (particularly headache)
- Concussions aren't just a concern for high school football players; they can happen to athletes playing all types of sports

# Neuroimaging

- Traditional structural neuroimaging
  - CT
  - MRI
- Newer structural neuroimaging
  - DTI
- Functional and metabolic scanning
  - PET
  - SPECT
  - fMRI
  - MRS

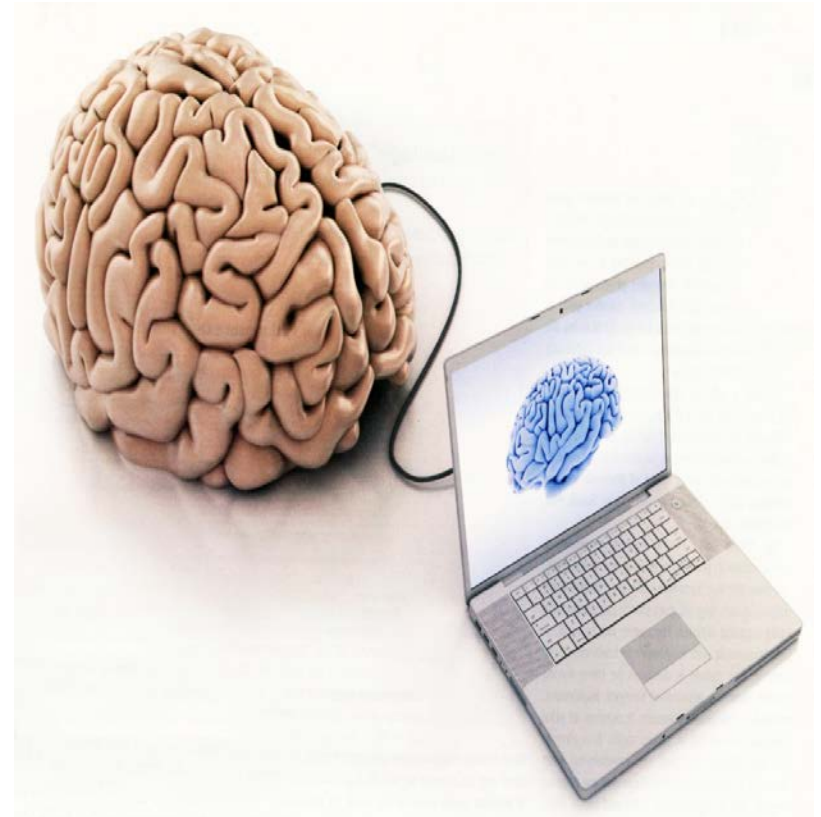


# fMRI and TBI



# Computerized Assessments

- Neurocognitive concussion management starts with a proper and valid baseline.
- Brief computerized neurocognitive screen has become norm and quite an industry.



# Computerized Assessments



# IMPACT

- Measures athletes symptoms (mood, sleep, dizziness, HA)
- Verbal/Visual memory, PS and RT
- Assists clinicians and athletic trainers in making RTP decisions- NOT for RTL
- Produces a summary report of test results
- Automatically stores data from repeat testing
- Can be administered online for individuals or groups
- Approximately 20 minutes



# Issues with Computerized Assessment

- Many tests now available on-line at home.
- Students misunderstand questions without guidance.
- Assessments do not take into account potential emotional, personality or learning issues.
- Computerized testing  $\neq$  thoroughness yet used for 504/IEP.
- Rarely do schools/programs/clinics consult with NP for baseline or post injury interpretation.
- Test setting/supervision.

# The Relation Between Testing Environment and Baseline Performance in Child and Adolescent Concussion Assessment

Christopher G. Vaughan,<sup>\*†</sup> PsyD, Elyssa H. Gerst,<sup>‡</sup> BS, Maegan D. Sady,<sup>†</sup> PhD,  
Julie B. Newman,<sup>†</sup> PhD, and Gerard A. Gioia,<sup>†</sup> PhD

*Investigation performed at Children's National Health System, Rockville, Maryland, USA*

**Study Design:** Cohort study; Level of evidence, 3.

**Methods:** A total of 939 participants (aged 5-18 years), including 313 tested individually and 626 tested in a group setting, matched on age, sex, and attention-deficit/hyperactivity disorder status, were administered concussion baseline assessment using the desktop version of the Immediate Post-Concussion Assessment and Cognitive Testing and a new pediatric measure, the Multimodal Assessment of Cognition & Symptoms for Children. Cognitive performance, symptom reports, and rates of invalid performance were compared between settings.

**Children given a baseline assessment in a group setting performed no differently than children tested individually when standardized administration procedures were used by trained test administrators**

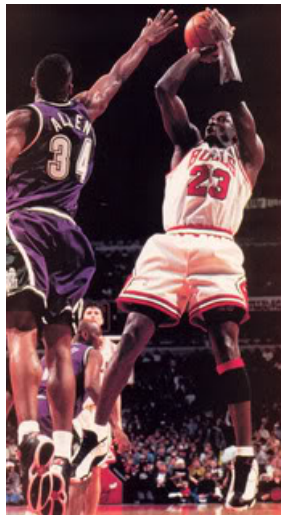
# Recommended Test Conditions

- Make every effort to minimize distractions.
- The use of cardboard privacy carrels (3-sided, 17 inches high) placed around each computer is recommended in order to create a more private, distraction-free environment.
- Staff must be trained in standardized test administration.
- The examiners must be present throughout the entirety of the test sessions.

# Recommended Testing Conditions

- Instructions should be scripted and consistent
- **Group size:** No greater than **15** individuals, with smaller group sizes depending on age.
- The child-to-examiner ratio in group testing environments should be capped at 6-to-1, often with 2 or more proctors for 8 to 12 kids.
- Younger children ages 5 or 6 should receive 1-to-1 or 2-to-1 instruction.
- Instructions should be quietly read to younger children, or those who exhibit any difficulty understanding task instructions.

# Pre-Existing Personality & Emotional Factors



# Effect of LD & ADHD on Baseline Testing

Herceg, Wojtowicz, Iverson, (2015) submitted manuscript  
International Neuropsychology Society, Annual Meeting Boston 2016

- LD and ADHD are considered to be important risk factors or modifiers for concussion assessment and management.
- These days, many involved in concussion management are not aware of the implications these risk factors have on assessment results.

# Post Concussion Syndrome: What is This?

## ICD-10 Criteria for Postconcussional Syndrome:

- Must endorse symptoms in at least 3 domains
  - Physical
  - Emotional
  - Cognitive
  - Insomnia
- Other domains not considered: Excessive worry over symptoms and intolerance for alcohol.

# Post-Concussion Syndrome

- More common in females than males.
- Pre-injury mental health problems are a major risk factor.
- It is associated with or influenced by traumatic stress.
- Persistent symptoms at 1 or 3 months are a risk factor for persistent symptoms at 1 year.
- Easy to misdiagnose in people with depression, anxiety, PTSD, and chronic pain.



# Who has Post Concussion Symptoms: Iverson, et al (2015)

## The Database:

- 32,855 student athletes from the state of Maine
- Age range: 13-18
- No athlete reported sustaining a concussion in the past 6 months.
- What percentage of boys and girls meet ICD-10 Criteria for a Post-Concussion Syndrome During Baseline Preseason Testing?

**Boys = 19.7%    Girls = 28.2%**

## ***Graded Return to Play Protocol – Zurich 2012***

<b>Rehabilitation stage</b>	<b>Functional exercise at each stage of rehabilitation</b>	<b>Objective of each stage</b>
1. No Activity	Complete physical and Cognitive Rest.	Recovery
2. Light aerobic exercise	Walking, Swimming, Stationary Bike, HR<70% Maximum	Increased heart rate
3. Sport Specific Exercise	Skating or Running Drills without contact.	Add Movement
4. Non Contact training	More complex Drills without contact.	Exercise, coordination and cognitive load.
5. Full Contact	Normal Training	Restore confidence
6. Return to Play	Game Play	

# Rest Following Injury - How Much and for How Long?

## Critical Questions

- How do we define “rest”?
- How long should an athlete rest?
- How do we define gradual resumption of activities?
- How much rest is too much rest?
- When should we begin active rehabilitation?



# What Is The Rationale For Rest?

- The injured brain might be in a state of neurometabolic crisis.
- Assuming that neurometabolic crisis involves an “energy crisis,” then vigorous activity might compound or magnify the energy crisis.
- Passing another mechanical force through the injured brain, while it is in a state of neurometabolic crisis, might result in magnified pathophysiology.

# Is Rest after Concussion the “Best Medicine?”

Silverberg and Iverson concluded that bed rest exceeding **three days** is not recommended and gradual resumption of pre-injury activities should begin as soon as tolerated.

Journal of Head Trauma Rehabilitation 2012

# Possible Harm of Prolonged Rest

- Falling behind in school with increased associated stress
- Physical de-conditioning and evolving exercise intolerance
- Nocebo effects (expectation of sickness as a cause of sickness)
- Somatic preoccupation and Cognitive Hypochondriasis
- Depression

# Basic Principles

## Initial Weeks Following Injury (and sometimes months following injury)

Focused, Evidence-Based Treatment for  
Specific Symptoms and Problems

- Medications
- Neuro-ophthalmologic evaluation/treatment
- Physical Therapy
- Vestibular Rehabilitation
- Exercise
- Psychological Treatment

# CTE

- Today, the neuropathology of CTE is more well described
- Postmortem description of CTE has had great impact on public policy and awareness
- Misinformation and mis-reporting by media continues to fuel fear.
- *Talking with parents of high school football players about chronic traumatic encephalopathy: a concise summary.* Love & Solomon. American Journal of Sports Medicine 2015 May; 43(5): 1260-4
- **The public thinks that the science of CTE is far more advanced than it really is.**



# CTE: What We Do Know

- NOT prolonged-post concussion exposure
- NOT the cumulative effect of concussions
- NOT a brain injury “per se”... it is a ***neurodegenerative disease***- *Dr. Stern, BU Brain Bank*

# CTE: What We Need To Know

- **Is it common?** We just don't know yet.
- 90 of 94 FB players in BU-VA-CLF brain bank had CTE.
- Biased?
- Mayo (2015) less biased but.....
- Why do some get it and others not?
- Not everyone who hits their head will get it.

# Westchester County Concussion Task Force



# Why Safer Sports and Task Force

- Evaluate how districts and youth programs manage/address concussions.
- **NOT** about singling out districts/programs/clinics that do this poorly, but also identifying ones that do it well.
- Despite every state having a concussion law, loop holes remain.

CIC?

CBIS?

CPR?

# Task Force Members

- Pediatricians
- Pediatric Neurologist
- Pediatric Neurosurgeon
- Psychologists
- Athletic Trainers
- Athletic Directors
- Parks & Recreation
- Orthopedic Surgeon
- Physical Therapists
- Vestibular Therapists
- School Nurse
- Section 1 Safety
- BOCES staff
- Superintendents
- County Departments

# Questions



# Steve Schainman – THANK YOU!





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**Robert P. Astorino**  
Westchester County Executive  
Sherlita Amler, MD, Commissioner  
Department of Health

# For More Information



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