

League of Denial – Video guide and questions I

Part I – Mike Webster

0:00 - 21:37 minutes

Vocabulary

concussion - a stunning, damaging, or shattering effect from a hard blow; especially : a jarring injury of the brain resulting in disturbance of cerebral function.

neuropathologist - a doctor who practices neuropathology which is the study of disease of nervous system tissue, usually in the form of either small surgical biopsies or whole autopsy brains. Neuropathology is a subspecialty of anatomic pathology, neurology, and neurosurgery.

Questions and fill-in-the-blank

1. Who is Mike Webster and what does FRONTLINE propose happened to him and his brain?

Mike Webster was a professional football player who declined mentally and physically after retiring from the game. FRONTLINE proposes that Webster brain was damaged by playing football and caused him to develop CTE.

2. What are reporters Steve Fainaru and Mark Fainaru-Wada investigating?

They are investigating whether football causes CTE and how much the NFL knew about the dangers of playing football. Particularly, did they know and try to keep it a secret.

4. Webster's favorite weapon was his head.

3. How often are players hitting each others' heads a year? 1,000- 1,500

4. Often the force of the hits are 20 Gs or more.

5. Concussions are also known as bell ringers

6. How did Mike Webster's personality and behavior change after he retired from 17 years of NFL football? Describe his mental and physical decline:

Mike went from being a kind and functional adult to mentally and physically disabled. He began drinking, he had dementia, he was aggressive and unable to take care of himself.

7. The NFL found that Mike Webster's disabilities were caused by: CTE

League of Denial – Video guide and questions II

Part II - The Growth of the NFL and Dr. Omalu's Research

21:38 - 43:00

Vocabulary

clinician - a doctor who practices medicine with patients (as opposed to research)

Chronic Traumatic Encephalopathy or CTE - a brain disease that gets worse over time as tau proteins surround brain cells choking them to death. It causes the patient's brain to deteriorate, which deeply affects their behavior and ability to function.

disability - a condition (such as an illness or an injury) that damages or limits a person's physical or mental abilities

neurologist - a scientist who studies the nervous system (the brain is part of the nervous system) and the its diseases

retraction - a statement saying that something you said or wrote at an earlier time is not true or correct

tau protein - a protein found in the brain tissue that plays a role in stabilizing microtubules, but in excess can cause degeneration of the brain. Often found in the tissue samples of patients with Alzheimer's.

tissue - a group of one particular type of cells, for example a group of neurons form brain tissue.

trauma - a serious injury to a person's body

Questions and fill in the blank

1. The broadcast of Monday Night Football started in 1970 and marked a turning point in football's popularity.
2. The glory and violence was beamed into
3. American living rooms during primetime.
4. How did the NFL market the violence of the game?

They made it glamorous, part of the life and culture of the game. People loved the violence and the NFL created TV that focused on it.

5. How did Troy Aikman's concussion affect his memory?

He lost his short term memory. When he went to the hospital for his concussion he couldn't remember the game or why he was there.

6. How did the NFL respond to the growing concerns over concussions? Who did they blame?

They denied that there was a problem. They said that the media was making a big fuss out of nothing.

7. Did the NFL do a good job choosing the doctor to lead the committee on concussion research? How do you know?

No they did not. They did not choose doctors who had experience with brains, but instead chose NFL team doctors.

8. What did the NFL committee find?

They found that there was no evidence that football was dangerous in the long term.

9. In what ways was the first study flawed?

They interviewed far too few people for it to be a real experiment.

10. How did the 16 published papers shape common opinion on concussions and football?

It led people to believe that concussions had no serious long term negative impact to players.

11. Dr. Omalu found evidence of CTE in Mike Webster's brain tissue. What does CTE stand for and what does it do to the brain? What behavioral changes does it cause?

Chronic Traumatic Encephalopathy is a disease of the brain. Tau proteins are left behind and essentially choke neurons by surrounding them. Then those areas of the brain essentially die.

It looked like as a result of the CTE players developed memory problems, drug abuse, and often became aggressive. Essentially their lives went down hill.

12. What happened when Dr. Omalu tried to tell the NFL about his findings?

They dismissed his findings and tried to ruin his reputation as a doctor.

13. What reasons might cause a journal article to become retracted?

It rarely happens, but does when a study is discovered to be fake or something was very wrong with it.

League of Denial – Video guide and questions III

Part III - The Discrediting of Dr. Omalu and his work

43:00-56:00

Questions:

1. The NFL waged a smear-campaign against Dr. Omalu and his work. What motives did the NFL have to discredit Dr. Omalu? How would they benefit from it?

If Dr. Omalu was right and they were wrong they would have to take responsibility for the health of the players who had CTE and admit they had been wrong. It could also force them to pay huge settlements out to players. Also, they might have to change the way that football is played.

2. What were the implications of Dr. Omalu's work and how might it change the way people felt about football?

The implications were that playing football causes long term and permanent brain damage. People may not enjoy the game as much if they realized how badly it was hurting the players.

3. What was the result of the NFL's conference?

Nothing. They ignored the findings from Omalu's work and continued to reiterate their own stance from their research. No changes were made regarding the NFL's policy on concussions or CTE.

League of Denial – Video guide and questions IV

Part IV- Revival: Doctor McKee and Robert Nuwinski

56:00 - 1:19:00

Questions

1. What role did Doctor Ann McKee and Christopher Nowinski play in reviving the investigation of CTE in football players? How were they able to do it?

Anne McKee is a well respected neurologist who took on the task of looking at brains of NFL players. Chris Nowinski is an ex-football player who was able to get brains of deceased NFL players to Dr. McKee and the team at Boston University. With more brains to study and with McKee's expertise in the area the topic was once again given attention.

2. If Roger Goddell was unable to defend the NFL from the implications of the CTE research, what might the NFL stand to lose?

The entire game might have to change how it is played. Lawsuits from former NFL players might be brought if they could prove the NFL knew something about it.

3. What were the two questions that the NFL doctors posed to Dr. McKee?

Causation: Did football cause CTE?

Prevalence: How many players had it?

4. What reasons did the other doctors give as to why they didn't believe Dr. McKee's findings?

There is evidence of many players who don't have CTE. We don't know the role genetics or environment (outside of football) played in the cases of the NFL players.

5. What did the leaked NFL retirement document show? *Pass out document to students.*

That former NFL players had higher rates of dementia and other memory-related diseases than the regular population.

6. What impact did the wives of the NFL players have on the investigation?

They joined together and spoke publicly about the death of their husbands and the radical change in behavior preceding their deaths.

League of Denial – Video guide and questions V

Part IV- Turning point

1:20:00 -

Questions

1. What was Roger Goodell's response the congressional committee?

He couldn't answer the question because he was not a doctor. The question should be reserved for doctors to answer.

2. What was the result of the congressional hearing? What did the NFL do?

They were compared to "Big Tobacco" which hurt their position deeply. The NFL changed the way that they handled concussions, they got new doctors to head their research of CTE and they donated \$1million to Dr. McKee's laboratory in Boston.

3. What was so shocking about Owen Thomas' brain?

That he was only 21 years old, had no history of being diagnosed with a concussion and yet he had an advanced case of CTE.

4. What theory came out of that research? Specifically which players were most at risk for CTE and why?

You don't actually have to have a concussion to get CTE. The regular bumps and bruises are enough to cause CTE. Players that have to constantly hit others on the field and younger players are most at risk for CTE.

5. An 18 year old High School athlete died 10 days after his 4th concussion.

6. How safe is it for children to play football?

It's not safe for young children for to play football. Their brains are still developing which makes them especially at risk for brain damage.

7. What guidelines did Dr. Cantu give about children playing football?

No child under 14 should be playing football?

8. Why did Chris Nowinski blame the NFL for endangering children who play the game?

He believes that as long as the NFL denies that there is a risk for long term brain damage, parents will continue to sign their kids up to play the game.

9. What arguments have been made against Dr. McKee's research by other scientists?

They say that she has over-stated the danger of playing football. She still has a small number of players and needs to look at many more before she can make conclusions. They need to look more at other factors that may cause CTE.

10. One important question is why to do some players get CTE and others don't. What other factors may be at play in causing CTE?

Genetics, the type of exposure to brain trauma, how behaviors like drinking and using drugs may play a role somehow.

11. Presently, out of the 46 brains of former NFL football players Dr. McKee has received and studied 45 had CTE.

12. Did CTE play a role in Junior Seau's death?

He definitely had CTE, but we can't say definitively is the reason he killed himself. It may have played the largest role or we might wonder that if he didn't have CTE would he have committed suicide, but we cannot say for sure.

13. What steps did the NFL take after the death of Junior Seau?

They started the Heads Up program and gave the NIH \$30 million dollars to study sports injuries.

14. A lawsuit was brought against the NFL by 4,500 former NFL players.

15. How much did the NFL agree to pay the retired NFL players?

\$765million dollars

Conclusion

1. Does football cause CTE?
2. Do you feel differently about the game of football and the NFL?
3. What should happen now?