

# **Unique Perspective for Women with Traumatic Brain Injury: Gender Differences and Coping Strategies**

October 13, 2016

1-2:30 p.m. (ET)



# Presenters and Moderator



## **Odette A. Harris, M.D., MPH (presenter)**

Associate Chief of Staff, Rehabilitation (Traumatic Brain Injury/Polytrauma, Spinal Cord Injury, Blind Rehabilitation Services and Physical Medicine & Rehabilitation),  
Veterans Affairs Palo Alto Health Care System, Palo Alto, California

## **Katherine Price Snedaker, L.C.S.W. (presenter)**

Executive Director and Founder, Pink Concussions, Norwalk, Connecticut

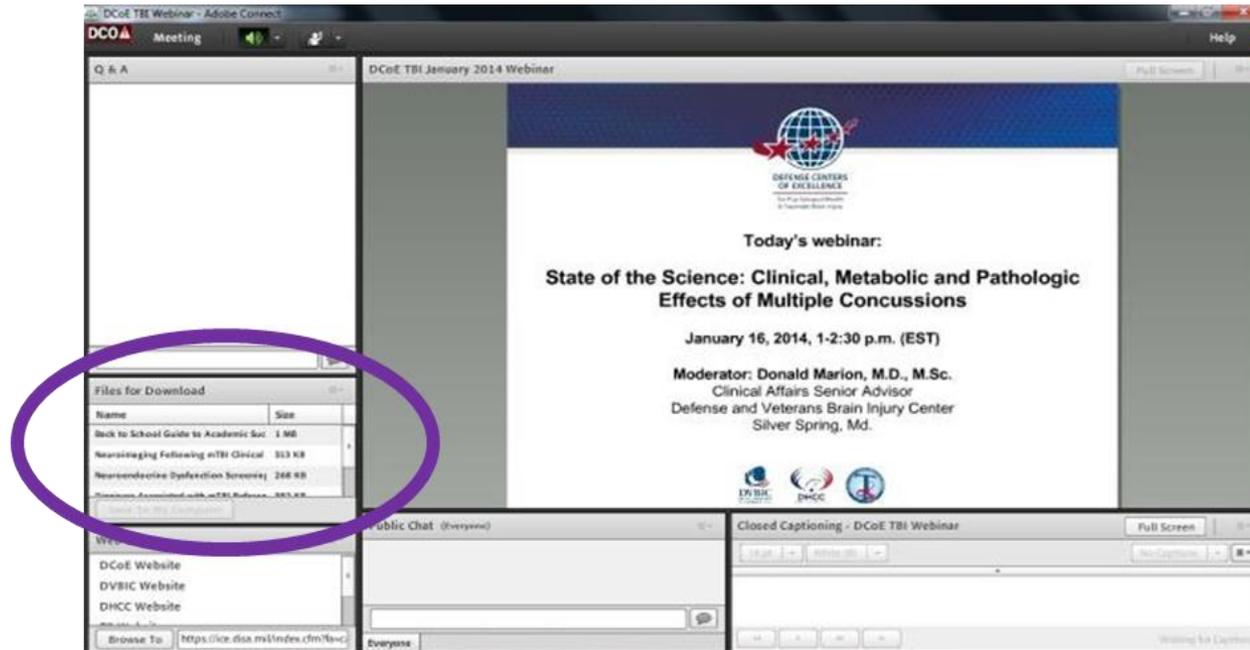
## **Felicia Johnson, PA-C (moderator)**

Neuroscience Clinician, Clinical Affairs Division, contract support to Defense and Veterans  
Brain Injury Center, Silver Spring, Maryland

# Resources Available for Download



Today's presentation and resources are available for download in the "Files" box on the screen, or visit [dcoe.mil/webinars](http://dcoe.mil/webinars)



*"Medically Ready Force...Ready Medical Force"*

# Webinar Details



- Live closed captioning is available through Federal Relay Conference Captioning (see the “Closed Captioning” box)
- Webinar audio is not provided through Adobe Connect
  - Dial: CONUS **888-455-0936**
  - International **773-799-3736**
  - Use participant pass code: **2431998**
- Question-and-answer (Q&A) session
- Submit questions via the Q&A box

# Continuing Education Details



- All who wish to obtain continuing education (CE) credit or certificate of attendance, and who meet eligibility requirements, must register by **3 p.m. (ET) October 13, 2016** to qualify for the receipt of credit.
- DCoE's awarding of CE credit is limited in scope to health care providers who actively provide psychological health and traumatic brain injury care to active-duty U.S. service members, reservists, National Guardsmen, military veterans and/or their families.
- The authority for training of contractors is at the discretion of the chief contracting official.
  - Currently, only those contractors with scope of work or with commensurate contract language are permitted in this training.

# Continuing Education Accreditation

(continued)



- This continuing education activity is provided through collaboration between DCoE and Professional Education Services Group (PESG).
- Credit Designations include:
  - 1.5 AMA PRA Category 1 credits
  - 1.5 ACCME Non Physician CME credits
  - 1.5 ANCC Nursing contact hours
  - 1.5 CRCC
  - 1.5 APA Division 22 contact hours
  - 0.15 ASHA Intermediate level, Professional area
  - 1.5 CCM hours
  - 1.5 AANP contact hours
  - 1.5 AAPA Category 1 CME credit

# Continuing Education Accreditation

## (continued)



### **Physicians**

This activity has been planned and implemented in accordance with the essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME). Professional Education Services Group is accredited by the ACCME as a provider of continuing medical education for physicians. This activity has been approved for a maximum of 1.5 hours of *AMA PRA Category 1 Credits*™. Physicians should only claim credit to the extent of their participation.

### **Nurses**

Nurse CE is provided for this program through collaboration between DCOE and Professional Education Services Group (PESG). Professional Education Services Group is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation. This activity has been approved for a maximum of 1.5 contact hours of nurse CE credit. Nurses should only claim credit to the extent of their participation.

### **Occupational Therapists**

(ACCME Non Physician CME Credit) For the purpose of recertification, The National Board for Certification in Occupational Therapy (NBCOT) accepts certificates of participation for educational activities certified for AMA PRA Category 1 Credit™ from organizations accredited by ACCME. Occupational Therapists may receive a maximum of 1.5 hours for completing this live program.

### **Physical Therapists**

Physical Therapists will be provided a certificate of participation for educational activities certified for AMA PRA Category 1 Credit™. Physical Therapists may receive a maximum of 1.5 hours for completing this live program.

# Continuing Education Accreditation (continued)



## **Psychologists**

This Conference is approved for up to 1.5 hours of continuing education. APA Division 22 (Rehabilitation Psychology) is approved by the American Psychological Association to sponsor continuing education for psychologists. APA Division 22 maintains responsibility for this program and its content.

## **Rehabilitation Counselors**

The Commission on Rehabilitation Counselor Certification (CRCC) has pre-approved this activity for 1.5 clock hours of continuing education credit.

## **Speech-Language Professionals**

This activity is approved for up to 0.15 ASHA CEUs (Intermediate level, Professional area).

# Continuing Education Accreditation (continued)



## **Case Managers**

This program has been pre-approved by The Commission for Case Manager Certification to provide continuing education credit to CCM® board certified case managers. The course is approved for up to 1.5 clock hours. PESG will also make available a General Participation Certificate to all other attendees completing the program evaluation.

## **Nurse Practitioners**

Professional Education Services Group is accredited by the American Academy of Nurse Practitioners as an approved provider of nurse practitioner continuing education. Provider number: 031105. This course is offered for 1.5 contact hours (which includes 0 hours of pharmacology).

## **Physician Assistants**

This Program has been reviewed and is approved for a maximum of 1.5 hours of AAPA Category 1 CME credit by the Physician Assistant Review Panel. Physician Assistants should claim only those hours actually spent participating in the CME activity. This Program has been planned in accordance with AAPA's CME Standards for Live Programs and for Commercial Support of Live Programs.

## **Other Professionals**

Other professionals participating in this activity may obtain a General Participation Certificate indicating participation and the number of hours of continuing education credit.

# Questions and Chat



- Throughout the webinar, you are welcome to submit technical or content-related questions via the Q&A pod located on the screen. **Please do not submit technical or content-related questions via the chat pod.**
- The Q&A pod is monitored during the webinar; questions will be forwarded to presenters for response during the Q&A session.
- Participants may chat with one another during the webinar using the chat pod.
- The chat function will remain open 10 minutes after the conclusion of the webinar.

# Webinar Overview



The data regarding active-duty service women who have sustained traumatic brain injury (TBI) suggest their experiences, aftereffects and outcomes differ from service men. This presentation will integrate current research and clinical expertise to advance health care provider awareness of TBI among women serving in the military. The speakers will present current evidence comparing female athletes and active-duty servicemembers with a TBI history as well as data about servicewomen with and without symptoms from co-occurring conditions such as posttraumatic stress disorder, anxiety and chronic pain. The presenters will also address the gaps in the present knowledge base concerning gender differences and TBI.

# Webinar Overview (continued)



At the conclusion of this webinar, participants will be able to:

- Describe three ways in which brain injuries in women (including concussion or mild TBI) are unique.
- Articulate factors that may account for gender differences in TBI incidence, severity and recovery.
- Apply best practices in the education of women who have sustained a TBI to facilitate recovery.

# Odette A. Harris, M.D., MPH



- Associate chief of staff, Rehabilitation (TBI/Polytrauma, Spinal Cord Injury, Blind Rehabilitation Services and Physical Medicine & Rehabilitation), Veterans Affairs Palo Alto Health Care System
- Associate professor, Neurosurgery, Stanford University
- Director, Brain Injury, Stanford University School of Medicine
- Director and principal investigator, Defense and Veterans Brain Injury Center, Veterans Affairs Palo Alto Health Care System (VAPAHCS)
- Education: M.D., Stanford University School of Medicine

# Katherine Price Snedaker, L.C.S.W.



- Executive director of PINK Concussions, a non-profit focused on female brain injuries including concussion from sport, violence, accidents and military service
- Licensed clinical social worker who was inspired to go to graduate school after volunteering in the Times Square Vet Center in the early 1990s
- Has presented on female brain injury in the U.S. and Europe
- Has three sons of which two have sustained multiple concussions; one son had postconcussive syndrome
- Has sustained multiple concussions over a 30 year span and is currently a participant in the Boston University/ Veterans Affairs Legacy Chronic Traumatic Encephalopathy Study
- Education: M.S.W., Fordham University

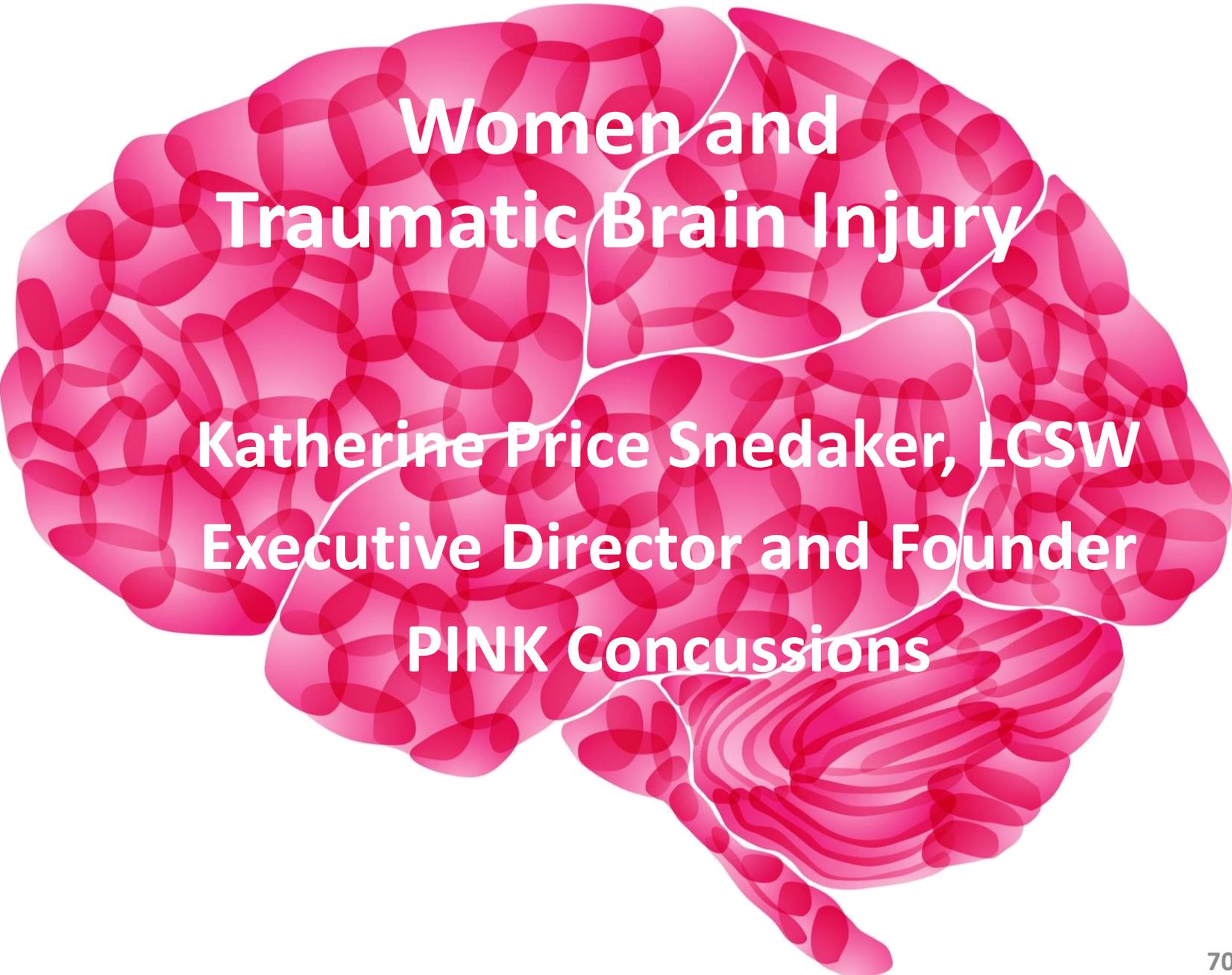
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## **SLIDES 15-69**

**Presentation of Dr. Odette Harris not available  
due to the fact that her data has not yet been published**

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***“Medically Ready Force...Ready Medical Force”***



# Women and Traumatic Brain Injury

**Katherine Price Snedaker, LCSW**  
**Executive Director and Founder**  
**PINK Concussions**

# How Do We View TBI?

- Concussion and TBI have long been viewed through a masculine perspective.
- TBI in general occurs about twice as often in males as it does in females.

(Rao & Lyketsos, 2000)

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# The Influence of Risk-taking?



Source: <https://www.youtube.com/watch?v=tHHkMUCQN18>

# Risk in Sports

- The riskiest sports for concussion often are male-dominated.
- Collision/contact sports
  - Ice hockey
  - Boxing/combat sports
  - Football
  - Rugby

(American Medical Society for Sports Medicine (AMSSM), 2012)

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## Risk in Sports (continued)

- However, multiple research studies have found that in sports with similar rules, in particular soccer, basketball and baseball/softball:
  - Female athletes report nearly twice as many concussions.
  - Female athletes report a greater severity of symptoms.
  - Female athletes report a longer duration of recovery.

(AMSSM, 2012)

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# The PINK Concussion Question?

- Despite the facts of #pinkTBI, why don't sport, academic, military and medical communities have any female-specific...
  - Medical guidelines?
  - Return to school/play/work/duty protocols?
  - Female education resources?
- Why are females rarely educated about #pinkTBI differences which leaves them ill-prepared to cope with more severe symptoms and often unrealistic expectations of recovery time?

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# My Story



Image source: Katherine Snedaker

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# Team Concussion Youth2Youth Education Tour 2012



SportsCAPP.com



## Sports Concussion Awareness & Preparedness Program

- **Educational hub** to provide current info to help change attitudes, training and response to youth sport concussions in practices and games
- **Roadmap** to help recreational teams, town leagues and private schoc use free resources to create concussion policy and bring awareness into their programs for players, coaches and parents



Image source: Katherine Snedaker

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# 2013 PINK Concussions



# Female Brain Injury Including Concussions

- By sport
- By violence
  - Domestic
  - Interpersonal
  - Family
- By accidents/trauma
- By military service

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**OTL** Outside The Lines  
@OTLonESPN

CYMI: Moms and the War on Football



OTL: Moms and the war on football - ESPN Video  
espn.go.com



Image source: Katherine Snedaker

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**1<sup>st</sup> Website on the Internet to focus on Female Concussions**

- **Informational hub** for research, resources & answers for female concussions from sports, accident, abuse or military service
- **Source for facts** about female concussions which are hard to find buried as they are in sub-sections of larger research reports
- **Advocacy Group** to reach fathers and mothers of female athletes and provide concussion awareness specific to girls' vulnerability and education about concussion recovery

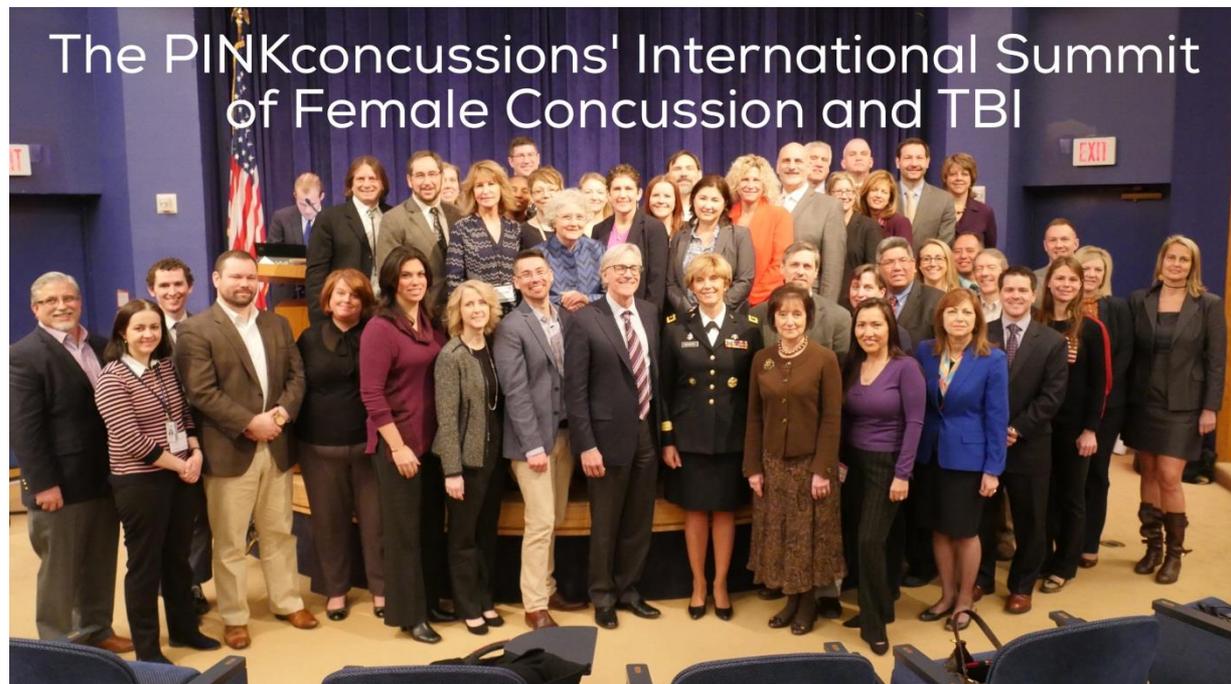


Image source: Katherine Snedaker

# What is #pinkTBI?

- #pinkTBI is a concise term to use on social media to educate and advocate for change in pre-injury education and post-injury medical care for women and girls challenged by concussions and traumatic brain injuries (TBI) incurred from sport, violence, accidents or military service.

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# What Does This Mean to Your Female Patient?

- She will know more boys than girls who have concussions and may judge her own recovery by the male experience.
- She may experience a higher number and more severe symptoms than the boys she knows.
- She may have a longer duration of recovery than male athletes she knows.

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# And When Her Recovery Spans More Than a Few Weeks....

- She may experience
  - Depression
  - Isolation
  - Self-doubt
  - Anxiety
- School/work/family may question her malingering

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# The Couch Example



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# Case Study

- Sophomore on her fifth concussion
- Three concussions from volleyball, two from home
- Top grades plus an Advanced Placement class
- Returned to school after two weeks; slowly “Return To Learn” using half days
- At Week 5 mother reports that daughter is crying and anxious about school
- She has a 504 and teachers were accommodating

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# Age and Sex

- Following a concussion, adolescent girls demonstrate a significantly greater exertional response, rating a worsening of their symptoms with cognitive activity significantly more than adolescent males and younger girls and boys.
- The differences in post-concussion symptom reports previously identified in high school and collegiate athletes appears to be moderated by one's age and injury status. Sex differences are not evident in the uninjured state nor in the younger ages in both static and dynamic symptom assessments. The meaning of these differences requires further explanation as they may relate to differential management.

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# Why #pinkTBI?

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# Research Focus

“We don’t need more research to prove women concuss at a higher rate.

We need more research to figure out why.”

Dawn Comstock, Ph.D., Professor, Department of Epidemiology, Colorado School of Public Health, in May 13, 2016 U. S. House of Representatives Energy and Commerce Committee hearing on concussion

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# What Factors Can Explain the Difference in Female Brain Injury?

- Neck strength vs. head strength
- Reporting styles
- Hormones
- Female culture
- Test bias?
- Sex vs. gender?

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# Sex vs. Gender

- Definition of sex: Scientifically, sex may be defined as the biological differences between male and female, including genetic, hormonal and physiological differences.
- Definition of gender: Gender is thought of as a social construct based upon interpersonal roles or personal identification and is often, but not always, concordant with biological sex.



# The Differences

- Sex
  - Neck strength vs. size of head
  - Hormones
- Gender
  - Women more likely to report
  - Female culture of seeking health care
  - Test bias

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# WHO Gets #pinkTBI?

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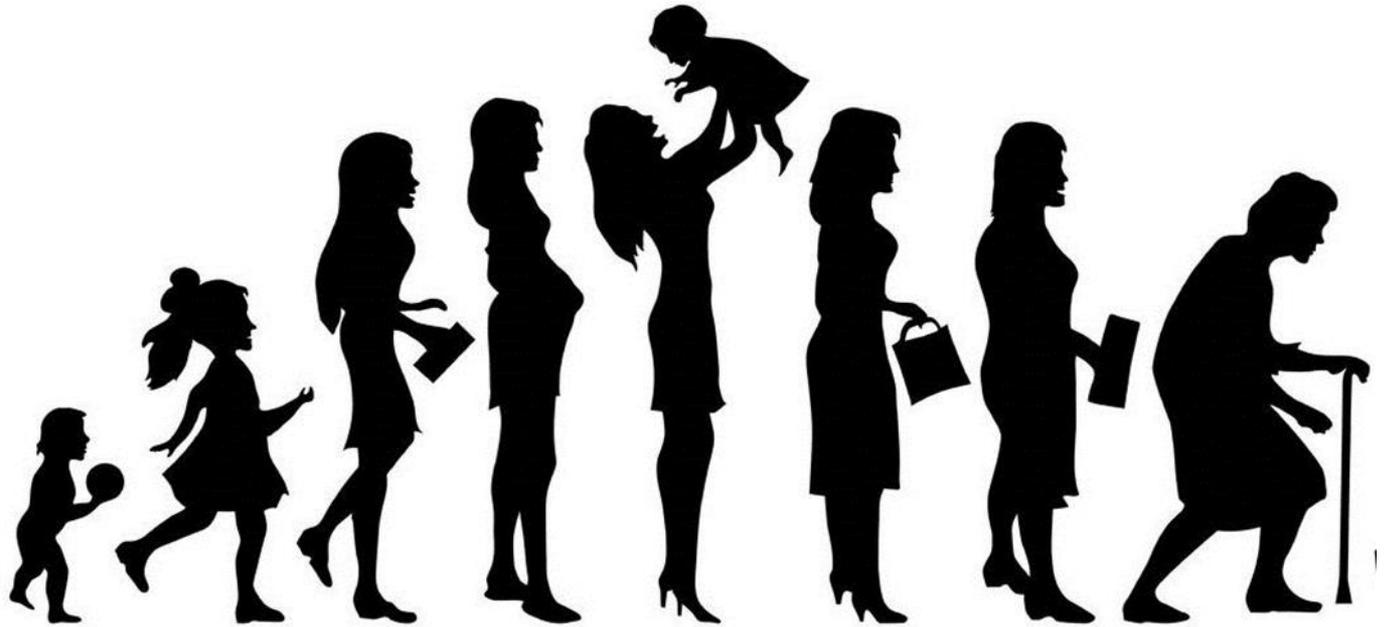
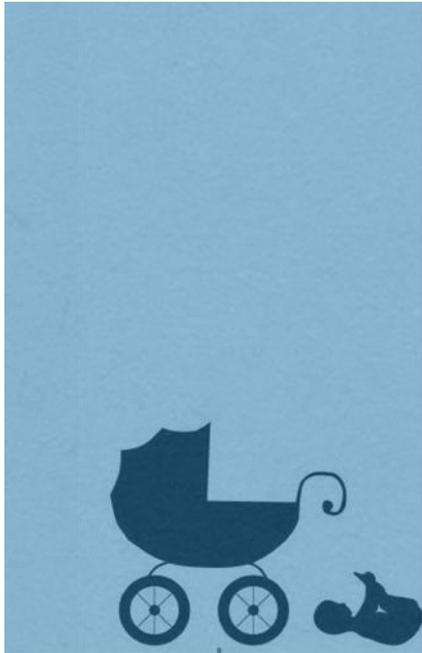


# Female Life Cycle



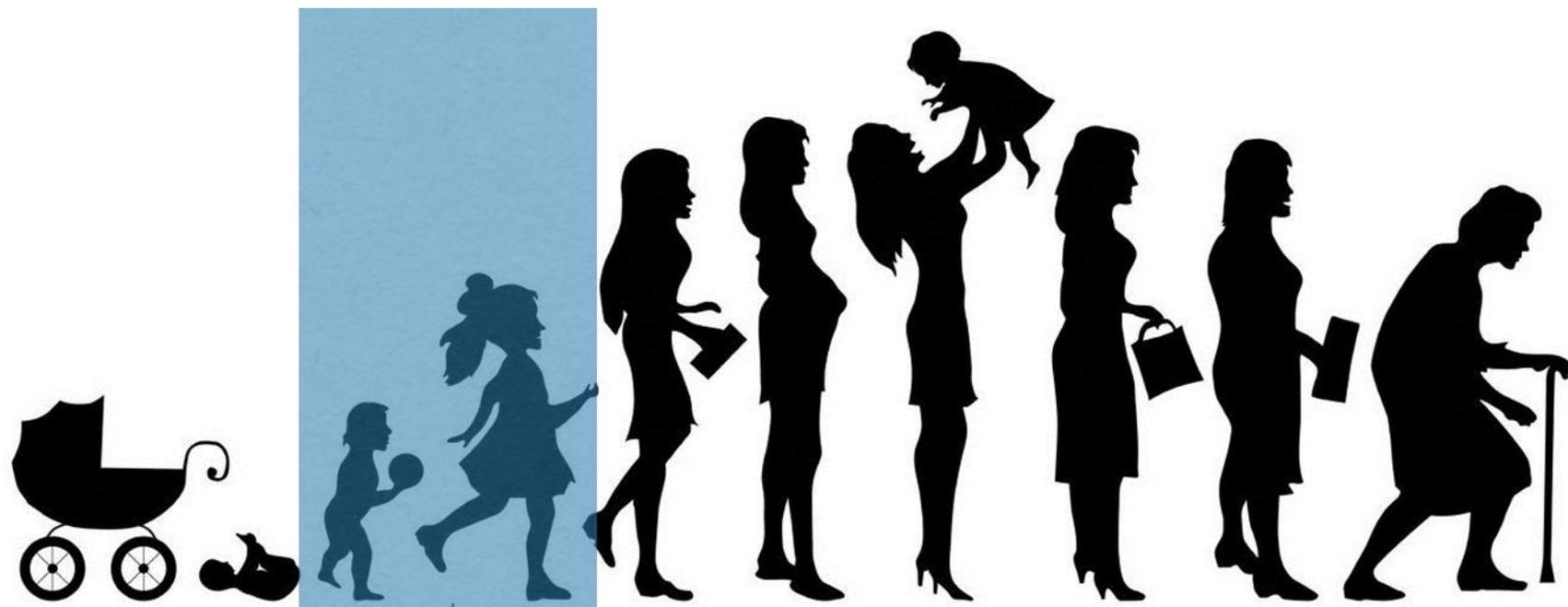
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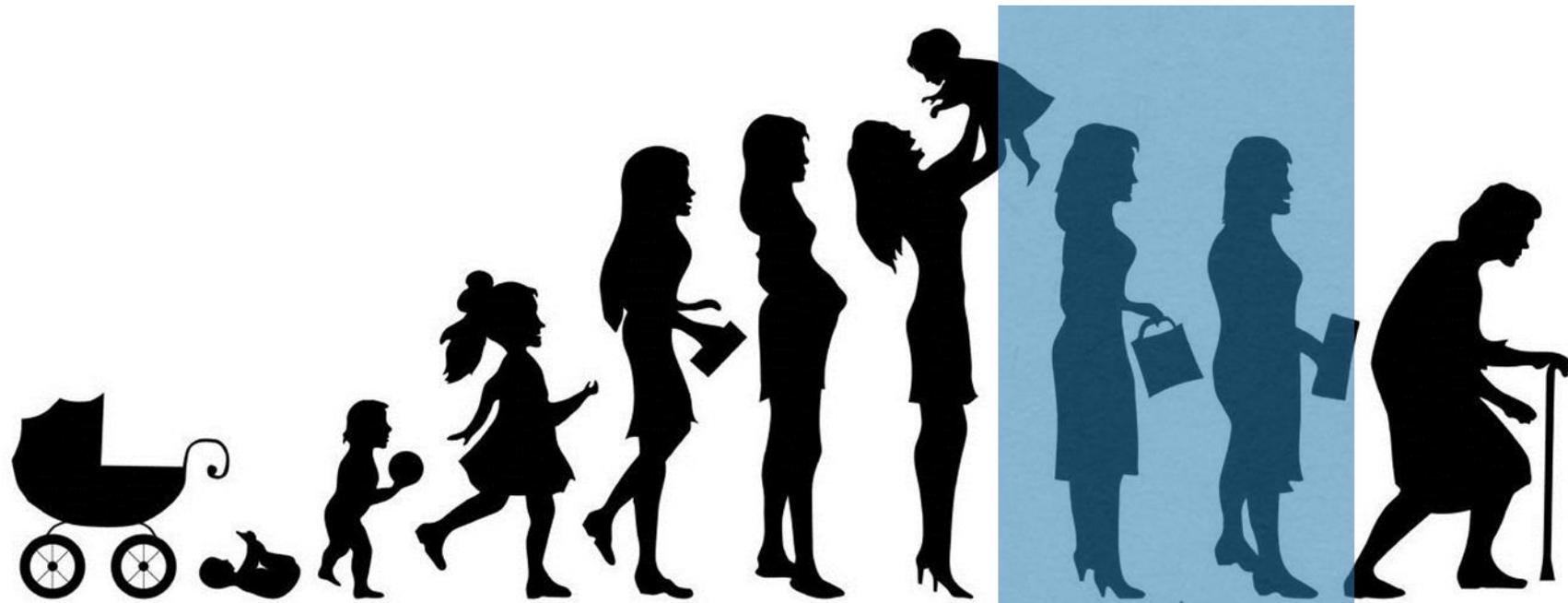
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# HOW She Gets #pink TBI

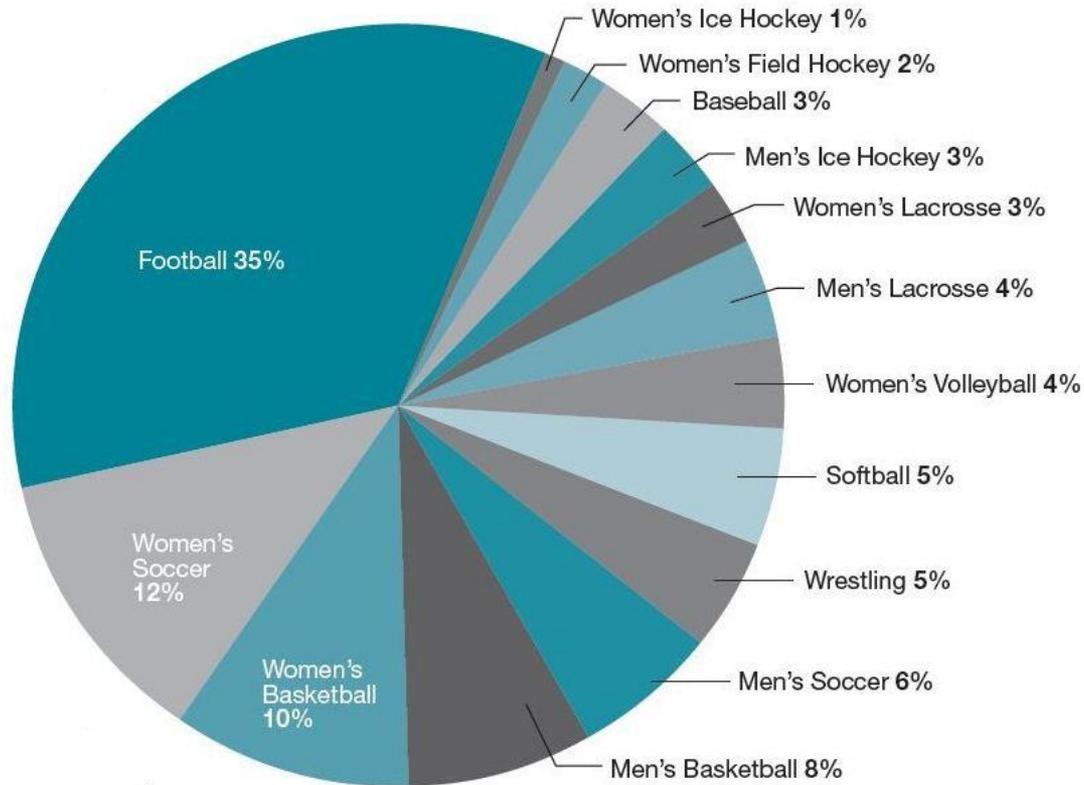
- Sports
- Violence – domestic – interpersonal – family
- Accidents – trauma – motor vehicles – falls
- Military service

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# Concussions in NCAA Sports

**Figure 2: National annual estimate of concussions for practice and competition in 14 NCAA sports**



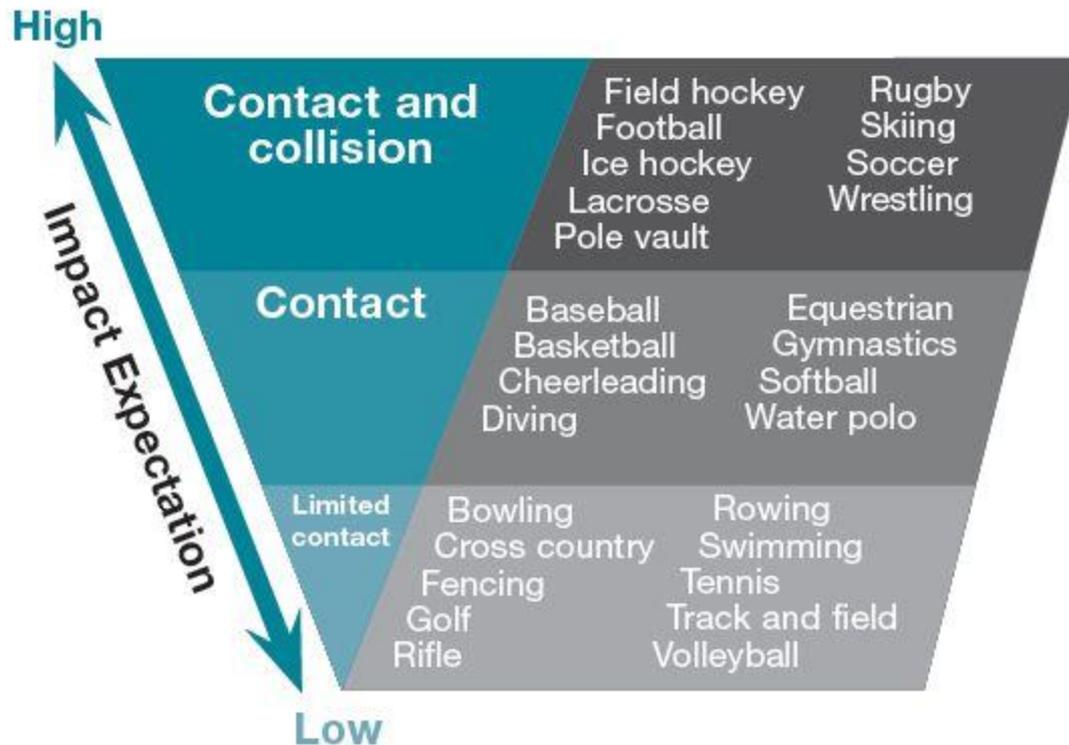
(National Collegiate Athletic Association (NCAA), 2014, p. 58)

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# Concussions in NCAA Sports continued

**Figure 3: Impact expectation by sport**

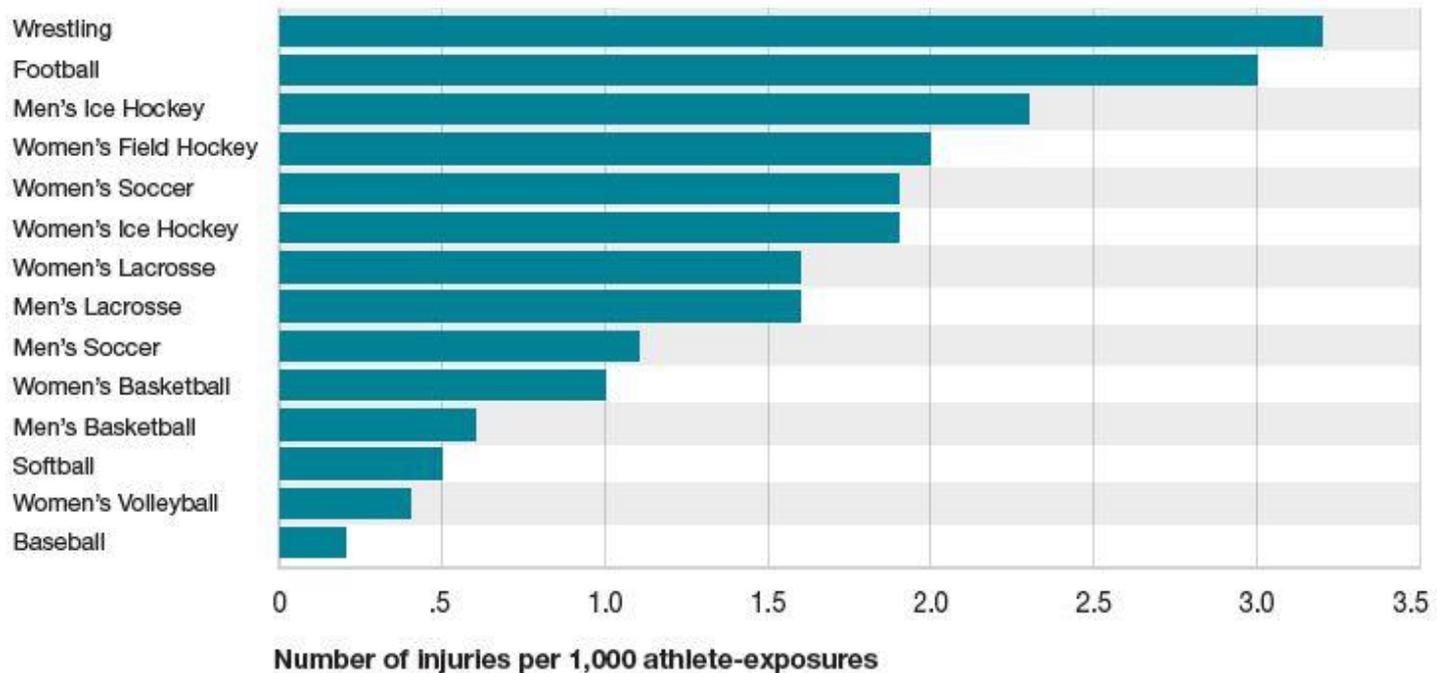


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# Concussions in NCAA Sports continued 2

**Figure 1: Rate of competition concussion injury in 14 NCAA sports**



Data from 2004-05 to 2013-14. Overall practice and game injury rates for each sport can be found in

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# Concussions Reported to School Nurse

Students Reporting Concussions to School Nurses in the Norwalk CT Public School for the 2014-15 School Year (August 1 - June 23)

2014-2015 Students reporting to the school nurses	Total Concussions	Non-Sport Concussion	Sport Concussion	Official School Sports w/AT	Non-School Sports	School but Non-Sports	Home but Non-sports	Female	Male	In School	Outside School
Students in District 11,000	111	60	51	27	24	19	41	57	54	46	67
High School Students 3,200	63	30	33	27	6	6	24	39	24	33	30
Middle School Students 2,400	29	14	15		15	3	11	14	15	3	26
Primary Students of 5,400	19	16	3		3	10	6	4	15	10	11

	Total Concussions	Non-Sport Concussion	Sport Concussion	Official School Sports w/AT	Non-School Sports	School but Non-Sports	Home but Non-sports	In School	Outside School
District GIRLS	57	36	21	16	5	10	26	26	31
District BOYS	54	22	30	11	19	10	14	21	33
High School Girls	39	22	17	16	1	4	18	20	19
High School Boys	24	8	16	11	5	2	6	13	11
Middle School Girls	14	10	4		4	2	8	2	12
Middle School Boys	15	4	11		11	1	3	1	14
Primary Girls	4	4	0		0	4	0	4	0
Primary Boys	15	10	3		3	7	5	7	8

2014-15 Official High School Teams Sports Concussions	All High School 1,145 Athletes	McMahon HS 557 Athletes	Norwalk HS 588 Athletes	Non-School Sports: NO AT	Total	McMahon High School	Norwalk High
Concussions reported to Nurses	27	-	-	Cheer	2	1*	1*
Concussions to Athletic Trainer	34	22	12	Color Guard	?	?	?

As of 2015-16: AT will see cheer concussions

<b>Total Male Concussions</b>	18	11	7		
<b>Total Female Concussions</b>	16	11	5		
<b>Football</b>	7	4	3	<b>Boys</b>	
<b>Boys Hockey</b>	2	0	2	McMahon	320
<b>Boys Wrestling</b>	1	2	0	Norwalk	359
<b>Boys Soccer</b>	1	1	0	<b>Total Boys</b>	<b>679</b>
<b>Boys Basketball</b>	1	0	1	Concussions	18
<b>Boys Wrestling</b>		4			2.65%
<b>Boys Lacrosse</b>	1		1		
<b>Girls Volleyball</b>	4	3	1	<b>Girls</b>	
<b>Girls Soccer</b>	3	2	1	McMahon	257
<b>Girls Lacrosse</b>	3	2	1	Norwalk	229
<b>Girls Basketball</b>	2	1	1	<b>Total Girls</b>	<b>486</b>
<b>Girls Ice Hockey</b>	1	1		Concussions	16
<b>Girls Basketball</b>	1	1			3.29%
<b>Girls Softball</b>	1		1		
<b>Girls Field Hockey</b>	1	1	0		

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# Non-sport vs. Sport Concussions

Concussions students reported to school nurses 2014-2015	Total Concussions	Non-sport Concussion	Sport Concussion
Students in district - 11,000	111	60	51
High school students – 3,200	63	30	33
Middle school students – 2,400	29	14	15
Primary students – 5,400	19	16	3

# Female vs. Male Concussions

Concussions Students reported to school nurses 2014-2015	Total Concussions	Non-sport Concussion	Sport Concussion
Students in district – 11,000	111	57	54
High school students – 3,200	63	39	24
Middle school students – 2,400	29	14	15
Primary students – 5,400	19	4	15

# Non-sport vs. Sport Concussions – Girls vs. Boys

	Total Concussions	Non-sport Concussion	Sport Concussion
District GIRLS	57	36	21
District BOYS	54	22	30
High school GIRLS	39	22	17
High school BOYS	24	8	16
Middle School GIRLS	14	10	4
Middle School BOYS	15	4	11
Primary School GIRLS	4	4	0
Primary School BOYS	15	10	3

(Snedaker & Norwalk Public Schools, manuscript in preparation)

# Non-sport vs. Sport Concussions – Girls vs. Boys

	Total Concussions	Non-sport Concussion	Sport Concussion
District GIRLS	57	36	21
District BOYS	54	22	30
High school GIRLS	39	22	17
High school BOYS	24	8	16
Middle School GIRLS	14	10	4
Middle School BOYS	15	4	11
Primary School GIRLS	4	4	0
Primary School BOYS	15	10	3

# High School Teams Sports Concussions

2014-15 Official High School Teams Sports Concussions	Total Concussions 1,145 athletes	McMahon High School 557 athletes	Norwalk High School 588 athletes
Concussions reported to nurses	27		
Concussions reported to athletic trainer	34	22	12
Total male concussions	18	11	7
Total female concussions	16	11	5

# High School Teams Sports continued

2014-15 Official High School Teams Sports Concussions	Total Concussions 1,145 athletes	McMahon High School 557 athletes	Norwalk High School 588 athletes
Football	7	4	3
Boys hockey	2	0	2
Boys wrestling	1	2	0
Boys soccer	1	1	0
Boys basketball	1	0	1
Boys wrestling		4	
Boys lacrosse	1		1
Girls volleyball	4	3	1
Girls soccer	3	2	1
Girls lacrosse	3	2	1
Girls basketball	2	1	1
Girls ice hockey	1	1	
Girls basketball	1	1	
Girls softball	1		1
Girls field hockey	1	1	0

# Non-school Sports: No Athletic Trainer

	Total Concussions	McMahon High School	Norwalk High School
Cheer	2	1*	1*
Color Guard	?	?	?

As of 2015-16: AT will see cheer concussions

# Enrollment and Concussions

Boys vs. Girls	
<b>BOYS</b>	
McMahon	320
Norwalk	359
<b>Total boys</b>	<b>679</b>
Concussions	18
	2.65%
<b>GIRLS</b>	
McMahon	257
Norwalk	229
<b>Total girls</b>	<b>486</b>
Concussions	16
	3.29%

# TBI Stats

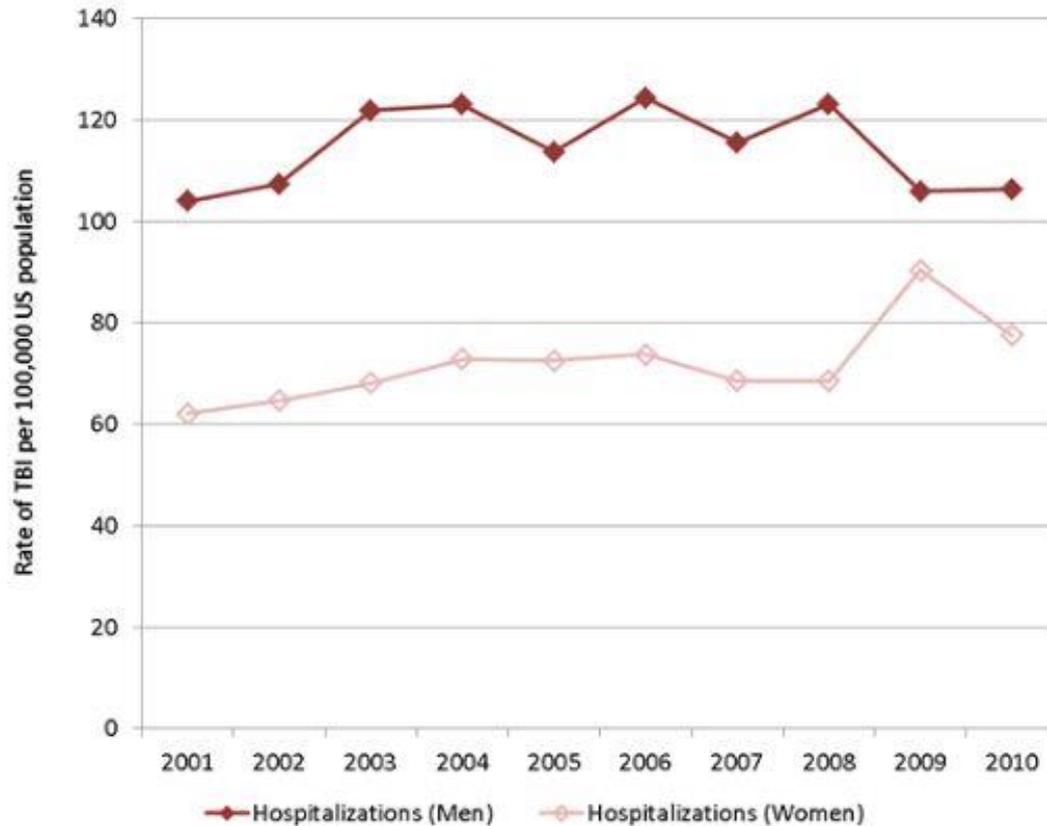
- 1.6-3.8 million sports and recreation-related TBIs each year in the U.S. (Daneshvar, Nowinski, McKee, & Cantu, 2011)
- An estimated 3.1 million women could sustain TBIs due to domestic violence. (Corrigan, Wolfe, Mysiw, Jackson, & Bogner, 2003)
- Studies suggest that 3.3-10 million children are exposed to domestic violence annually. (Roberts, 2007)
- 30-60% of perpetrators of intimate partner violence also abuse children in the household (Edelson, 1999)
- 4,774,000 women in the U.S. experience physical violence by an intimate partner every year (CDC, 2014)
- 67% of the women seeking medical services related to domestic violence had symptoms associated with TBI. (Corrigan, Wolfe, Mysiw, Jackson, & Bogner, 2003)

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# TBI-related Hospitalizations

Rates of TBI-related Hospitalizations by Sex — United States, 2001–2010



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(Centers for Disease Control and Prevention, 2016)

# #pinkTBI Timeline

1990 chronic traumatic encephalopathy (CTE) in women

- “Lucy”
- “Wilma”

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# 2013 PINK Concussions



# 2013 PINK Concussions' Mission

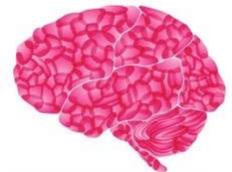
- Continue to create international medical summits with world-class experts/researchers.
- Publicize the current research on how female concussion is different from male.
- Stimulate, inspire and fund sex/gender-based TBI studies.
- Develop education resources designed for women and girls.
- Share the female experience of brain injury at national and global events.
- Create in person/online communities for females isolated by concussion and TBI.

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# 2016 1<sup>st</sup> International Summit

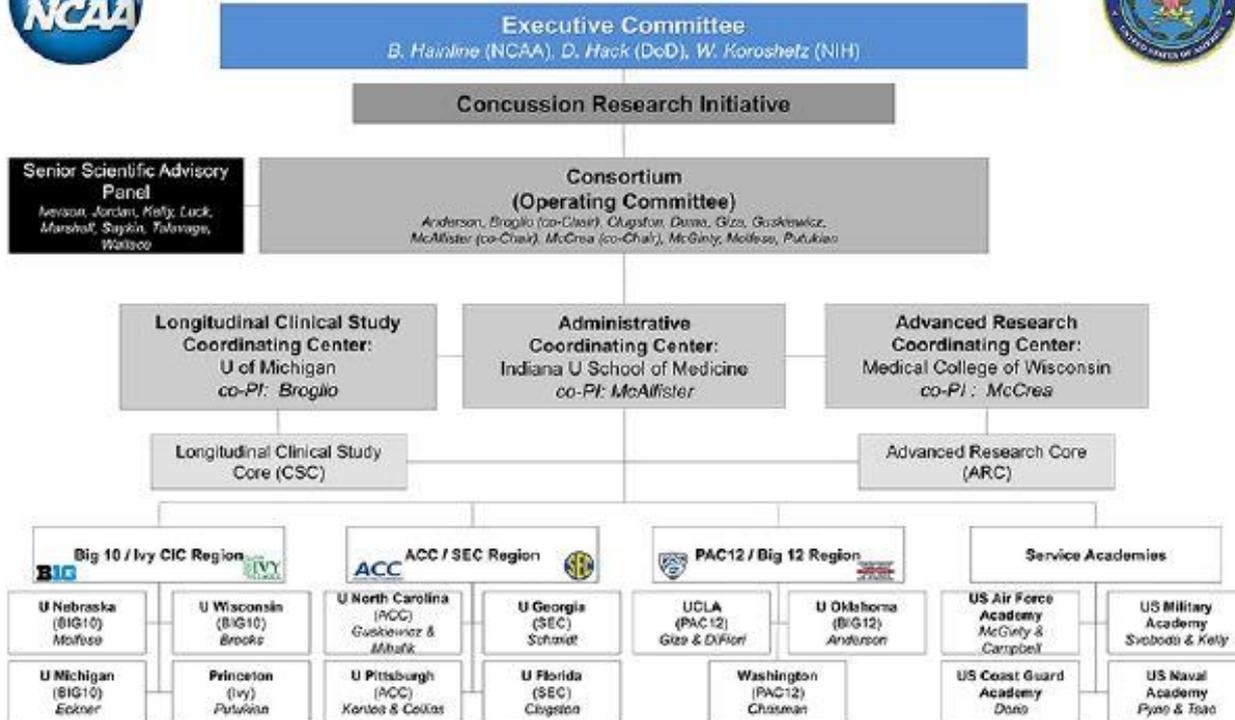
## The PINKconcussions' International Summit of Female Concussion and TBI



# Ongoing in a Year or Two...



## NCAA-DoD Grand Alliance



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**A BRIEFING ON  
"WOMEN AND TRAUMATIC BRAIN INJURY:  
A FRONTIER YET TO BE EXPLORED"**

*Hosted by the [Congressional Brain Injury Task Force](#) (Congressmen Bill Pascrell, Jr. and Thomas J. Rooney) and Congresswomen Jan Schakowsky and Diane DeGette*

**June 14, 2016**

2:30 - 4:30 pm ET

2456 Rayburn House Office Building  
Washington, DC

a panel discussion moderated by:

**Joanne Finegan, MSA, CTRS, FDRT**

President and CEO of ReMed, US Community Behavioral and  
Embassy Management, LLC

*Featuring*

**Briana Scurry**

Retired Goalkeeper for U.S. Women's National Soccer Team, Two-Time Olympic Gold Medalist, 1999 FIFA World Cup Champion Goalkeeper; TBI Survivor

**Yelena Goldin, Ph.D.**

Co-chair of the Girls and Women with Acquired Brain Injury Task Force of the American Congress of Rehabilitation Medicine, JFK-Johnson Rehabilitation Institute Clinical and Research Neuropsychologist, Rutgers-Robert Wood Johnson Medical School Clinical Assistant Professor

**Alison Cernich, Ph.D.**

Director of the National Center for Medical Rehabilitation Research, Eunice Kennedy Shriver National Institute of Child Health and Human Development, Board Certified Neuropsychologist

**Rosemarie Scolaro Moser, PhD, ABN, ABPP-RP**

Director, Sports Concussion Center of New Jersey

**Navy Capt. (Dr.) Mike Colston**

Director, Defense Centers of Excellence  
for Psychological Health and Traumatic Brain Injury

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## #pinkTBI = More Barriers

- Women with TBI are more likely to experience social, financial and structural barriers to needed services.
- They are more likely to be affected by poverty, social isolation, lack of family support, lack of transportation and other community resources.

Yelena Goldin, Ph.D., Co-chair, Girls and Women with Acquired Brain Injury Task Force of the American Congress of Rehabilitation Medicine, Congressional Briefing, DC, 2016

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# Abuse and Violence

- Women with disabilities are significantly more likely to be victims of abuse and violence (including sexual abuse).
- Women, regardless of disability status, are more likely to be victims of intimate partner violence, which almost always leads to potential TBI and often multiple/repeat injuries.
- Specific guidelines (screening, but also treatment and policy) are required for these situations.

Yelena Goldin, Ph.D., Co-chair, Girls and Women with Acquired Brain Injury Task Force  
of the American Congress of Rehabilitation Medicine



# Less Return to Work

- Women are less likely to receive or complete vocational rehabilitation.
- Women have significantly lower rates of returning to work after TBI.
- Need for feminine roles of child rearing and household managements to be viable rehabilitation goals.

Yelena Goldin, Ph.D., Co-chair, Girls and Women with Acquired Brain Injury Task Force of the American Congress of Rehabilitation Medicine

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# Less Sexual and Reproductive Health

- Women with TBI have significantly higher rates of menstrual and endocrine dysfunction.
- Fatigue, cognitive and functional difficulties represent strong obstacles in the area of family planning and parenting.

Yelena Goldin, Ph.D., Co-chair, Girls and Women with Acquired Brain Injury Task Force of the American Congress of Rehabilitation Medicine

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# Clemson University/ Pink Concussions Study

## Price She Pays to Play the Game: A Study on Female vs. Male Athletes' Experiences with Concussion

- Clemson University
  - Jimmy Sanderson, Ph.D. and Melinda R. Weathers, Ph.D.
- PINK Concussions
  - Katherine Snedaker, LCSW

(Sanderson, Weathers, Snedaker, & Gramlich, 2016)

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**NO GUTS, NO GLORY**

# What Do We Know About Concussion?

- Media reports
- Personal experience
- Research
  
- **Most existing research is physiological**
- Our study looked at communication

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# Questions

- Why do athletes continue to play after experiencing concussive symptoms?
- Do females athletes hide their concussions less than males?
- Do females athletes hide their concussions for the same reasons as males?

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# The Problem

- Female athletes receive nearly two times as many concussions as male athletes in the same sports with the same rules.
- After a concussion, females tend to have more severe symptoms and take longer to recover than males.

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# Our Study

- Study methods
  - Snowball sampling
  - Gender specific photos
  - Age 18+ years
- Use of social media
  - Twitter
  - Facebook
  - Instagram
- Online survey
  - 40 questions
  - 16 open-ended questions

(Sanderson, Weathers, Snedaker, & Gramlich, 2016)

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# Our Study *continued*

- Total participants
  - 529 female
  - 314 male
- Answered online questions
  - Athletic experiences
  - Reporting or hiding head injuries
  - Reasons for continuing to play

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# Female Participants

- 19.5 years – average age of first concussion
- Variety of sports: Soccer, lacrosse, rugby, equestrian, skiing and snowboarding

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## Female Participants Averaged...

- 4 concussions diagnosed by athletic trainer (AT)/physician (range 1-21)
- 6 concussions including hidden concussions (range 1-33)
- 29.5 years of age at time of survey (range 18-64 years)
- 19 years old at first concussion
- 2 concussions outside sports (range 1-9)
  - 47% of female athletes concussed outside of sports (n=245)



# Females vs. Males

	Females	Males
Suffered one or more concussions playing organized sports as diagnosed by a physician or AT	84%	80%
Suffered any OTHER head injuries playing organized sports significant enough to miss play time	21%	23%
Suffered a concussion but continued to play (WITHOUT REPORTING) through a head injury	70%	79%
Suffered a concussion but continued to play (AFTER REPORTING) through a head injury	33%	36%
Suffered any other serious head injuries other than in organized sports	47%	36%
Felt that they experienced signs of memory loss or cognitive decline – yes	39%	28%
Felt that they experienced signs of memory loss or cognitive decline – maybe	27%	26%

# Recurrent Symptoms

	Females	Males
Headache	75%	63%
Vision disturbance	26%	22%
Dizziness	40%	31%
Slow thinking	60%	58%
Nausea	21%	7%
Other	46%	41%

(Sanderson, Weathers, Snedaker, & Gramlich, 2016)

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# Why Symptoms Not Reported

	Females	Males
Lack of awareness	64%	36%
Sports culture (desire to keep playing)	63.6%	36.4%
Lack of resources	63%	37%
Lack of perceived severity	53.8%	46.2%
Allegiance to team	43.1%	56.9%

(Sanderson, Weathers, Snedaker, & Gramlich, 2016)

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# Design Concussion Education

- Female athletes
  - Increase awareness
  - Increase resources
  - “Want to keep playing”
- Male
  - Best for team
  - Explain severity

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# Concussion Education

- Teach communications skills
  - How to advocate for one's health
  - How to report early signs
  - How to report team mates

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# Conclusion

- All athletes need accessible, trusted, proper medical care
- Educate, advocate and support females with #pinkTBI

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## **Future Events**

**2017 PINK Concussions International Summit on Female Concussion and TBI**

**National Institutes of Health (NIH)**

**March 2-3, 2017**

## **Past Events**

**2016 PINK Concussions International Summit on Female Concussion and TBI**

Georgetown University Medical Center

March 2-3, 2016

**2016 PINK Concussions Symposium** October 6-7, 2016

VA Palo Alto Health Care System

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# Questions

- Submit questions via the Q&A box located on the screen.
- The Q&A box is monitored and questions will be forwarded to our presenters for response.
- We will respond to as many questions as time permits.



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4. Verify, correct, or add your information AND Select your profession(s).
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# Save the Date



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## Next DCoE Traumatic Brain Injury Webinar

Review of Advances in TBI Research

November 16, 2016; **12-1:30 p.m. (ET)**

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## Next DCoE Psychological Health Webinar

Post-deployment Gender Differences in PTSD and Unhealthy Drinking

October 27, 1-2:30 p.m. (ET)

# DCoE Contact Info



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