

Professor Deborah S. Podwika, M.A., C.S.M.

## Biology & Behavior

### Chapter 2

---

---

---

---

---

---

---

---

## Discussion Questions

- 29. Recognize the data on Concussion Syndrome. (D)
- 30. Recognize the symptoms/consequences of a Concussion. (D)

---

---

---

---

---

---

---

---

## Biology & Behavior

- How & in what ways does Biology Influence our Behavior & Thinking?



---

---

---

---

---

---

---

---

# It's In The Genes!

---

---

---

---

---

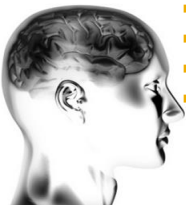
---

---

---

## Other Chapters...

- Hippocampus – Clive Wearing’s Memory & Animals
- Amygdala – Intense Memories
- Hypothalamus – Hunger/Eating



- Thyroid – Hunger /Eating
- Adrenaline – Intense Memories
- Beta Blockers – Intense Memories
- Happiness – Genetics
- Gender – Cognition, Sexuality
- Phrenology - Research

---

---

---

---

---

---

---

---

## Other Chapters...

- Heredity – Temperament/Happiness (Giggle Twins)
- Gender/Environment – Tannen Communication
- PET Scan – Memory & Animal Videos
- EEG – Happiness Video



---

---

---

---

---

---

---

---

## Other Chapters...



- States of Consciousness: Gender differences in Dreaming
- Abnormal Disorders: Gender differences
- ETC!!!




---

---

---

---

---

---

---

---

## Concussions/CTE/TBI



Chapter 2: Biology & Behavior  
 Chapter 9: Stress  
 Chapter 14: Cognition  
 Chapter 12: Disorders

---

---

---

---

---

---

---

---

**NFL Concussions**

2010: 159  
 2011: 252  
 2012: 261 (Preseason)  
 NFLPA Consultant (265)  
 2013: 228 (Not Post)  
 54 more Preseason found  
 2014: 59 so far!

New Rules!

---

---

---

---

---

---

---

---

21% Higher 2009  
34% Higher 2008

---

---

---

---

---

---

---

---

Moderate Advanced Stage 3 CTE

Dave Duerson  
Suicide Feb 2011

Requested his Brain Studied

10 known Concussions, several loss consciousness, never hospitalized.

2007 Headaches, Seeing Stars, Blurry Vision, Difficulty Spelling Simple Words, Short-Term Memory & Impulse Control Problems (Temper).

---

---

---

---

---

---

---

---

Jovan Belcher  
Dec 1, 2012

"The microscopic findings of neurofibrillary tangles in young person are fully consistent with the pathological presentation of Chronic Traumatic Encephalopathy (CTE) as it is reported in the available medical literature." (Sept 2014)

---

---

---

---

---

---

---

---

Lawyers for daughter Zoey is suing  
the Kansas City Chiefs.

---

---

---

---

---

---

---

---

Junior Seau  
1969-2012  
Shot Himself  
In Chest  
Brain Donated  
Found CTE

---

---

---

---

---

---

---

---

Justin Strzelczyk  
1968-2004  
High speed chase  
With Police hit  
Oncoming Tank  
Truck  
CTE like Boxer

---

---

---

---

---

---

---

---

Tom McHale  
Variety NFL  
1963-2008

---

---

---

---

---

---

---

---

CTE  
Accidental Overdose

Died 2011

Ollie Matson  
14 Season 50s & 60s

---

---

---

---

---

---

---

---

Died 2011

John Mackey  
10 Seasons- NFL Union Leader

---

---

---

---

---

---

---

---

[Jim McMahon](#)

Walter Payton

Early Dementia

3 Clear Known  
Concussions

---

---

---

---

---

---

---

---

[Nathan Stiles](#)

Concussion out for week & just  
"headache". Then played 1 game  
ok, then next collapsed & died.  
2010

---

---

---

---

---

---

---

---

[Austin Trenum](#)

Hung Himself at Home  
Neurons frayed 2010

---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---

Brandon McCarthy

**Concussions**

- Diagram of what happens. On the Chapter

---

---

---

---

---

---

---

---

2010 & 2011 – 98 Confirmed each Yr.

---

---

---

---

---

---

---

---

NHL

2012 – 118  
2013 – 53?



## 2 Slides Chris Benoit

---

---

---

---

---

---

---

---

Looking at Military Now!

### Chronic Traumatic Encephalopathy (CTE)

Repetitive Hits on every play NOT Violent Collisions

Full-blown dementia, including "profound loss of attention and concentration, executive dysfunction, language difficulties, explosivity, aggressive tendencies, paranoia, depression" and difficulties walking and with depth perception.

---

---

---

---

---

---

---

---

### Chris Nowinski

- Harvard Grad
- Wrestling ended due to Concussion Syndrome
- Now Lectures on Concussion – 10,000 get NFL
- "I was a 24-year-old Harvard graduate who was recklessly abusing my brain,"
- "If I begin to slip, I'm going to absolutely regret it," he said. "Eight years of glory for 30 years of misery is not a good trade."
- 1,400 hits to head in a season/75% practice

---

---

---

---

---

---

---

---

## Keith Olbermann Response

- Several Links on Chapter!

---

---

---

---

---

---

---

---

## Lou Gehrig - ALS???

### We know now likely CTE

---

---

---

---

---

---

---

---

## References



<http://buscoscience.wikispaces.com/Concussion's>  
<http://www.michaeljfox.org/>  
 Deardorff, J. (2011) Duerson's Brain Was Damaged, Study Shows. Chicago Tribune.  
 The Concussion Blog <http://theconcussionblog.com/>  
<http://www.pbs.org/wgbh/pages/frontline/sports/concussion-watch/researchers-discover-28-new-cases-of-brain-damage-in-deceased-football-players/>  
[http://espn.go.com/chicago/nfl/story/\\_/id/8429574/former-chicago-bears-qb-jim-mcmahon-says-do-would-play-baseball](http://espn.go.com/chicago/nfl/story/_/id/8429574/former-chicago-bears-qb-jim-mcmahon-says-do-would-play-baseball)  
<http://sportslegacy.org/>  
<http://www.medpagetoday.com/SportsMedicine/EliteSports/44045>

---

---

---

---

---

---

---

---

# References

<http://www.kansascity.com/sports/nfl/kansas-city-chiefs/article2296030.html>

[http://espn.go.com/espn/otl/story/\\_/id/11612386/jovan-belcher-brain-showed-signs-cte-doctor-says-report](http://espn.go.com/espn/otl/story/_/id/11612386/jovan-belcher-brain-showed-signs-cte-doctor-says-report)

<http://www.usatoday.com/story/sports/nhl/2014/06/08/nhl-still-grappling-with-concussions/10198633/>

<http://sports.nationalpost.com/tag/nhl-concussions/>

---

---

---

---

---

---

---

---