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School of Hard Knocks

by

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Senior Honors Project

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Abstract

School of Hard Knocks is a documentary film about concussions and the negative impact they have over many different athletes' lives. The aim of this film keeps in mind the hypothesis of my research: The only way to decrease the harmful effects of concussions is to change attitudes of parents, athletes and coaches alike. This film aims to change those attitudes by telling the story of four athletes from high school, college and professional levels of sport. With the help of medical professionals, the topics range from the definition of a concussion, to second-impact syndrome, to Chronic Traumatic Encephalopathy. Through the interviews of Rachael Williams, Tori Bellucci, Bob Golic and Bernie Kosar, viewers begin to understand what it is like when an athlete receives a concussion. Dr. Richard Figler, Dr. Kirsten Hawkins, Michelle Fowler and Brittany Urbania explain the medical issues and treatment surrounding these head injuries.

Keywords: concussions, head injuries, Chronic Traumatic Encephalopathy

Part I: Introduction

Throughout professional, college, and high school levels of sport there are evident signs of the long-term negative effects of concussions. To build on current research, I will argue that repeated concussion injuries do have negative long-term effects, and not just in professional athletes. More importantly, however, I believe no court ruling can truly extinguish concussions. Rather, an attitude change among athletes, coaches, parents and medical professionals when it comes to what damage a concussion can cause is the only thing that can stop subsequent concussion injuries. My documentary will aim to change these attitudes through interviews with well-versed medical personnel and athletes from every level of play. The audience this film is directed towards is anyone with an interest in sports, whether it be a casual fan who just drops children off at soccer practice, or someone who religiously watches the National Football League. Through my interview selection, I hope to interest a wide array of sports fans in this film.

Part II: Relevant Literature on Concussions, Documentaries, and Audience

Concussions are present in nearly every aspect of sport. There is much debate about what a concussion is in the medical community and what long-term effects exist due to multiple traumatic brain injuries. While these disagreements do occur amongst medical professionals and athletes, cases of the effects of long-term concussions are alarming. In 2013, the PBS show *Frontline* released the documentary *League of Denial* about the NFL and former players who have experienced numerous problems due to what they and doctors believe are their post-concussion symptoms. This documentary sparked intense debate, particularly about the long-term dangers of concussions. It is clear, through *League of Denial* and other sources, that many

in the medical community believe that repeated concussions have long-term effects, no matter what age an athlete is, or the level of play in which he or she participates.

What is a Concussion?

Before discussing the debate about the damage a concussion can cause, it is important first to look at what exactly a concussion is and the key characteristics and symptoms.

According to the Centers for Disease Control and Prevention (2014), a concussion is “a type of traumatic brain injury (TBI) caused by a bump, blow, or jolt to the head that can change the way your brain normally works. Concussions can also occur from a fall or a blow to the body that causes the head and brain to move quickly back and forth” (CDC, 2014, para. 1). The CDC is also quick to point out that while concussions are generally referred to as mild traumatic brain injuries, or mTBIs, they are still very serious and can occur without loss of consciousness; in fact, the lack of proper response could lead to brain damage or death (CDC, 2013, para. 1-3).

There is some debate about the difference between a concussion and an mTBI, but both the CDC and participants at the 4th International Conference on Concussion in Sport seem to agree on signs that medical professionals should be on the lookout for possible concussions or mTBIs (McCroy et al., 2013). According to the members of the conference, “the diagnosis of acute concussion usually involves the assessment of a range of domains, including clinical symptoms, physical signs, cognitive impairment, neurobehavioral features and sleep disturbance. Furthermore, a detailed concussion history is an important part of the evaluation both in the injured athlete and when conducting a pre-participation examination” (McCroy et al., 2013, p.180). These symptoms include, but are not limited to: headaches, feeling foggy, depression, loss of consciousness, irritability, slowed reaction times, and sleep disturbances (McCroy et al., 2013, p.180; Concussions in Sports CDC, 2014, para. 2).

Nearly everyone agrees on one thing: an athlete who experiences a concussion should never be allowed to return to play that day. That player should also be evaluated by an appropriate medical professional, either an athletic trainer or physician, and can only be cleared to return to play by a physician (McCroy et al., 2013; CDC, 2014; OHSAA, 2011; Stahl, 2014).

As many as 1.7 million Americans suffer from TBIs each year, and about 75 percent of those people have concussions; however, it has only been recently that concussions have made it into the public light (Clemmitt, 2012).

What Groups are at High Risk for Concussion?

It is estimated that there are 300,000 diagnosed concussions among athletes annually and seven to nine times that number in undiagnosed concussions. In addition, “participation in high school athletics increases annually. Nearly eight million students participated in athletics during the 2011-2012 school year” (Collins et al., 2014, p. 310). Younger athletes are more likely to receive concussion injuries, most likely because of “ongoing neurocognitive development occur[s] throughout adolescence . . . [as a result,] concussions can have severe acute and long-term complications in young athletes” (Collins et al., 2014, p. 310).

Football is one of the sports with the highest risks of concussions. In data analyzed by the CDC between the years 2001 and 2009, football was the number two cause of emergency room visits resulting in a head trauma; only cyclists reported more concussions (Mihoces, 2013). Researchers have “estimated the number of football players in the USA, [and have accounted for] 2,000 in the NFL, 100,000 in college, 1.3 million in high school and 3.5 million in youth leagues” (Mihoces, 2013, para. 12). These numbers represent the total number of active football players; not all have necessarily been diagnosed with concussions. While football players face

an obvious risk of concussions due to head-on collisions, it is not the only sport posing a significant concussion risk.

According to High School Reporting Information Online, an injury surveillance system, only football and hockey players “report concussions at a higher rate than girls’ soccer . . . Since 2008 high school girls’ soccer players have reported an average of 14 concussions per 10,000 games played (a game is equal to one game played by one player). The figure is nearly twice the average compared to boys’ soccer (7.30), and only football (27) and boys’ hockey (18) have reported more concussions than girls’ soccer” (Janes, 2014, para. 6).

Tori Bellucci, a former standout soccer player from Huntingtown High School in Maryland, was forced to give up a scholarship to Towson University after suffering her sixth concussion. It was a decision she made on her own because concussions had such a negative impact on her life and she “didn’t want to live like [that] anymore” (Janes, 2014, para. 4). Bellucci is just one example of a female soccer player affected by concussions. Part of the reason younger females are more prone to concussive injuries is because they exhibit “significantly less isometric neck strength and neck girth [than boys]” (Collins et al., 2014, p. 310).

Concussions and the NFL

The NFL is by far the most popular sports league in the United States, bringing in a staggering \$ 9.3 billion annually (Gust IV, 2012, p. 246). Football by nature is a sport where fans look for big hits on a weekly basis and are enthralled by the inherent violence. While these hits may be what drives ratings, they allegedly create long-term problems for the players who experience them. Nearly 3,000 former players have sued the NFL over concussions. Of these athletes involved in the suit, 19 are enshrined in Canton in the Pro Football Hall of Fame. Those

19 alone have played in a combined 168,020 games (Feno et al., 2013). They accuse the NFL of “concealing the long-term consequences of head injuries from players” (Feno et al., 2013, para. 7). Some players feel bitterly towards the league, while others feel mistreated and betrayed. It is no secret, however, that the lawsuit has brought to light some serious questions about the health of current and former players.

Bernie Kosar played in the NFL for 12 years. Kosar believes that as a result of the ten diagnosed concussions he received, he has suffered sleeplessness, headaches, and slurred speech (Tribble, 2013). After treatment from a new doctor in Florida that seems to be improving his condition, Kosar has been extremely outspoken about his concussion struggles. Wes Welker is yet another player who came under fire for accumulating one too many concussions. During the 2013 season, Welker took a hard hit to the head after suffering a concussion a few weeks prior. Numerous journalists were critical of Welker, saying that he is “no longer a football player. He is a roulette player” (Dwyre, 2014, para. 4).

What is perhaps most concerning are findings of Chronic Traumatic Encephalopathy, or CTE, amongst former players. Symptoms of CTE can include paranoia, panic attacks, and major depression, a set of symptoms similar to Alzheimer’s disease (Kain, 2009, p. 698). CTE can only be confirmed posthumously, and was first observed in the 1920s in the brains of boxers (Kain, 2009, p. 701). Dr. Bennet Omalu is considered one of the original discoverers of CTE after examining the brains of Mike Webster and other NFL veterans (McGrath, 2013, para. 57). While the NFL denies any link between CTE and its players, Omalu insists that there is a direct correlation between too many hits to the head and CTE development after examining numerous brains of former players (Kain, 2009, p. 701). These findings caused shock in the medical community, but as discussed in *League of Denial*, Omalu and the NFL have not always agreed

over the issue—in fact, the NFL tried to discredit his original research (2013). While the NFL has stated their disagreements with Omalu’s research, they still have begun to adjust their attitude towards concussions. The NFL has made changes in recent years. In 2010 the NFL began to post warnings about concussions throughout locker rooms and also has rules about defenseless players getting hit above the head; however, opinions in the NFL are not entirely one-sided (Feno et al., 2013).

There is clearly a mix of attitudes among athletes, parents, and health organizations about the effects of concussions; however, everyone can agree that they pose some risk of danger due to the common lines seen throughout my research.

What Makes a Good Documentary?

The second area of research concerns what makes a good documentary and deciding on who my audience is going to be, and based on professional research there are multiple factors that make documentaries good. A documentary needs to be compelling. It should be noted, “every compelling story, fictional or documentary, has characters striving to accomplish something and overcoming obstacles from their circumstances. How they do this and whether they succeed provides the dramatic tension that keeps us enthralled” (Rabiger, 2009, p. 12). This dramatic tension keeps viewers interested, but it is important to have proper flow in the documentary itself. Rabiger (2009) argues, “as in the opening stages of a trial, a documentary must give a set-up, that is, introduce its characters, their special world, and what their problem is” (p. 347). The characters in a documentary by nature need to have a problem or an obstacle, otherwise there will be no tension to make the story compelling, and the audience will have no reason to continue watching. The problem for my characters is the concussions they have

accumulated. The concussions serve as the obstacles they must overcome and this will create the dramatic tension that sports fans actively seek out.

Wright (2010) also stressed the importance of narrative. The purpose of finding “a natural style and approach [is] to communicat[e] some experience or understanding to the audience” (Wright, 2010, p. 109). If a message is not communicated to the audience, the audience has no real point in watching the documentary; therefore, I made my message as clear as possible to the audience by showing the negative side effects and misunderstandings about concussions. The interview subjects chosen and my scriptwriting were used strategically to stress certain points and give the prospective audience a unique perspective.

Part III: Major Players

My project contains interviews with four athletes as well as four medical professionals. The four athletes are: Rachael Williams, Tori Bellucci, Bernie Kosar and Bob Golic. Williams is a high school basketball player, beginning her senior year at Lake Ridge Academy in North Ridgeville. Williams suffered one concussion last year, and talked to me about the surprising effects of this single injury. Bellucci is a former high school soccer player who suffered six concussions. As a result of her injuries Bellucci decided to give up soccer for good, along with a scholarship to play at Towson University in Maryland. Bellucci discussed with me her life post-soccer and all of the medical problems she has suffered. Golic attended University of Notre Dame and later played 13 years in the NFL. Six of those years were spent with the Cleveland Browns and his view on concussions is the opposite of what is mostly portrayed in the media. He thinks certain players are unfairly targeted, particularly when it comes to defenseless hits. Despite his beliefs, however, Golic also opened up to me about some of his worst concussive symptoms. Kosar is an 11-year NFL veteran. He has suffered at least ten concussions and is

very outspoken about his struggles. He has slurred speech, cannot sleep through the night, and gets headaches, among other issues. He is currently undergoing new treatment.

The four medical professionals I interviewed are: Dr. Kirsten Hawkins, Dr. Richard Figler, Michelle Fowler, and Brittany Urbania. Dr. Hawkins is the Chief of Adolescent Medicine at Medstar Georgetown University Hospital. She specializes in pediatric concussion care and rehabilitation. Dr. Figler is a Cleveland Clinic doctor who treats athletes at every level of play from high school to the pros and serves as the Co-Director of the Cleveland Clinic Concussion Center Fellowship. Urbania and Fowler are Cleveland Clinic athletic trainers who work primarily with John Carroll athletes at the college level. All of the medical personnel I interviewed talked to me in detail about treatment options for athletes and what can happen if athletes accumulate too many concussions.

What follows is the script for *School of Hard Knocks*, complete with narration, shot descriptions, and score selection.

Part IV: Script

Video	Audio
Williams Interview (<i>jump cuts, zoom in on video</i>)	Williams: At first I thought, I just hit my head, I'm okay. And they started to ask me questions, and I was getting frustrated because I couldn't remember things.
Williams shooting a basketball	NARR: From high school,
Bellucci Interview (<i>jump cuts, zoom in on video</i>)	Bellucci: I went to my primary doctor for concussions and she was like we've never seen anything like this before.
Browns Game	NARR: to the professional leagues,
Kosar Interview (<i>jump cuts, zoom in on video</i>)	Kosar: You get kind of a moderate hit in the head. Today they're saying even those are concussions. So you know, if you count those, you end up in over the

	hundreds.
Soccer players, laying on the ground holding heads	NARR: the effects of concussions are debated.
Golic Interview (<i>jump cuts, zoom in on video</i>)	Golic: I saw my name and I went over in the locker room, and I sat down. The next day, I found out I did a half hour of interviews, and I have no idea what I talked about.
Rachael playing basketball, Tori playing soccer, Golic lying on the ground, Kosar running the ball	NARR: This is the story of four athletes, and their battles with concussions
<i>ROTATING GFX:</i> School of Hard Knocks, Narrated by Ashley Bastock <i>FADES TO FULL WHITE, FADE TO BLACK</i>	(PIANO MUSIC FADES UP FULL)
<i>FADE UP</i> Williams interview <i>FADE TO BLACK</i>	Williams: (laughing) My name is Rachael Williams
<i>GFX:</i> Rachael Is A High School Senior <i>FADE OUT</i> <i>GFX:</i> She Plays Basketball At Lake Ridge Academy <i>FADE OUT</i> <i>GFX:</i> She Has Suffered One Concussion <i>FADE OUT</i>	(PIANO MUSIC UNDERNEATH FULL)
Williams Interview <i>GFX:</i> Name bar	Williams: I've been playing basketball probably since I was about three. I've always played. I play for my high school team, and then AAU, and then I played for travel in 5 th and 6 th grade.
Zoom in, Lake Ridge Academy logo on table	NARR: During her sophomore year of high school, Rachel took a hard hit during a regular season game
Williams Interview	Williams: I was playing basketball and I went for a jump ball, and the girl kind of like picked me up with the ball, and I let go and then my head broke my fall.
Wide shot looking up, Williams playing basketball with her sister	NARR: But what exactly happens when an athlete suffers a hard hit to the head?

Figler Interview

GFX: Name bar

FIGLER: A concussion is a transient neurological dysfunction that happens when there is a traumatic blow to the brain. So typically, it's a relatively short-term impairment, and there are two things that generally happen with a concussion. One is the skull gets hit, so the brain kind of jostles around a bit, which causes a cascade of events that starts in motion where the brain starts to heal itself from the trauma. And the other one is something that's lesser known, but it's the neck injury when the head gets hit and the skull whips back and forth on the neck.

Hawkins Interview

GFX: Name bar

Hawkins: Typically there are no obvious outward signs of injury or trauma. And so you can't tell by looking at someone that they've had a concussion. There's typically not any bruising or any swelling on the external part of the head.

Tight shot, legs playing basketball

Wide shot, zoom in, Williams shooting the basketball

NARR: The lack of obvious signs of injury makes it difficult to determine how much damage has actually been done. The scariest part of Rachel's injury were her side effects, especially considering this was her first and only concussion of her athletic career.

Williams Interview

Williams: When I first got up they asked me some questions and I couldn't answer. I know the first question I got wrong was I didn't know who the President was. Which is pretty bad, I didn't know who the President was, I couldn't remember. And I had a lot of memory issues. I don't actually remember a good week when I had it. I was tired a lot. All I wanted to do was go home and go to sleep.

Williams dribbling the ball, shoots a basket

NARR: Despite her debilitating symptoms, Rachael attempted to cover up her injury for one simple reason—she wanted to keep playing.

Williams playing one-on-one with her

sister

Williams dribbles into frame, shoots three-pointer

Williams Interview

Medium shot, John Carroll Football players at practice at line of scrimmage

Tight shot, John Carroll Women's soccer kicking soccer balls

Tight shot, weight lifter squatting
Figler Interview

Tight shot of legs on basketball court
Tight shot of a soccer ball being dribbled down the field
Medium shot, Williams defending her sister

Williams Interview

Williams: They weren't sure how bad it was because I popped right back up. Because in games, I don't know, I just pop right up in games. But everyone was concerned and the trainer had to take me out. I tried to hide it and act like I was okay, because I had to be able to go through a full week of school like being normal before I could be cleared to attempt doing things at practices. So, my friends would tell me how I didn't make sense most of the time.

NARR: It is a pretty common for athletes to attempt to hide their condition, but medical professionals have serious concerns.

Figler: I think that any athlete that wants to get back out on the field will do what they think they need to do to try and get back out on the field. And our concern is that the athlete is hiding symptoms from us. And we can't tell if people have a headache. We can tell if they're kind of disoriented, we can tell if they're confused, but if they come back into the office and we are asking them if they are normal, they can say, "Yes I feel absolutely fine," which they always do.

NARR: While athletes want to get back out on the court or the field, a lot of their mindset may have to do with a lack of knowledge about concussions.

Williams: I actually don't think I know a lot about concussions. I feel like I don't want to know sometimes, because it would probably scare me more to get a second one. But I know that they can get pretty bad and if you get too many that you can't play sports anymore.

FADE OUT

FADE UP Bellucci Interview

Bellucci: Okay. Tori Bellucci. T-O-R-I
Bellucci B-E-L-L-U-C-C-I

FADE UP GFX: Tori Bellucci Is A College
Freshman *FADE OUT*

GFX: She Was An All-State Soccer Player
For Huntingtown High School In Maryland
And Received A Scholarship To Towson
University *FADE OUT*

GFX: Tori Has Suffered Six Concussions
FADE OUT

(FADE UP PIANO MUSIC)

FADE UP Video of Bellucci Interview,
(*Jump cuts, zoom in*)

(GUITAR UNDERNEATH)

Bellucci: I started playing soccer when I was four, so I've obviously been playing for a really long time. My club team has won a state championship, my high school team has won a state championship, I was first team All-Met my senior year, and I was honorable mention All-Met my junior year. I made first team All-State, first team all SMAC all four years, which is our Southern Maryland conference. Player of the year all county my senior year. First team All-County for my sophomore, junior and senior year. I think that's about it for the most part, that covers most of it.

Picture of Bellucci kicking a goal

NARR: Despite all of her awards and accolades, Tori was no stranger to injury. She suffered her first concussion her sophomore year and learned how to hide her symptoms. But one incident during her junior season began to change her perspective.

Picture of Bellucci dribbling ball down field

(*Pianochocolate- More Than The Ocean* plays underneath)

Bellucci Interview

Bellucci: I went up for a header and I collided with someone else, and then I fell on the ground and hit my head on the ground. So it was kind of like a double. And I got up, I didn't know where I was or anything, but it was one of our playoff games, so obviously I didn't want

Game video of Bellucci

Picture of Bellucci on field, hands up in celebration

Game video of Bellucci being introduced before the game begins

Figler Interview

to go out. So once I came to and realized where I was I was still playing and we won, and we were advancing to the state semis. So I didn't tell anyone, I didn't want to go to the doctor. And I was like I know I have one at this point because I had so many before. I was like I know what to do. I'll relax, I'll take it easy at practice, and I'll be fine to play that next weekend. But then a couple of days later I was opening my jaw because I was eating my lunch at school. And then on my temple right here I would open my mouth and it would just crunch and it was really weird. And I came down and showed my mom, because my mom works at my school in the front office. So I went downstairs to go and show her, and she was like we need to leave right now and go to take you to the doctors. And I went to my primary doctor for my concussions and she was like we've never seen anything like this before, so she immediately got a cat scan and all of that and they thought I had fractured my skull. But luckily we found out after they did more tests that it was just fluid. So that was really scary because obviously it could happen again. After that I was out of school for like two weeks straight because I didn't want to do anything. And then it was really hard watching my team play and me having to sit on the sidelines. Because I was captain and I really wanted to play and I put so much time and heart into it. It was unfortunate to have to watch them and not be a part of it. So it took a huge toll on me emotionally, and physically obviously because that was really scary.

NARR: Besides depression, for younger athletes doctors are also concerned about a phenomenon called second-impact syndrome.

Figler: Second-impact syndrome is when

GFX: Name bar

the brain is starting to recover from a concussion and it gets hit again, so it sustains another injury, and we think it loses its regulatory control of how much pressure it can sustain in the skull, and basically the pressure becomes so much that the brain starts to herniate, and unfortunately a lot of those are pretty poor outcomes. Athletes end up with partial paralysis and several athletes have actually died over the course of the years from second-impact syndrome.

Picture of Bellucci mid-game kicking the ball

Dissolve to tight shot of legs kicking a soccer ball

NARR: Tori did not suffer from second-impact syndrome, but the rest of her symptoms are not uncommon. Doctors throughout the medical community believe that there is a direct correlation between depressive symptoms and repeated concussions.

Video of Bellucci scoring a goal

Hawkins Interview

GFX: Name bar

Hawkins: The most common that I've seen have been the difficulty with school and the return to school. Both depression as well as irritability, suicidality, and then difficulties being able to perform to the level of academics that they were able to do so beforehand.

GFX: So you have noticed a correlation between the concussions and depressive symptoms?

Q: So you have noticed a correlation between the concussions and depressive symptoms?

Hawkins: Oh definitely.

Figler Interview

Figler: The long-term consequences of having numerous concussions can be anything from chronic headaches, to sleep disorders, to some of the studies suggest, that there's a slight increased risk of depression, anxiety and dementia. There are findings in brains of athletes that have been constantly injured in their heads that probably had a lot of concussions that weren't reported that continued to play.

Video of Bellucci giving an interview
Picture of Bellucci heading the soccer ball

NARR: Tori now acknowledges that she was depressed, but says part of it was due

to being extremely limited during the periods when she was concussed.

(Chris Zabriski- The Temperature of the Air on the Bow of Kaleetan play underneath)

Picture of Bellucci smiling, holding soccer ball

Bellucci Interview

Bellucci: My doctors definitely picked up on it but I never wanted to admit to it, I was just like no, you're crazy, I'm fine, but I know I really wasn't looking back on it ... you can't go out and hang out with your friends because you feel bad. So you want to stay home, but you're staying home and you still can't be in contact with people but you can't be on your phone and you don't have anything to do, and it's hard to sleep, so you're just kind of like going crazy. I honestly just stayed in my room, and I had the shades drawn. I had blackout curtains, I was just in there for a long time, just trying to sleep and trying to relax, but it's really hard to do that when you're used to being so active and doing a lot of things all the time.

Game video of Tori chasing the ball

NARR: During the Summer of 2013, Tori says her symptoms grew worse.

Bellucci Interview

Bellucci: I didn't want to go anywhere, but when I was somewhere, I would get anxious. I would call my mom and be like crying, "I don't know why I feel like this, I need to come home." And just be like sitting at my friend's house, who I'm so comfortable around. And suddenly I would get really anxious and really moody. It took a hard hit on my social life because normally I'm really outgoing and really bubbly and I like to be doing things all the time. But last summer I didn't want to do anything, just always in bed. I never wanted to admit it at the time, but I knew I was really depressed.

Picture of Bellucci kicking the ball in an open field during a club game

NARR: Between the headaches and depression, doctors contemplated holding

Picture of Bellucci at high school practice	Tori back in school during her senior year. After finishing her final high school season, Tori decided she needed to make a permanent change. Despite committing to Towson University in Maryland, she decided to step away from the game of soccer for good.
Bellucci heading the ball	Bellucci: And after that last one, I was just like I need to stop doing this, because it's getting to a point where I'm not going to be able to function properly when I'm older, and I need to put things into perspective and realize, yeah soccer is the most important thing to me but 10, 20 years down the road ,soccer's not gonna be that important anymore, and that's when I realized I needed to stop doing what I was doing. I was just really scared and like, "What am I going to do with my life now?" as stupid as that sounds. How am I going to fill my time? How am I going to hang out with my friends? Because all of my best friends are on my soccer team. So that was really scary. And so, when I did have to call my coach and de-commit from school I was really close with him. I couldn't even get a word out when I called him. There was a lot of questions from a lot of my coaches as to like, "Who told you, you had to do this? Did a doctor tell you, you have to quit or did your mom and dad tell you, you had to quit?" So that was kind of an uneasy feeling, like you should just kind of take my word for it. No doctor can tell you like, "Okay this is your last one, you have one more strike." You don't know how bad the next one's gonna be. So, that was kind of tough to be like, "it was my decision," and then to be okay with that.
Picture of Bellucci in game	(MUSIC FADES OUT)
Video of Bellucci's team lined up for National Anthem	
Picture of Bellucci celebrating with a teammate during a game	
Picture of Bellucci kicking the ball	
Bellucci Interview	
Figler Interview	Figler: I think that the injury itself is kind of hidden. I mean, there are obvious people who get hit in the head and stumble off the

Athletic trainers putting ice on an athlete's knees

High School football player gets tackled during game

JCU Women's Soccer players heading ball
Two JCU Women's Soccer players lying on the ground after receiving concussions

Bellucci Interview

JCU Athletic trainer treating soccer players on the sideline

Wide shot of JCU soccer field

Close up of iPad with baseline test on it.

Fowler Interview

GFX: Name bar

JCU Women's Soccer scrimmage at practice

court, or stumble off the field and you know that they have a concussion. When the athlete is injured, a lot of times the injury is seen as not as serious, because the athlete doesn't have a crutch. They don't have a cast on. They don't have something that would signify that they are truly injured in their limbs. But we know that the athlete may not be able to focus, and their grades may drop. They may be sleeping erratically. So one of the issues that the athlete has is, when they have that injury they don't have the respect so to speak, of having other injuries.

Bellucci: I don't think people really understand how bad it can be. Especially, like I said, because you can't see that they're hurt. And you can't see that they're upset. And you can't see when they're at home and having a hard time going through the day and stuff like that. So I think that's why people don't think it's as big of a deal as it is, unless you've gone through it yourself.

NARR: To prevent injuries like Tori's from happening, colleges across the country behind an NCAA mandate are taking on new precautions and protocols. John Carroll University, along with numerous other colleges throughout the area are now mandating that athletes complete a series of baseline tests before they even step onto the field or court.

Fowler: So baseline testing, we do two tests here. So we do the IMPACT test, which is a neurocognitive test. And I don't even know how long it's been around, but it's been around for several years. Kids can take it at home. We can pull it up here in our office, just so it's supervised. So we try to get all the kids to do it over summer so when they come in they're ready to go, and ready to play. If they're not, if they

Football team running through contact drills	haven't taken it, we don't let them participate in any contact collision, anything. And then the iPad test is on an actual iPad that the Cleveland Clinic developed, and we have the individuals from the concussion center come out during our Fall physicals, just because there's such a huge, mass number. And the iPad test takes into account balance, similar to the IMPACT test reaction time, and there's some vision test in there too.
Close up of baseline test being performed on iPad test	
Student performing balance iPad test	
Puzzle being performed on iPad	
Figler Interview	Figler: The whole goal is to define normalcy, and then get them back to normalcy after their injury. You know, if you sprain your ankle, and your definition of normal is being able to go back out on the turf or the court and not having any issues and not have it effect your play. It's kind of the same thing with concussions, but the brain is a little bit more intricate and we want to make sure that the brain is fully functional before we send someone back out there with the potential that they could sustain another injury.
Balance iPad test being performed	
Close up of iPad evaluation	NARR: And while John Carroll is required to have a concussion management plan in place per NCAA regulation, the NCAA does not make baseline testing mandatory, something that OHSAA and other high school organizations like it have already acted on. These baseline tests exist to help trainers and athletes. Based on scores, athletes are kept out for what medical professionals assume is an ideal amount of time. But many times athletes will try and under-perform on these tests in order to make a quicker recovery if they sustain a concussion.
Trainer setting iPad balance test on athlete	
Tight shot of legs on the soccer field	
Urbania Interview <i>GFX:</i> Name bar	Urbania: It's extremely frustrating. Because, especially with everything going on in the media, and different people being sued, you've got to protect your job, and the health of the athlete. That's most

Shot of JCU Football practicing underneath the lights
 Video of Bellucci giving a speech at the White House with President Obama

important. And you know, when they're lying, and hiding their symptoms, they put themselves at risk.

Narr: And the risk for athletes who receive multiple concussions is a high one. Tori now understands this, and has turned to a roll of activism, even being invited to speak at the Healthy Kids and Safe Sports Concussion Summit at the White House in May.

Bellucci: Concussions have drastically altered my life, but the experience has also paved a new path for my future and taught me to not take anything for granted. Stories like mine are way too common, which is why I want to thank President Obama for shining a light on concussions and the severe impact they can have on a young athlete's life. With that being said, I am more than honored to introduce our next speaker, the President of the United States, Mr. Barack Obama (APPLAUSE)
 Obama: I'm so proud of you, good luck.

(Chris Zabriski- The Temperature of the Air on the Bow of Kaleetan plays underneath)

Bellucci Interview

Bellucci: I think we just need to keep doing things like that so we can be better prepared if something happens to someone. Because you could never tell someone to don't go as rough when you're playing because that's half the game, that's half the fun. So like I said, I think we need to just be more knowledgeable about it.

Picture of Bellucci in game

NARR: While Tori gave up sports for fear of what could happen to her, many former professional athletes who suffered concussions were never properly diagnosed, and now are dealing with the unanticipated consequences.

Browns video of Kosar in at quarterback

GFX: FADE IN Bernie Kosar and Bob

(FADE INTO PIANO MUSIC)

Golic are Veteran NFL Players. Both played for the Cleveland Browns *FADE OUT*

GFX: Golic played in the NFL for 13 years as a Defensive tackle *FADE OUT*

GFX: Kosar spent 11 years as an NFL quarterback *FADE OUT*

Video of Kosar at press conference

Video of Golic giving an Interview

Golic Interview

GFX: How many actual, diagnosed concussions did you have

GFX: How many times did you get your bell rung?

GFX: Name bar

Kosar Interview

GFX: Name bar

Game video Kosar against the Steelers

Golic lying on the ground being taken care of by athletic trainers during game.

Golic Interview

NARR: Kosar and Golic are both notable former professional football players for the Cleveland Browns, and both battled concussions during their playing days.

Q: How many actual, diagnosed concussions did you have?

Golic: Diagnosed? None.

Q: How many times did you get your bell rung?

Golic: We had our bell rung, we had our let's see what else do we have, we had lots of different names for it. Probably a dozen, maybe, that I was aware of.

Kosar: Well it's really tough to say. Like back in the day, our knowledge of concussions really wasn't what it is today. So you know back 20 or 30 years ago it was really something where we thought when we were unconscious, that was a concussion. You know, as you go about it today, you hear phrases like that we used to use a lot like hey I saw stars, I see stars, when you get kind of a moderate hit in the head. Today, they're saying even those are concussions. So you know if you count those, you end up in over the hundreds of them. But maybe the ones where you're unconscious or really woozy, would probably be between 15 and 20

NARR: While neither knows how many actual concussions they've had, Golic vividly remembers his worst.

(Cold Noise- Weakness plays underneath)

Golic: There was one in Cleveland where I

remember when it happened, I was, there was about four plays left in the game against the 49ers, and it was friendly fire one of my own guys got me. And I remember the game ended, I spent some time talking to Joe Montana was a teammate of mine from college, so I'm talking to him, no idea what I said to him. They said let's get to the locker room, so I started looking around like where's the locker room? And so I followed everybody, and we went up this tunnel, and at the top I'm going okay where do we go when we get to the top of the tunnel? And I followed everybody to the left and then to the right. And then we went into this room and you could go right or left. And I'm going "Oh God where am I gonna go?" And guys are going both ways, so finally I just went to the left. And I walked into the locker room, and I remember going, "I don't know where my locker is." But I remembered what my name was. So I sat there and I started looking at names, trying to be nonchalant about it. I didn't want to look like "Oh my God I can't figure anything out." So I just started looking and I go "Golic!" And I saw my name and I went over in the locker room, and I sat down. I found out the next day that I did about a half hour of interviews, and I have no idea what I talked about.

Kosar throws a touchdown pass

Narr: Kosar has been outspoken about his problems with concussions post football, and while he tries to work to help younger players he still experiences symptoms from his playing days.

Kosar Interview

Kosar: You know, I really started noticing them probably in the late 90s, a few years after I had been out of the league. And back then, you know, you didn't really know a lot about it. And actually it's funny back then the people around me were all saying you know it's all made up,

GFX: Have you ever experienced depressive symptoms as a result of concussions?

fabricated. Because it was hard to point a finger at what exactly it is because from the exterior, you don't really see anything.

Have you ever experienced depressive symptoms as a result of concussions?

Kosar: I don't know if it's a result of the concussions, but it could be a part of it. (MUSIC FADES OUT)

FULL SCREEN GFX: Dr. Ann McKee:
Boston
Chronic traumatic Encephalopathy (CTE)
Diagnosed Postmortem
Similar to Alzheimer's disease

Narr: More recently through research of Doctors like Ann McKee up in Boston, medical personnel are also beginning to notice a phenomenon in brains of ex-professional athletes who had numerous unreported concussions. Chronic Traumatic Encephalopathy, or CTE, can only be diagnosed postmortem, and has symptoms similar to Alzheimer's Disease.

Figler Interview
GFX: Name bar

Figler: They're seeing that in pathological specimens Chronic Traumatic Encephalopathy is an entity where the brain has protein deposits in parts of the brain that aren't suspected to be in those areas of the brain. We think that, that is an accumulation of trauma over time that happens. And I would hazard, and we're not quite sure about that, that most of the athletes that have that sustained an injury, didn't get better, sustained another injury didn't get better, sustained another injury, so there's this accumulative effect of trauma in the brain. Now the other problem is we don't know who is going to get that, and who is not going to get that. You may have eight concussions, I may have eight concussions, but we don't know which one of us might have Chronic Traumatic Encephalopathy down the road.

Football players slow motion running, pan of empty football field

NARR: It may be hard to determine who is at risk for CTE, but one thing doctors like Richard Figler are sure of, is the fact that it exists.

Figler Interview

Figler: I don't think we can say that it

doesn't exist, it exists. We can see it on these brain specimens. The question is, one how do they get it, and how do we prevent it from potentially happening in the athletic population now. And I think that one of the things that has to be remembered is these athletes that are in their 50s and 60s that we've seen Chronic Traumatic Encephalopathy in, these are athletes that we didn't treat concussions the same way that we're treating them now. Athletes basically were told it's fine, just keep playing. Whereas now, it's come out, rest your brain, let it recover and then you can go back out. So I think that the way we're treating concussions now is going to make hopefully a big decrease in incidents of what we see Chronic Traumatic Encephalopathy in the future. But we're not going to know that for 15, 20, 30, 40 years.

Golic interception converted for a touchdown

NARR: While CTE is gaining recognition as a problem, Golic says he does not fear for the future, and playing football was his decision.

Picture of Golic on set at 19 Action News WOIO-WUAB

Golic: Every once in awhile I wonder as I get older what will happen. I mean I do a radio show four hours a day, six days a week, and then I do the stuff at 19, and so basically, I sit there all day long, reading and talking and memorizing. And I think that, certainly for me, it would be horrendous if something like that came to pass. But I think that, I'm sure some of the guys have residuals from the hits. The guys that have it you feel bad for, you get out there and you support them and all that, and you can't believe sometimes how bad they are. But you know, when it comes down to it, it's a decision we made.

Video of Golic giving a post-game interview

Golic making a tackle

Golic Interview

Kosar getting tackled

NARR: Due to recent revelations, however, there has been a cultural change throughout the media and National Football

	League, and concussion protocol has improved over recent years.
Kosar close-up on the sidelines	Kosar: It was a lot different. But a lot of it was from a lack of knowledge back then. And I'm not saying they forced you to play. It was just assumed, you just assumed you were gonna play. You didn't want to be like again, the quarterback leading your team and because you got a headache that you're gonna miss plays that just wasn't really something that ever crossed your mind. Absolutely the league has changed. You can see by the new rules. You know no contact to the head, concussion protocols, the research on it, maybe keeping guys out during it... I mean back in the early 90s late 80s even saw the start of Monday Night Football with two helmets banging together. The league, I think and people wanted... you know ESPN was making its big jump into the sports world and those replays of quarterbacks getting wiped out, those big hits, made for good television back then. So I think you saw back then people really wanting that stuff to happen where as now the league is really trying to get away from it.
Kosar throwing a touchdown pass	
Kosar celebrating in game	
Kosar Interview	
Kosar in game completing a pass	NARR: While a culture change is occurring, many question how much you can really change contact sports, especially professional football.
Golic Interview	Golic: This game has always been about hitting. That's what made football what it is. People say baseball is America's pastime; well football is America's passion. And there's a passion about it because every level you go to, there's got to be this development, this mentality, that takes you to a new level, and when you see a bunch of guys who are pro players going and just doing it the way they've learned how to do it, man there's nothing like it.

You know the hitting, and the hitting is a part of it

Close up of Kosar running on to the field

NARR: One thing that is hard for non-athletes to understand is the desire to play, and the mentality required to successfully play a sport. Playing through pain is the norm for athletes at every level, and that is why so many try and play through their dangerous concussion symptoms.

JCU Women's Soccer team scrimmaging

Williams dribbling a basketball

(Plusplus- This is based on a true story plays underneath)

Williams Interview

GFX: Name bar

Williams: Normally whenever I get an injury I deny it. I deny the fact that I'm injured because I do want to push through it. I don't like being limited, or feeling like I have a weakness and I do view injury more as, like having a weakness.

Bellucci Interview

GFX: Name bar

Bellucci: I don't know whether it's like being, It's not being embarrassed but you want to show that you're tough enough to play, and especially if you're an important player on the team, you don't wanna let people down. You're like, I can keep playing, this is an important game. So, I think people put too much pressure on peoples' performance.

Kosar Interview

GFX: Name bar

Kosar: Well absolutely you want to go back in. And part of the whole mentality of an athlete, and we were even joking about it on stage today, is that if you're not playing somebody else is. The more you're out. the less likely, or the more likely it is somebody is going to take your spot. You want to be part of the team. You want to be out there. You don't want anyone else taking your position.

Golic Interview

GFX: Name bar

Golic: What I think is the most important thing, as a player, I loved playing football. I mean absolutely, it was what I lived for. I loved the emotions, the highs the lows, all that stuff. And I also felt that for me

anyway, there was this feeling of if you're healthy and a hundred percent, anybody can do it. It was almost like once you were hurt, or you were ill, or you were concussed, it was like there was an additional, I mean, this made it harder. But you know what, I'm gonna fight through this. And you know what, I kind of took it as a challenge.

Zoom to tight shot of a JCU Football helmet on the ground

Williams dribbling the ball to the basketball hoop

Kosar taking snaps during a game

Narr: Athletes view injury as a challenge, but the problem is, concussions are a different type of injury entirely. The athletes interviewed all had one thing in common: Saying they did not regret their time playing, and that while they can worry about the next generation of athletes coming up through the ranks, they still value the sports they chose to play

(Chris Zabriski- The Temperature of the Air on the Bow of Kaleetan plays underneath)

Golic Interview

Golic: Anytime you see your kid or a family member stay down on the field after a play is over it just freaks you out. And because of all the focus on the head injuries and all the possibilities that come with it, you know the dementia, I mean, it just I think, it's put into our minds, it's given us something to worry about, and so when it happens, you're like oh my god I hope this isn't damaging him permanently. But you know, you still have to, back in the day we still have to look back and we knew that it was contact, and we knew we were putting our heads places we probably shouldn't have, and we came out, so you don't want your kids to be hurt, but if they've chosen to do the same thing you did, you gotta kinda give them the leeway to do it.

Bellucci Interview

Bellucci: I wouldn't change anything honestly, because I had the time of my life playing. And I made so many friendships that way, and I learned how to be a leader,

Picture of Bellucci jumping up and high-

fiving a teammate

Picture of Bellucci hugging teammate during game

Bellucci Interview

and how to be a teammate, and work with other people. And yeah it's unfortunate that all this stuff had to happen to me. But then again I get to talk to people like you, and do things to help other people. And if I had a daughter I would definitely, I feel like I would force her to play honestly, as weird as that sounds. Because if I went through it I know how I would help her out. And my mom honestly, she pushed me to play soccer, and I really didn't want to do it when I was little but it turned out to be the best thing that's happened to me. And I think being a part of a team and being a part of a sport teaches you everything you need to know in life. So I would definitely want her to play without a doubt.

JCU Football scrimmaging at practice

NARR: While the athletes feel this way, the medical professionals have mixed views on contact sports.

Figler Interview

GFX: Name bar

Figler: You have to weigh the risks vs. the benefits of playing a sport. If the risk of injury is so high for a sport, would you want your child to play that sport? And if you were going to let them play that sport, wouldn't you want them to be protected as much as they possibly can so that they don't sustain an injury? You play sports, there's an opportunity for you to get injured. We can condition you, and make you stronger and make your balance better, but accidental injuries are just that, they're accidental injuries. Contact sports obviously are going to be more prone to concussions.

Rachel running on the court
Balance test being performed

Figler Interview

Hawkins Interview

GFX: Name bar

Hawkins: I'll be honest, I'm glad I have girls, and they don't want to be playing contact football. But they play soccer, and they're at soccer camp this week actually, and so even though they're in elementary school it's a concern.

Stand up: Bastock in JCU gym

Bastock: Athletes will continue to play contact sports; however, as medical professionals continue to learn about the negative side effects of concussions, maybe it will change the way we perceive those who suffer from them. Signing off, I'm Ashley Bastock, at John Carroll University.

Credits roll

(FADE PIANO MUSIC UP FULL)
FADE TO CREDITS

TOTAL RUN TIME: 31 minutes 45 seconds

Part V: Evaluation Techniques and Conclusion

The goal of *School of Hard Knocks* is to change attitudes about concussions and educate the audience about the negative implications of mild traumatic brain injuries. In order to achieve this goal, I am going to offer a screening of the film on campus and administer a survey to the audience both before and after the viewing. I will questions to the audience that deal with their knowledge and attitudes towards concussions. I hope that after viewing *School of Hard Knocks*, the audience will feel more informed about concussions and will understand how much concussions can affect the life of an athlete even though it may not be a visible injury.

In order to make a compelling documentary with a good narrative I used numerous tactics in both the editing and interviewing processes. I strategically mixed in the interviews of the medical professionals in between the athletes' interviews so that they could explain in medical terms what happens when at athlete suffers from disorders such as second-impact syndrome or CTE. The longest single sound bite is under three minutes to keep the story moving and to retain a dramatic effect. Lower-third name bars are strategically placed throughout so that the audience remembers who is talking at any given time. I created dramatic tension through the structure of my narrative. I began with an athlete who only suffered one concussion and ended with athletes

who have suffered from countless head injuries. In this way, the audience sees the symptoms of the concussions progress. I also had emotional sound bites from the athletes talking about why they chose to play through the pain of a concussion and why they value the sports they played.

If I were to do this project again, I would make a few minimal changes. First, I would have framed Dr. Figler's interview differently and shoot it from a higher angle. The lower angle makes him look less important than his title. I would also film Bernie Kosar and Bob Golic at different angles so that it would look smoother dissolving in and out of their interviews when they are juxtaposed with one another. I would also potentially trim Tori's segment down a bit, but her sound bites were all so good that was too hard of an editing decision.

It is impossible to completely protect athletes who play contact sports from injury, in particular head injuries. The only way then to prevent injuries is to change the attitudes of everyone involved with sports, including parents, coaches, and athletes. Athletes must recognize when they are not able to continue playing, and parents and coaches must learn to not push young children to play through this sort of head trauma. Through the interviews conducted, it is obvious that concussions have negative implications on both younger and retired athletes. It is my hope that those who view *School of Hard Knocks* will now see this injury in a more serious light.

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