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WHERE IS THE AWARENESS IN CONCUSSION AWARENESS: CAN CONCUSSED PLAYERS REALLY ASSUME THE RISK IN A CONCUSSED STATE?

I. INTRODUCTION

Football is an inherently dangerous game.¹ The risk of injury, even the risk of concussion, is known and generally appreciated.² However, as far as injuries are concerned, concussions are particularly difficult injuries to detect, diagnose, and manage.³ In recent years, knowledge and awareness surrounding the long-term impacts and dangers of sports-related concussions have grown immensely.⁴ This increased awareness is due in large part to two civil suits filed against the National Football League (NFL) and the National Collegiate Athletic Association (NCAA) by former players suffering from debilitating cognitive deficits as a result of receiving multiple concussive impacts during their time on the field.⁵ In both cases, former athletes claim the NFL and the NCAA knew of the long-

1. See Bruce Feldman, *Getting Their Bell Rung*, CBS SPORTS (Sept. 10, 2012, 6:49 PM), <http://www.cbssports.com/collegefootball/writer/bruce-feldman/20140521/getting-their-bell-rung> (describing football as “vicious and violent”).

2. See Cailyn M. Reilly, Article, *Where is Concussion Litigation Headed? The Impact of Riddell, Inc. v. Schutt Sports, Inc., On Brain Injury Law*, 20 MOORAD SPORTS L.J. 517, 517 (2013) (footnote omitted) (calling concussions “the reality of contact sports”).

3. See Patrick Hruby, *Head Games*, SPORTS ON EARTH (Jan. 16, 2013), <http://www.sportsonearth.com/article/40980196/> (describing concussion). “There are probably only 5-10 people worldwide who can stand on a football sideline and diagnose concussions within a margin of only 10 percent error.” *Id.* (quoting football historian and author, Matt Chaney). For a detailed discussion of how concussions are diagnosed, see *infra* notes 42-49.

4. See Andrew Brandt, *The NFL's Concussion Conundrum*, ESPN (Oct. 7, 2012), http://espn.go.com/nfl/story/_/id/8513300/the-issue-concussions-nfl-not-going-away (describing how concussion awareness has changed culture of NFL); see also Anna Stolley Persky, *Playing It Safe: Are Concussions Ruining Sports?*, WASHINGTON LAWYER (Apr. 2013), http://www.dobar.org/for_lawyers/resources/publications/washington_lawyer/april_2013/playing_safe.cfm (noting growing field of concussion research and describing changes implemented in NFL as result of increased knowledge of concussion risks).

5. See Persky, *supra* note 4 (describing effect of lawsuit against NFL). “What the litigation will bring is a new consciousness across the spectrum of the sport, all the way down to the children playing.” *Id.* (quoting attorney Ira Sherman); see also George Vecsey, *College Athletes Move Concussions Into the Courtroom*, N.Y. TIMES, Nov. 29, 2011, at B14, available at <http://www.nytimes.com/2011/11/30/sports/ncaafotball/college-players-move-concussions-issue-into-the-courtroom.html?pagewanted=all&r=0> (discussing lawsuit against NCAA). “The legal action comes after a five-year flurry of awareness of brain injuries in contact sports and follows lawsuits filed this year by dozens of former NFL players who claim the league was

term risks associated with continued play following a concussion, that they had a duty to warn the players of those long-term risks, and that the NFL and NCAA were negligent in failing to carry out that duty.⁶

Although the NFL and its former players recently settled for \$765 million, the controversy surrounding concussion liability is far from over.⁷ According to the terms of the settlement, the \$765 million will only be available to players who retired before the date of the settlement.⁸ Current players will not have access to the settlement money even though many are likely to face similar long-term cognitive degeneration.⁹

It has been suggested that the recent and intense increase in awareness surrounding the danger of continued, post-concussive play will protect the NFL and the NCAA from liability in the future by providing an affirmative defense that today's players assumed the risk of continued play.¹⁰ However, a concussion is an evolving injury, and symptoms may or may not be immediately present or rec-

negligent in its handling of brain trauma." *Id.* (describing shift in handling of concussions).

6. See Corrected Consolidated Class Action Complaint, *Arrington v. Nat'l Collegiate Athletic Ass'n*, No. 11-cv-06356 (N.D. Ill. Nov. 21, 2011), available at [http://www.hbsslaw.com/Templates/media/files/case_pdfs/NCAA%20Concussions/Arrington%20NCAA%20Complaint%20\(1\).pdf](http://www.hbsslaw.com/Templates/media/files/case_pdfs/NCAA%20Concussions/Arrington%20NCAA%20Complaint%20(1).pdf) (consolidating athletes' claims); Plaintiff's Master Administrative Long-Form Complaint, *In re Nat'l Football Players' Concussion Injury Litig.*, No. 2:12-md-02323-AB, MDL No. 2323 (E.D. Pa. June 7, 2012), ECF No.83, available at <http://nflconcussionlitigation.com/wp-content/uploads/2012/01/NFL-Master-Complaint1.pdf> (setting forth claims); see also, Persky, *supra* note 4 (explaining allegations in complaint filed against NFL); Spencer Anderson, *NCAA Institutions and a Duty to Warn Football Student-Athletes: A Look Into the Arrington v. NCAA Case*, NFL CONCUSSION LITIG., <http://nflconcussionlitigation.com/wp-content/uploads/2012/08/NCAA-Institutions-and-a-Duty-to-Warn-copy1.pdf> (last visited Aug. 31, 2013).

7. See Arthur L. Caplan & Lee H. Igel, *What's Unsettled About the NFL Concussions Settlement*, FORBES.COM (Aug. 30, 2013, 6:26 PM), <http://www.forbes.com/sites/leeigel/2013/08/30/whats-unsettled-about-the-nfl-concussions-settlement/> (describing reactions to settlement and disagreeing with those who say settlement signals end of concussion controversy).

8. See Ken Belson, *N.F.L. Agrees to Settle Concussion Suit for \$765 Million*, N.Y. TIMES, Aug. 29, 2013, at A1, available at <http://www.nytimes.com/2013/08/30/sports/football/judge-announces-settlement-in-nfl-concussion-suit.html?pagewanted=1> (noting terms of settlement and describing who may be eligible for payouts from settlement).

9. See *id.* ("The settlement does not cover current players.").

10. See Jeffrey Standen, *Assumption of Risk in NFL Concussion Litigation: The Off-hand Empiricism of the Courtroom*, 8 FIU L. REV. 71, 78-80 (2012) (explaining that players have access to body of knowledge and research regarding concussions and, as matter of law, it would be difficult to prove they played game without awareness of sport's inherent risk).

ognized following an injurious impact or collision.¹¹ Even when symptoms are immediately present, concussed players are sometimes able to successfully complete a cursory sideline assessment and are subsequently deemed clear to play.¹² As a result of medical clearance, players may continue to play immediately following a concussion, even if they feel “off” or “dazed.”¹³ This reality is especially concerning given that scientific data indicates that playing during the most acute phase of a concussion increases the risk of subsequent and more serious concussions.¹⁴

11. See Paul McCrory et al., *Consensus Statement on Concussion in Sport: The 4th International Conference on Concussion in Sport Held in Zurich, November 2012*, 47 *BRITISH J. SPORTS MED.* 250, 250 (2013) (“[C]oncussion is an evolving injury in the acute phase with rapidly changing clinical signs and symptoms, which may reflect the underlying physiological injury in the brain.”); Thomas M. Talvage et al., *Functionally-Detected Cognitive Impairment in High School Football Players Without Clinically-Diagnosed Concussion*, 30 *J. NEUROTRAUMA* 1, 2 (2013) (“Symptoms often do not become manifest until several hours after trauma.”); see also Anne-Christine Duhaime et al., *Spectrum of Acute Clinical Characteristics of Diagnosed Concussions in College Athletes Wearing Instrumented Helmets*, 117 *J. NEUROSURGERY* 1092, 1095 (2012) (describing results of controlled study examining concussion diagnoses in college athletes). In Duhaime’s study, 450 athletes participating in contact sports wore special helmets outfitted with sensors that collected data on head impact exposure, defined as the frequency, location and magnitude of head impacts. *Id.* at 1093. (explaining measurements used in study). The helmets were not used to diagnose concussions; rather, the schools’ medical staffs and athletic trainers made diagnoses according to the policies and protocol in place at each institution. *Id.* (describing purpose of gathering data). When a diagnosis was made, the data from the athlete’s helmet was collected and analyzed. *Id.* at 1094. (describing method of gathering data). The researchers measured statistics such as the number of impacts that occurred on the day of the athlete’s injury and within seven days of the injury, as well as the location of the impacts. *Id.* (describing data). Forty-eight concussions were diagnosed during this study. *Id.* (reporting number of concussions diagnosed). Thirty-one of those concussions could be traced to a specific, impact or collision identified and reported by the player or a spectator. *Id.* (reporting results of study). However, only nineteen of the thirty-one concussions associated with an identified impact resulted in an immediate or near-immediate onset of concussion symptoms. *Id.* at 1095. (noting delay in onset of symptoms following identified concussive impacts).

12. See Eric Goldwein, *There Isn’t an NCAA Concussion Policy Because the NCAA Doesn’t Want a Concussion Policy*, *SLATE* (Dec. 7, 2012, 3:10 PM), http://www.slate.com/articles/sports/sports_nut/2012/12/ncaa_concussion_policy_in_college_football_the_risk_of_legal_liability_is.html (describing multiple instances during 2012 college football season when athletes who had suffered extremely forceful hits and exhibited symptoms of concussions, returned to play in same game after sideline medical evaluation). “Florida State quarterback E.J. Manuel needed to be helped off the field after taking a vicious hit to the head against Florida. Manuel returned to the game after an abbreviated medical examination, and FSU coach Jimbo Fisher later claimed farcically that Manuel had suffered an abdominal injury.” *Id.* (relaying one such instance).

13. For a discussion of cognitive symptoms of a concussion, see *infra* note 37 and accompanying text.

14. See Kimberly Harmon et al., *American Medical Society for Sports Medicine Position Statement: Concussion in Sport*, 23 *CLINICAL J. SPORT MED.* 1, 3 (Jan. 2013) (“Stud-

During the period of time immediately following a concussion, a player's decision-making ability is impaired, his cognitive functioning compromised, and his ability to assume the risk by consenting to play is not entirely informed or valid.¹⁵ Despite the general, increased awareness surrounding the dangers and risks associated with continued play following a concussion, players are still not being properly diagnosed immediately following a concussive hit, and many are "cleared" to play within just a few minutes.¹⁶ It is neither responsible, nor legally sound, to assert that players who have *already sustained a concussion* and are allowed to return to play immediately thereafter have actually assumed the risk of future cognitive decline attributable to subsequent and multiple concussions.¹⁷ Rather, for current players who are aware of the risks, yet consent to play immediately following an undiagnosed concussion, the decision to return to play is a giant red flag indicating a serious lapse in cognitive functioning and judgment.¹⁸

This comment explains why an athlete cannot validly assume the risk of continued play while in a concussed state.¹⁹ Section II explains the science of a concussion and discusses the assumed risk defense in negligence actions.²⁰ Section III explains why the science of a concussion prevents an already-concussed athlete from

ies support the concept of increased postconcussive vulnerability, showing that a second injury before the brain has recovered results in . . . more significant cognitive deficits." For a further discussion of cognitive deficits following a concussion, see *infra* note 39 and accompanying text.

15. See Vecsey, *supra* note 5 (relaying conversation with attorney and former college soccer player who says it is "unrealistic" to place burden of monitoring injuries, specifically concussions, on injured college athletes themselves). "If you break an arm, you break an arm.' But with a concussion, 'a lot of these times, it comes and goes and you don't really know you've hurt yourself.'" *Id.* (quoting attorney Steve W. Berman, who has represented college athletes in lawsuits against NCAA).

16. For examples of football players who were "cleared" to return to play in the presence of observable symptoms of a concussion, see *infra* notes 163-167, 175-181, 226-230 and accompanying text.

17. See Vecsey, *supra* note 5 (emphasis added) (noting difference between breaking arm and suffering concussion and explaining athletes do not consider future costs, implications of injury).

18. See *id.* ("He thought concussions were simple: 'You get your bell rung. You get smoked. And then you go back in.'") (quoting Derek Owens, former college football player who suffered multiple concussions and is now part of class-action lawsuit against NCAA).

19. For a further discussion of why concussed athletes are incapable of assuming the risk of continued play, see *infra* notes 156-162 and accompanying text.

20. For a detailed discussion of the science of a concussion see *infra* notes 24-70 and accompanying text. For a discussion of the assumed risk defense, see *infra* notes 71-112 and accompanying text.

validly assuming the risks associated with continued play.²¹ This section also suggests that doctors, coaches and, trainers on the sidelines have an increased duty to prevent injured players from returning to play in the immediate aftermath of a possible concussion because of the difficulty in diagnosing them.²² Finally, Section IV reiterates the duty of care owed to concussed athletes and suggests ways to minimize the risk of long-term cognitive deficits associated with multiple and repeated concussions.²³

II. BACKGROUND

A. Not Quite as Simple as “Getting Your Bell Rung” – The Science of a Concussion

1. *The “Evolving” Definition of “Concussion”*

A concussion is defined as a mild traumatic brain injury that disrupts “brain function and is caused by a complex pathophysiologic process.”²⁴ A concussion is a common injury in contact sports.²⁵ However, the incidence rate of concussions has increased annually over the past decade.²⁶ Commentators suggest that the increased incidence rate may be attributed to the general increase in awareness surrounding the risks of concussions, as well as the rapidly expanding body of scientific research exploring the injury in recent years.²⁷

21. For a further discussion of why a concussion prevents an injured athlete from validly assuming the risk, see *infra* notes 140-162, 189-190, 196-200 and accompanying text.

22. For a further discussion why coaches, doctors, and trainers have an increased duty to prevent concussed athletes from continued play, see *infra* notes 185-188, 200-221 and accompanying text.

23. For a further discussion of ways to aid the diagnosis and management of concussions, see *infra* notes 244-260 and accompanying text.

24. Harmon, *supra* note 14, at 3; see also Duhaime, *supra* note 11, at 1093 (describing operational definition adopted by collegiate athletic departments in study as “a process affecting the brain induced by traumatic mechanical forces and resulting in the rapid onset of short-lived impairment of neurological function, often accompanied by additional characteristic signs and symptoms”).

25. See Harmon, *supra* note 14, at 4 (noting between 1.68 and 3.8 million sports-related concussions occur each year in United States and constitute 5% to 9% of all sports related injuries according to estimates by Centers for Disease Control and Prevention).

26. See *id.* at 3 (stating incidence rate).

27. See *id.* (providing possible reason for increase in reported concussions and noting that rate of sports-related catastrophic head injuries has remained steady); see also Matthew L. Dashnaw et al., *An Overview of the Basic Science of Concussion and Subconcussion: Where We Are and Where We Are Going*, 33 NEUROSURGERY FOCUS 1, 1 (Dec. 2012) (noting “skyrocketing levels of public awareness” and society’s better overall understanding of concussions).

Historically, many people believed that concussions required a loss of consciousness.²⁸ Later, the definition was broadened “to include transient alterations in consciousness without actual loss of consciousness, with the recognition that similar post concussive symptoms, including amnesia, could occur in both scenarios.”²⁹ The reliance on loss of consciousness and amnesia as diagnostic criteria for concussions was, again, expanded to include “any type of alteration in mentation, such as confusion, disorientation, or mental clouding[.]”³⁰ The most recent definition of concussion, established at the 4th Zurich Conference in November 2012, states: “Concussion is a brain injury and is defined as a complex pathophysiological process affecting the brain, induced by biomechanical forces. Several common features [] incorporate clinical, pathologic and biomechanical injury constructs that may be utilized in defining the nature of a concussive head injury. . .”³¹

2. *Much More Than Getting “Dinged” – A Multitude of Symptoms*

A number of different symptoms may be present during a concussion.³² Headaches are the most common concussion symptom, followed by dizziness.³³ While loss of consciousness does occur in some concussive incidences, a positive diagnosis no longer depends on this symptom occurring.³⁴ Additional physical symptoms of a concussion may also include: nausea; vomiting; balance problems; visual problems; fatigue; sensitivity to light; sensitivity to noise;

28. See Harmon *supra* note 14, at 4 (stating loss of consciousness only occurs in about 10% of concussions); see also Duhaime, *supra* note 11, at 1096 (noting that concussions previously defined as “brief loss of consciousness sustained after head impact”).

29. See Duhaime, *supra* note 11, at 1096 (tracing development of definition and understanding of concussions).

30. See *id.* (describing definition established at 3rd International Zurich Conference in 2008).

31. See McCrory, *supra* note 11 (providing definition from most recent International Conference on Concussion in Sport).

32. See, e.g., Harmon *supra* note 14, at 4 (naming most common symptoms and secondary symptoms).

33. See *id.* (stating signs and symptoms of concussions).

34. See Duhaime *supra* note 11, at 1096 (acknowledging diagnostic criterion have varied over time but loss of consciousness is no longer considered defining feature of concussion). Although loss of consciousness certainly would indicate a brain injury, the definition of, and diagnostic criteria for, a concussion has been expanded in recent decades to include symptoms that are, perhaps, more subtle, yet, equally indicative of mild brain trauma. *Id.* (describing expansion of criteria used to diagnose concussions); see also *Traumatic Brain Injury*, MAYO CLINIC, <http://www.mayoclinic.com/health/traumatic-brain-injury/DS00552/DSECTION=symptoms> (last visited Sept.1, 2013) (describing symptoms for mild and moderate to severe traumatic brain injury).

numbness or tingling; and, feeling dazed, confused or disoriented.³⁵

Cognitive and emotional symptoms are also used to diagnose a concussion.³⁶ Cognitive symptoms of a concussion may include feeling mentally “foggy” or slowed down.³⁷ A concussed athlete may experience memory or concentration problems and be forgetful of, or express confusion regarding, recent information and conversations.³⁸ Difficulty responding to questions, indicated by repeating the questions or responding slowly can be additional cognitive symptoms of a concussion.³⁹ Emotional symptoms can include irritability, sadness, nervousness, and feeling more emotional overall.⁴⁰ In addition to these cognitive and emotional symptoms, concussions are responsible for producing varying degrees of cognitive impairment, including deficits in memory, cognitive processing speed and reaction time.⁴¹

3. *Diagnosis – Subjectively Objective*

There is no specifically mandated diagnostic test to diagnose concussions.⁴² Rather, within the sports context, the responsibility lies with certified athletic trainers and sideline medical personal who may utilize a variety of “rudimentary” neurocognitive and balance tests, depending on the circumstances at the time and in the

35. See Harmon, *supra* note 14, at 4-5 (referring to Table 3 and listing concussion symptoms); see also Mayo Clinic, *supra* note 34 (providing list of concussion symptoms).

36. See Harmon, *supra* note 14, at 4-5 tbl.3 (providing signs and symptoms of concussions and noting concussions effect brain mood centers such as hippocampus, amygdala and prefrontal brain regions); see also McCrory, *supra* note 11, at 2 (noting different clinical domains of concussion symptoms).

37. See Ivan Mulligan et al., *Prevalence of Neurocognitive and Balance Deficits in Collegiate Football Players Without Clinically Diagnosed Concussion*, 42 J. ORTHOPAEDIC & SPORTS PHYSICAL THERAPY 625, 626 (July 2012) (describing objective and subjective cognitive symptoms of concussions).

38. See Harmon, *supra* note 14, at 5 tbl.3 (listing cognitive symptoms).

39. See *id.* at 4-5 (providing cognitive symptoms of concussions); see also Mayo Clinic, *supra* note 34 (listing various concussive symptoms but not differentiating clinical domain).

40. See Harmon, *supra* note 14, at 4-5 (listing emotional symptoms of concussion); see also Mayo Clinic, *supra* note 34 (providing additional list of emotional symptoms).

41. See Talvage, *supra* note 11, at 6 (finding deficits in neurocognitive ability in athletes who suffered concussions).

42. See Duhaime, *supra* note 11, at 1093 (explaining study and sideline evaluations tools employed to assess athletes' for concussions varied among institution and between sports involved in study).

context of the suspected head injury.⁴³ These cursory diagnostic tools have the ability to provide objective measures of impairment.⁴⁴ However, many of these tests are administered only if an athlete reports his or her subjective symptoms.⁴⁵

Unfortunately, not all symptoms are present immediately following a potentially concussive hit.⁴⁶ A delayed onset of symptoms makes it difficult to promptly diagnose concussions.⁴⁷ In some cases, an athlete may experience a concussion and subsequently begin to suffer neurocognitive impairment; yet, in the absence of immediate, physical symptoms, the athlete may return to play, unaware of his or her injury.⁴⁸ This reality incites particular con-

43. See Sean Conboy, *Why the NFL Sucks at Concussion Testing, and What It Can Do About It*, WIRED (Dec. 28, 2012, 6:30 AM), <http://www.wired.com/playbook/2012/12/nfl-sideline-concussion-testing/> (quoting sports concussion expert, Dr. Michael Collins) (describing sideline concussion tests); see also McCrory, *supra* note 11, at 3 (stating neuropsychological tests are informative and of clinical value in evaluating concussed athletes); Talvage, *supra* note 11, at 2 (describing role of on-site healthcare professionals in evaluating athletes for concussion symptoms).

44. See Mulligan, *supra* note 37, at 626 (naming diagnostic tests that are used to provide objective measurements that aid in managing athletes' concussions and return to play). The tests used to diagnose concussions include the Balance Error Scoring System (BESS), the Immediate Post-Concussion Assessment and Cognitive Testing (ImPACT), and the Postconcussion Symptom Scale. *Id.* (stating which specific tests are used to diagnose concussions); see also Duhaime, *supra* note 11, at 1096 (questioning whether diagnostic tools that rely on athletes' self-report of subjective symptoms are sufficient when considering delayed symptoms).

45. See Mulligan, *supra* note 37, at 628 (describing limitations of current diagnostic tests). "Although a battery of tests are available and used by healthcare providers, assessment for concussion is limited solely to those athletes who report or overtly display signs and symptoms of concussion, such as a headache, foginess, loss of balance, etc." *Id.* (noting reliance, by current evaluation methods, on subjective self-reported symptoms).

46. See *id.* at 628-29 (explaining that symptoms may present hours after actual injury and thus, may prevent some players from associating or identifying symptoms with specific impact or injury); see also McCrory, *supra* note 11, at 7 (describing concussion as "evolving injury" and "evolving process").

47. See McCrory, *supra* note 11, at 7 (calling concussions one of "the most complex injuries in sports medicine to diagnose, assess and manage"); see also Talvage, *supra* note 11, at 2 (noting current diagnostic tools that rely on athlete's subjective symptoms have certain drawbacks when concussive symptoms are delayed).

48. See Talvage, *supra* note 11, at 6-7 (describing surprising results of study). In the study, Talvage and his colleagues monitored head collision events of twenty-four high school football players throughout the course of their season. *Id.* at 2. (describing subjects of study). The athletes were assessed prior to the season using neurocognitive and neurophysiological testing paradigms. *Id.* (explaining assessment methods). During the ten-week season, between one and three players were invited each week to participate in in-season assessment sessions. *Id.* (explaining format of their study). Participants were invited if: they had been diagnosed with a concussion; they had not been clinically diagnosed with a concussion but the helmet sensor monitoring head impacts had recorded an unusually large amount of head impacts for that athlete; or, they did not experience a large amount of colli-

cern because scientific studies suggest that athletes who return to play while suffering neurological damage have an increased risk of subsequent and more severe concussions, which may lead to chronic traumatic encephalopathy (CTE) and prolonged neurocognitive deficits.⁴⁹

4. *Treatment and Return to Play Following a Concussion*

Medical experts, athletic trainers, and sports leagues unanimously agree that an athlete *suspected* of having a concussion should be removed from play for the remainder of that game or practice and be examined by an athletic trainer or a medical professional.⁵⁰

sions or impacts despite participating in practice and games. *Id.* (describing criteria for invitation to participate in study). The in-season assessments occurred within forty-eight hours of a game or seventy-two hours of a positive concussion diagnosis. *Id.* (describing timing of study). Not surprisingly, players diagnosed with a concussion before in-season assessment exhibited significantly diminished neurocognitive performances on one or both of the Verbal and Visual Memory Composite tests on the IMPACT test. *Id.* (describing observations). What was surprising, however, was that one group of players, who had not exhibited any symptoms that would have lead an athletic trainer or sideline medical personnel to administer a concussion assessment, did experience reductions in IMPACT scores that were statistically significant. *Id.* (noting surprising result). In addition to experiencing neurocognitive deficits as evidenced by the IMPACT results, the athletes in this group also displayed significantly diminished fMRI activation levels in areas of the brain “strongly associated with working memory.” *Id.* (reporting their observations).

49. *See id.* at 1, 9 (expressing concern over concussed players who go undiagnosed and describing increased risk of playing with concussion); *see also* Jonathan Beckwith et al., *Head Impact Exposure Sustained By Football Players on Days of Diagnosed Concussion*, J. AM. COLL. SPORTS MED. 737, 743 (2013) (finding team’s medical staff did not immediately identify more than half of diagnosed concussions in study and noting that majority of concussions were not diagnosed until after game ended); *see also* Dashnaw, *supra* note 27, at 4 (describing study examining effects of initial and subsequent concussions in mice). A study performed by Lauer et al, showed that a second concussive impact caused changes in the cerebral cortex. *Id.* (describing researchers’ findings). Based on their results, Lauer and his colleges suggest that in the first twenty-four hours following a concussion, the brain has an increased vulnerability to a second or subsequent injury. *Id.* (hypothesizing increased vulnerability for concussion based on results of study); *see also* Harmon, *supra* note 14, at 11 (describing consequence of premature return to play). “[S]tudies suggest there is an increased window of brain vulnerability after concussion . . . [which] may translate to increased susceptibility to concussion, increased morbidity from relatively lower forces, or prolonged symptom duration and neurocognitive recovery.” *Id.* (footnotes omitted) (explaining increased risk of injury).

50. *See* McCrory, *supra* note 11, at 3 (stating “unanimous[] agree[ment]” among consensus members); *see also* Harmon, *supra* note 14, at 7 (“Any athlete suspected of having a concussion should be removed from play and assessed by a licensed healthcare provider trained in the evaluation and management of concussion.”); McCrory, *supra* 11, at 2 (relaying agreement that player with diagnosed concussion should not be returned to play until examined by healthcare provider nor should they return to play on day of injury if concussion is diagnosed); *see also* NFL HEAD, NECK AND SPINE COMMITTEE’S PROTOCOLS REGARDING DIAGNOSIS AND

Once a concussion has been diagnosed, an athlete should not return to play until concussion symptoms have been resolved completely.⁵¹ However, a number of studies have found that resolution of symptoms may precede neurocognitive recovery.⁵² Therefore, symptom resolution may not be the best indicator of complete recovery and should not be the determining factor in return-to-play decisions.⁵³ Returning to play before symptoms have resolved and the injury has healed increases an athlete's risk of second-impact syndrome.⁵⁴ Second impact syndrome occurs when an individual

MANAGEMENT OF CONCUSSION 5, available at <http://static.nfl.com/static/content/public/photo/2013/10/01/0ap2000000254002.pdf> (last visited May 11, 2014) [hereinafter NFL CONCUSSION PROTOCOL] ("On game day, per the Madden Rule, a player diagnosed with a concussion must be removed from the field of play and observed in the locker room by qualified medical personnel."); NCAA COMPLIANCE MANUAL 2013-2014 §§ 3.2.4.17(a)-(d) (describing return to play policies during and after athlete's concussion). The NCAA leaves concussion management and return to play guidelines up to the individual member institutions, however the schools are required to have plans that ensure athletes exhibiting signs of concussion be removed from play and evaluated by medical personnel. *Id.* (explaining return to play protocols).

51. See McCrory, *supra* note 11, at 3 (describing resolution of physical and cognitive symptoms as "cornerstone of concussion management").

52. See *id.* at 3 (noting that cognitive recovery often occurs after resolution of symptoms); see also Ann C. McKee et al., *Chronic Traumatic Encephalopathy in Athletes: Progressive Tauopathy Following Repetitive Head Injury*, 68 J. NEUROPATHOLOGY & EXPERIMENTAL NEUROLOGY 709 (July 2009), available at http://www.bu.edu/cste/files/2012/01/McKee_Chronic-Traumatic-Encephalopathy_2009.pdf (finding deficiencies in asymptomatic individuals in response to auditory stimuli five weeks after diagnosed concussion) (footnotes omitted).

53. See McCrory, *supra* note 11, at 3 (suggesting that neurocognitive and neuropsychological evaluations should be important factor in return-to-play protocol); see also McKee, *supra* note 52, at 12 (questioning primary reliance on symptom resolution as guide for return to play decisions) (citations omitted).

54. See Joe E. Bentz & Edward J. Purzycki, *Concussion: Not So Minor an Injury: Incidence, Pathophysiology, Risks and Management*, 3 J. LANCASTER GEN. HOSP. 84, 87 (Fall 2008) ("Second impact syndrome carries with it a grim prognosis, with significant brain damage and a mortality rate nearing 50%."); see also Harmon, *supra* note 14, at 11 (describing second-impact-syndrome as "loss of autoregulation of the brain's blood supply, leading to vascular engorgement, marked increase in intracranial pressure, brain herniation, and ultimately coma or death"); see also Elizabeth Weinstein, *Second Impact Syndrome in Football: New Imaging and Insights into a Rare and Devastating Condition*, 11 J. NEUROSURGERY: PEDIATRICS 331, 331 (2013) (relaying account of injury and symptoms of high school football player who suffered from second impact syndrome (SIS)). "He felt momentarily dazed, telling a teammate, 'I feel dizzy, I can't really see straight,' but continued playing immediately." *Id.* at 331 (quoting SIS patient following concussive hit). The athlete's neurological examination was normal four days after that game and he returned to play five days after the initial impact despite experiencing a persistent headache and having difficulty concentrating. *Id.* (describing results of evaluation and stating athlete's subsequent course of action). At practice on the fifth day of the injury, the athlete took a knee, became unresponsive and started having seizures. *Id.* (describing onset of SIS). The athlete remained in the hospital for fifty-four days, at which time he was transferred to a rehabilitation center, where he remained for

suffers a second concussion before completely recovering from a prior concussion.⁵⁵ Premature return to play may also expose an athlete to a more severe concussion, induced by a lower threshold of force and resulting in prolonged symptoms.⁵⁶ For most athletes, the complete resolution of symptoms will occur within seven to ten days.⁵⁷ However, because all athletes and all concussions are different, return-to-play decisions should be individualized and proceed in a stepwise approach that includes continued monitoring of any reemerging symptoms and documented recovery of cognitive deficits.⁵⁸ If symptoms or measured deficits return with increased activity, the athlete should, again, be removed from play and returned to the previous level of activity.⁵⁹

5. *The Bell Can't Be Un-Rung – Long Term Effects of Multiple Concussive Hits*

Concussions have been associated with increased risks of long-term neurocognitive decline and neurodegenerative disorders.⁶⁰

an additional forty-four days before returning home. *Id.* at 332 (stating length of in-patient treatment and noting multiple complications suffered by athlete as way of emphasizing severity of injury). As of March 2013, three years after the initial concussion event, the athlete “has regained limited verbal, motor, and cognitive skills.” *Id.* at 332-33 (describing SIS patient’s current status).

55. For a more detailed discussion of SIS, see *supra* note 54.

56. See Harmon, *supra* note 14, at 11 (describing risks of returning athlete to play during “increased window of brain vulnerability”).

57. See *id.* at 4 (noting studies indicate 80% to 90% of concussed athletes will have resolution of symptoms within one week of injury); see also McCrory, *supra* note 11, at 2 (stating recovery timeframe). *But see* McKee, *supra* note 52, at 12 (noting multiple studies have “shown abnormalities in concussed athletes . . . with [traumatic brain injury] lasting for two to four weeks. These studies indicate that safe return to play guidelines might require at least four to six weeks to facilitate more complete recovery and to protect from re-injury, as a second concussion occurs much more frequently in the immediate period after a concussion.”).

58. See Harmon, *supra* note 14, at 10 (describing step-wise return to play approach as “progression” that depends on individual responses to activity and advocating continued cognitive and balance testing to track athlete’s recovery); see also McCrory, *supra* note 11, at 3 (advocating for gradual, step-wise approach to return to play).

59. See Harmon, *supra* note 14, at 10-11 (“If the athlete develops symptoms with an increase in activity level, the progression should be stopped and the athlete returned to the previous phase when symptom free again.”); see also McCrory, *supra* note 11, at 3 (describing response to return of symptoms during stepwise return to play approach).

60. See Daniel Kain, Note, “It’s Just a Concussion:” *The National Football League’s Denial of a Causal Link Between Multiple Concussions and Later-Life Cognitive Decline*, 40 RUTGERS L.J. 697, 724 (2009) (footnote omitted) (reporting that studies show number of concussions sustained during NFL career directly correlate to rates of depression and/or cognitive decline (citing Kevin M. Guskiewicz et al., *Association Between Recurrent Concussion and Late-Life Cognitive Impairment in Retired Professional Football Players*, 57 NEUROSURGERY 719 (2005)); see also Duhaime, *supra* note 11, at

Studies have found increased incidences of depression, memory problems and early-onset Alzheimer's disease in former professional football players with histories of concussions.⁶¹ Repeated concussions have also been linked to CTE – a progressive degenerative brain disease that results in symptoms of primarily dementia and memory loss, as well as aggression, confusion, depression and personality changes.⁶² Symptoms associated with CTE often emerge toward the end of a player's career, or shortly thereafter, and tend to get progressively worse over time.⁶³ However, CTE may only be definitively diagnosed during a post-mortem examination; therefore, the number of confirmed cases in football players has been limited to recently deceased players who have donated their brain to research or whose families request autopsies.⁶⁴

1092 (footnotes omitted) (stating concussions can contribute to short and long-term neurocognitive deficits and delayed brain deterioration).

61. See Bentz & Purzycki, *supra* note 55, at 87 (describing results from study conducted by The Center for the Study of Retired Athletes at University of North Carolina). The scientists in that study found that former football players who had suffered three or more concussions had a rate of depression 10.5% higher than players who had suffered one or two concussions and 20.2% higher than players who had not been diagnosed with a concussion. See *id.* (reporting depression occurred in 20.2% of former players diagnosed with three or more concussions, 9.7% of players diagnosed with one or two concussions and 6.6% of players who did not sustain concussion). Studies conducted by Dr. Kevin Guskiewicz have also found an increased prevalence of Mild Cognitive Impairment (MCI) in retired NFL players who had suffered three or more concussions during their career. See Kain, *supra* note 60, at 699 (citing Kevin M. Guskiewicz, *supra* note 60) (describing results of Dr. Guskiewicz's survey of 2,550 former NFL players) (finding prevalence rate was five times higher for concussed athletes compared to former players without history of concussion). See also Beckwith, *supra* note 49, at 738 (footnotes omitted) (describing long-term effects of concussions and studies performed by Dr. Kevin Guskiewicz).

62. See, e.g., McKee, *supra* note 52, at 2 (describing clinical and demographic features of CTE). At least 17% of concussed individuals develop CTE later in life, although this number is assumed to be a low estimate as the actual incidence rate of CTE following repetitive head injury is unknown. See *id.* (reporting prevalence rate of CTE).

63. See *id.* at 3 (stating that in one population of confirmed CTE cases, symptoms were first reported between ages twenty-five and seventy-six and one-third of those individuals exhibited symptoms of CTE at time of retirement while one-half showed symptoms of CTE within four years of stopping play). The most common initial symptoms were "memory loss, irritability, outbursts of aggressive or violent behavior, confusion, speech abnormalities, cognitive decline, gait abnormalities, unsteadiness, headaches, slurred speech and Parkinsonism." *Id.* (describing presentation of symptoms); see also Bennet I. Omalu et al., *Chronic Traumatic Encephalopathy (CTE) in a National Football League Player: Case Report and Emerging Medicolegal Practice Questions*, 6 J. FORENSIC NURSING 40, 44 (2010) (noting, "Head injury has been *convincingly implicated* as a risk factor for Alzheimer's Disease") (emphasis added) (citations omitted).

64. See Omalu, *supra* note 63, at 43 (explaining that only way to confirm neurodegenerative diseases is with direct tissue examination). Dr. Omalu, a pioneer in the field of concussion research, recommends that full autopsies and com-

Although CTE occurs rarely within the general population, the incidence rate is astoundingly high within the population of athletes, particularly football players.⁶⁵ In fact, Dr. Ann McKee, M.D., a prominent scientist in the field of CTE and concussion research who has examined thousands of brains told the *Boston Globe*, “I have never seen this disease in the general population, only in these athletes.”⁶⁶ In one study that confirmed sixty-eight cases of CTE in former athletes and military personnel, fifty of those brains belonged to former football players, including thirty-three who had played in the NFL.⁶⁷ In recent years, knowledge of CTE has grown as more cases have been confirmed in former NFL players.⁶⁸ Some of the most notable cases include Steelers great Mike Webster, who was the first confirmed case of CTE in a former NFL player, Junior Seau, who committed suicide in 2012, and Dave Duerson, who shot himself in the chest and specifically requested in his suicide note that his brain be preserved for research.⁶⁹ However, this knowledge

prehensive neuropathologic examinations of deceased NFL players be performed in order to confirm CTE, particularly in cases where the player exhibited symptoms and behaviors associated with the disease. *Id.* at 43 (explaining that “[w]ithout full autopsies, histochemical, and immunohistochemical analyses of brain tissues” confirming cases of CTE would be impossible).

65. In 2009, the *Boston Globe* reported since scientists began testing for the disease in players, only one out of the seven brains of deceased former NFL players did not show conclusive evidence of damage caused by CTE. See Bob Hohler, *Major Breakthrough in Concussion Crisis*, BOSTON GLOBE, Jan. 27, 2009, available at http://www.boston.com/sports/other_sports/articles/2009/01/27/major_breakthrough_in_concussion_crisis/?page=full (relaying statement from neurologists at Boston University School of Medicine’s Center for Study of Traumatic Encephalopathy, who have spearheaded CTE research). For incidence rates, see *infra* note 67 and accompanying text.

66. See Hohler, *supra* note 65 (quoting Dr. Ann McKee and reporting her team’s finding of early signs of CTE in deceased eighteen year-old high school player, youngest player to show signs of CTE).

67. See Boston University Medical Center, *Chronic Traumatic Encephalopathy: Study Describes 68 CTE Cases in Veterans, High School, College and Pro Athletes*, SCIENCE DAILY (Dec. 3, 2012), <http://www.sciencedaily.com/releases/2012/12/121203112808.htm> [hereinafter Boston University Medical Center] (citing Ann McKee, *The Spectrum of Disease in Chronic Traumatic Encephalopathy*, 10 BRAIN 1093 (2012)) (reporting McKee’s findings). The study also confirmed cases CTE in the brains of one Canadian Football League player, a semi-professional player, nine college players and six high school football players. *Id.* (accounting for rest of fifty brains from football players. CTE was also confirmed in the brains of five hockey players, eight boxers and one wrestler and spanning various levels of competition, as well as veterans who saw combat during World War II, the Vietnam and Gulf Wars and Iraq and Afghanistan. *Id.* (stating other cases of CTE).

68. See generally Barry Wilner, *Researchers: Junior Seau Had Brain Disease*, UT SAN DIEGO, (Jan. 10, 2013, 3:11 PM), <http://www.utsandiego.com/news/2013/Jan/10/researchers-nfls-seau-had-brain-disease/> (reporting Seau had CTE and noting confirmed diagnoses in other players as well).

69. See Mark Roth, *Late Steelers Great Webster’s Case Launched the CTE Brain Debate*, PITTSBURGH POST-GAZETTE (May 14, 2013, 4:00 PM), <http://www.post-gazette>

has come at a significant price of lives cut short after years of suffering from a degenerative disease that affects “areas [of the brain] that control judgment, inhibition, impulse control, mood and memory.”⁷⁰

B. Assumption of the Risk

In a civil negligence action, a plaintiff must prove the following elements: a defendant’s duty of care, failure to exercise reasonable care, factual cause, physical harm, and proximate cause.⁷¹ However, defendants in negligence actions can assert “assumed risk” as an affirmative defense, negating or limiting their liability.⁷² Generally speaking, an individual “assumes the risk” when he or she voluntarily encounters a known risk of harm.⁷³ Assumption of the risk focuses on an individual’s *subjective* awareness and knowledge of a risk and their subsequent willingness to encounter that known risk.⁷⁴ For purposes of assumed risk, awareness requires that a par-

.com/stories/news/health/late-steeler-great-websters-case-launched-the-cte-brain-debate-687509/ (describing importance of Mike Webster’s diagnosis in drawing attention to issue of CTE in football players); see also *Junior Seau Had Degenerative Brain Disease CTE When He Committed Suicide, Study Shows*, CBS News (Jan. 10, 2013, 11:09 AM), http://www.cbsnews.com/8301-400_162-57563242/ (reporting confirmed diagnosis); see also Stephanie Smith, *Duerson Brain Tissue Analyzed: Suicide Linked to Brain Disease*, CNN (May 3, 2011, 7:53 AM), <http://www.cnn.com/2011/HEALTH/05/02/duerson.brain.exam.results/> (noting circumstances surrounding Duerson’s suicide). Duerson’s suicide note read: “Please, see that my brain is given to the NFL’s brain bank.” *Id.* (internal quotation marks omitted) (quoting Duerson’s suicide note). For an in-depth discussion of the struggles that plagued these athletes and other football players with confirmed diagnoses of CTE, see *supra* note 68 and *infra* notes 115-116 and accompanying text.

70. See Smith, *supra* note 69 (internal quotations omitted) (quoting Dr. Ann McKee, M.D., who examined Dave Duerson’s brain and describing classic symptoms and effects of CTE). For a discussion of the struggles of former NFL players dealing with CTE and their tragic deaths, see *infra* notes 115-116 and accompanying text.

71. See RESTATEMENT (THIRD) OF TORTS § 6 cmt. b (2010) (internal quotation marks omitted) (listing elements of cause of action for negligence). See generally Kelly Basinger Charnley, Article, *Is the Football Culture out of Bounds? Finding Liability for Korey Stringer’s Death*, 12 VILL. SPORTS & ENT. L.J. 53, 60-61 (2005) (discussing elements of negligence lawsuit).

72. For a detailed discussion of the application of the assumed risk defense and its effect on liability, see *infra* notes 87-95 and accompanying text.

73. See RESTATEMENT (SECOND) OF TORTS § 496C (1965) (stating that “a plaintiff who fully understands a risk of harm to himself” yet “voluntarily chooses” to encounter that risk cannot recover for harm caused by an occurrence of that risk).

74. See *id.* § 496D (1965) (“[A] plaintiff does not assume a risk of harm arising from the defendant’s conduct unless he then knows of the existence of the risk and appreciates its unreasonable character.”); see also Joseph Hanna & Daniel Kain, *NFL’s Shaky Concussion Policy Exposes the League to Potential Liability Headaches*, 28 ENT. & SPORTS LAW. 9, 11 (2010) (citing *Meulners v. Hawkes*, 216 N.W.2d 633, 635 (1974) (describing standard for assumption of risk defense)).

ticipant have actual knowledge of a risk; constructive notice will not suffice.⁷⁵

1. *What Were You Thinking?! – The Role of Mental State in Assumed Risk Analysis*

An individual's mental state is an important component of an assumed risk defense.⁷⁶ In certain situations, a participant's impaired mental state will preclude a defendant from asserting an assumed risk defense.⁷⁷ In determining whether an individual has assumed the risk of injury, "his mental capacity to appreciate the danger of injury is an important factor."⁷⁸ Specifically, in the employment context, an employer's knowledge of an employee's physical or mental condition also factors into an assumed risk analysis.⁷⁹

75. See Hanna & Kain, *supra* note 74, at 11 (explaining that constructive knowledge is not enough for purposes of assumed risk defense because without actual knowledge, participant is unable to "make an intelligent choice to confront [that] risk").

76. See M.C. Dransfield, *Liability of Employer For Injury to Employee Due to His Physical Unfitness For the Work to Which He Was Assigned*, 175 A.L.R. 982 § 4 (1948) ("Generally speaking, experience, mental capacity, and age are important factors in determining whether an injured employee is to be considered as having assumed a risk of his employment.") (citing 35 AM. JUR. 739 § 311).

77. See *Maunz v. Perales*, 76 P.3d 1027, 1035 (Kan. 2003) (choosing to consider plaintiff's mental state in negligence actions). The Court stated:

A majority of courts take the view that a diminished mental capacity not amounting to outright insanity or incompetence may be taken into consideration by the jury in determining whether the plaintiff . . . has exercised the requisite degree of care in his own safety. . . . [E]ven some lesser degree of mental impairment . . . may preclude a finding of contributory negligence, if plaintiff's . . . faculties are not sufficient to perceive and avoid a particular risk of harm.

Id. (quoting 57 AM. JUR. 2d, Negligence § 956) (describing effect of plaintiff's mental state on contributory negligence); see also David J. Leibson, 13 KY. PRAC. TORT LAW §10:10 (expressing concern that negligent defendants could escape liability when plaintiff's mental disability prevented them from acting reasonably, especially when mental disability was caused by defendant's negligence); *Greenberg v. McCabe*, 453 F. Supp. 765, 769 (E.D. Pa. 1978) (concluding it was appropriate for jury to consider plaintiff's mental disabilities that were caused by defendant).

78. See Dransfield, *supra* note 76, § 4 (discussing employee's ability to assume risk of injury).

79. See *Hamilton v. Standard Oil Co.*, 19 S.W.2d 679, 683 (Mo. 1929) (en banc) (stating employer's liability hinges on their own knowledge of facts and circumstances, not on whether employer has knowledge that employee is ignorant of certain facts). Focusing solely on the defendant's knowledge, the *Hamilton* Court stated:

[T]he liability of the master by his knowledge, either actual or constructive, of the surrounding facts and circumstances, and in determining whether the master is negligent, courts do not take into consideration what the servant knew, or what the servant did, or what the servant might have done. A master, found negligent, might be relieved of his negligence for some act, conduct, or knowledge of the servant, but this would in no wise make the master's negligent act any the less negligent.

Courts have held that an employer will be found liable for negligence if the employee can prove both that the employer knew or should have known of the employee's impairment *and* that the employer knew or should have known of the employee's *lack of knowledge of his own condition*.⁸⁰

A number of courts have also held that although an employer generally does not have a duty to determine whether an employee is fit for his or her job, if the employer provides or requires a physical examination for an employee, the employer will be liable if those examinations are performed negligently.⁸¹ Moreover, if an employer provides a physical examination or employs a physician

Id. at 683 (quoting *State ex rel. Heine Safety Boiler Co. v. Robertson*, 188 S.W. 101, 103 (Mo. 1916) (en banc)) (internal quotation marks omitted) (affirming judgment for plaintiff, after defendant negligently and carelessly assured plaintiff it would be safe for him to perform certain work when they knew of plaintiff's previous injury).

80. See *Glidden v. Bath Iron Works Corp.*, 54 A.2d 528, 532 (Me. 1947) (adopting rule that employee's ignorance as to his own disability will give rise to liability on part of employer if employee can show employer knew or should have known of employee's disability *and* that employer knew or should have known of employee's ignorance of his own condition) (emphasis added) (citing C.B. Labatt, MASTER AND SERVANT § 1141 (2d ed. 1913)). The court also states that "[i]nstruction, rather than warning, is the duty applicable to cases of the type where disease is not involved." See *id.* (explaining defendant's duty). *But cf.* *Knox v. Schomaker*, 129 P.2d 841, 842 (Okla. 1942) ("The rule is that where the servant is aware of his infirmity or his unfitness for the particular work the master is guilty of no negligence toward him in merely allowing him to continue in the same employment.").

81. See *McCarra v. Illinois Central R.R. Co.*, 798 So.2d 252, 259 (La. Ct. App. 2001) (citing *Isgett v. Seaboard Coast Line R.R.*, 332 F. Supp. 1127, 1141 (D.S.C. 1971)) (describing duty of railroad company); *Blue Bell Globe Mfg. Co. v. Lewis*, 27 So. 2d 900, 904 (Miss. 1946) (finding employer negligent for failing to disclose nature of employment and allowing employee to engage in heavy lifting, despite employee's full and truthful disclosure during required medical examination of hernia operation performed three years earlier); *Hamilton*, 19 S.W.2d at 689 ("A private corporation, owning and operating a hospital for the benefit of the corporation, is liable for the malpractice of its physicians and surgeons, and the knowledge of such physicians and surgeons as to a patient's condition is, by law, imputed to the corporation."); *Brown v. Scullin Steel Co.*, 260 S.W.2d 513, 518 (Mo. 1953) (stating that under *Hamilton*, "the knowledge of a regularly employed company physician is the knowledge of the employer-company" and that, therefore, defendant-employer was not negligent when allowing plaintiff-employee to work after receiving medical clearance *unless* physician was negligent in reaching decision that plaintiff-employee could safely work) (emphasis added) (citing *Hamilton*, 19 S.W.2d at 689). In order to hold a defendant-employer liable for the negligence of an regularly employed physician, the physician's determination that the plaintiff-employee could work without incurring further injury (compared to if the plaintiff-employee was not to work at all) must have been incorrect and, the plaintiff must provide evidence that the physician: lacked requisite skill and knowledge to arrive at a proper conclusion or diagnosis; failed to use his skill and knowledge in reaching his determination; or, that his conclusion was contrary to any theory or practice recognized by the medical community. See *id.* (describing defendant-employer's liability in case of negligence by regularly-employed physician).

for employee-care and then, against the advice of the physician, negligently or carelessly assures the employee that he or she may safely return to work, the defendant will be liable for any injury to the plaintiff-employee regardless of whether they knew the plaintiff-employee knew or did not know the risk or his condition.⁸² In *Hamilton v. Standard Oil Co.*, the defendant-employer was liable for plaintiff-employee's permanent and serious injuries that occurred as a result of engaging in work that "reproduced, reopened, and re-established" an initial injury.⁸³ The plaintiff-employee had relied on the defendant-employer's assurance that the company-employed physician had determined that it was safe for the plaintiff-employee to return to work.⁸⁴ In reality, the physician had only cleared the plaintiff for "light work" and had never been consulted regarding a return to the type of work that had caused the plaintiff-employee's injury.⁸⁵ In this case, "[l]iability was established by showing that defendants negligently ordered plaintiff to do certain work, when they knew or by the exercise of ordinary care should have known that some injury would likely befall him if he attempted to do the work."⁸⁶

Traditionally, the assumption of risk doctrine functioned as a complete bar to recovery for plaintiffs seeking damages for negligence when a plaintiff suffered harm after encountering a known

82. See *Hamilton*, 19 S.W.2d at 683-84 (stating negligence inquiry turns on defendant's actual or constructive knowledge); see also *Brown*, 260 S.W.2d at 518 (distinguishing facts of case from *Hamilton*). The *Brown* court stated:

[U]nlike the factual situation in the *Hamilton* case, where defendant company ordered its employee to do certain work against the conveyed-to-employer advice of its physician, here defendant company followed and acted upon the conveyed conclusion of its physician . . . that plaintiff could, with reasonable safety, do the work he was . . . permitted to do. It must follow, under the instant facts, that defendant could not be negligent . . . unless the physician himself was [n]egligent in arriving at or in holding the opinion which caused defendant to permit plaintiff to do work despite his known [] condition.

Id. (explaining distinction).

83. See *Hamilton*, 19 S.W.2d at 682 (describing plaintiff-employee's subsequent injury).

84. See *id.* at 683 (concluding that defendants were negligent when they assured plaintiff that it was safe for him to work because they had knowledge of plaintiff's condition).

85. See *id.* at 685 (stating physician's conclusion that plaintiff would not be able to return to work as boilermaker without risking another injury, nor was plaintiff-employee ever cleared for such work). When the plaintiff-employee was injured, the physician was called and he said to the defendants: "Now you [sic] done it; you got the old injury all torn loose; I told you not to put him on that class of work." *Id.* (recounting physician's undisputed statement).

86. *Id.* at 686 (explaining basis for holding defendants liable).

risk.⁸⁷ Recently, however, assumption of risk has developed into a more complex doctrine and has become difficult to apply uniformly.⁸⁸ Moreover, a number of courts have muddled the distinction between assumption of risk and contributory negligence, particularly following the adoption of comparative negligence schemes.⁸⁹ Despite the confusion among jurisdictions, contributory negligence and assumption of risk are separate and distinct concepts.⁹⁰ As previously mentioned, assumption of risk focuses on both a participant's *subjective knowledge of a particular risk* and a participant's *voluntary assumption of that risk*.⁹¹ Conversely, a contribu-

87. See RESTATEMENT (SECOND) OF TORTS § 496A (1965) ("A plaintiff who voluntarily assumes a risk of harm arising from the negligent or reckless conduct of the defendant cannot recover for such harm."); E. H. SCHOPLER, Comment Note, *Distinction Between Assumption of Risk and Contributory Negligence*, 82 A.L.R.2d 1218 § 1 (1968) (describing assumption of risk as affirmative defense in negligence actions); see also David Horton, Article, *Extreme Sports and Assumption of Risk: A Blueprint*, 38 U.S.F. L. REV. 599, 600 (2004) (noting assumption of risk invoked as affirmative defense by defendants, specifically business entities responsible for providing or sponsoring injurious activity implicated in negligence actions). For a discussion of the evolution of assumption of risk and the confusion surrounding the doctrine, see *infra* notes 89-92, 94 and accompanying text.

88. See *Knight v. Jewett*, 834 P.2d 696, 696 (Cal. 1992) ("[T]he assumption of risk doctrine long has caused confusion both in definition and application, because the phrase 'assumption of risk' traditionally has been used in a number of very different factual settings involving analytically distinct legal concepts."). For a more detailed discussion of the confusion surrounding the definition and application of the assumption of risk doctrine, see *infra* notes 89-92 and accompanying text.

89. See Standen, *supra* note 10, at 72 nn.8-9 (describing departure from assumed risk defense and towards comparative fault schemes in modern tort law). Contributory negligence is defined as "conduct on the part of the plaintiff which falls below the standard to which he should conform for his own protections and which is a legally contributing cause cooperating with the negligence of the defendants in bringing about the plaintiff's harm." See RESTATEMENT (SECOND) OF TORTS § 467 (1965) (defining contributory negligence). When contributory negligence functioned as a primary doctrine of liability, the assumed risk defense was a relatively simple concept – if there was *any* contributory fault on the part of the plaintiff, the plaintiff was barred from recovery. See *Knight*, 834 P.2d at 700 (tracing doctrinal shifts and explaining effect on multiple tort doctrines including assumption of risk as described by court in *Li v. Yellow Cab Co.*, 532 P.2d 1226 (Cal. 1975)). "With the adoption of comparative fault, however, it became essential to differentiate between the distinct categories of cases that traditionally had been lumped together under the rubric of assumption of risk." *Knight*, 834 P.2d at 700. Under comparative fault doctrines, assumption of the risk has been divided into two categories: primary and secondary. See *id.* at 703-04 (describing differentiation between primary and secondary assumption of risk following adoption of comparative negligence). For a discussion of the distinction between primary and secondary assumption of risk, see *infra* notes 91-92 and accompanying text.

90. See *Matthews v. Cumberland & Allegheny Gas Co.*, 77 S.E.2d 180, 190 (W. Va. 1953) ("Contributory negligence and assumption of risk are not identical.").

91. See Schopler, *supra* note 87, § 5 (explaining distinction between assumption of risk and contributory negligence and providing cases that support distinction) (citing *Juvenalis v. District of Columbia*, 955 A.2d 187 (D.C. 2008), *Dennis v.*

tory negligence analysis depends on the objective reasonableness of the plaintiff's conduct and participation.⁹² Despite the confusion surrounding assumption of risk, the doctrine is most clearly and commonly applied in negligence actions arising out of sports and recreational activities.⁹³

2. *Put Me In Coach! – Assuming the Risk in Sports*

Within the sporting context, “[t]he general rule is that by engaging in a sport or recreational activity, the participant consents to those commonly appreciated risks which are inherent in and arise out of [the] nature of the sport generally and flow from such participation.”⁹⁴ The assumed risk doctrine focuses on a participant's willingness to participate and, as a result, shields potential defendants from liability by absolving them of a duty to protect knowing and willing participants from risks inherent in the nature of a

Jones, 928 A.2d 672 (D.C. 2007), Hook v. Harmon, 727 S.E.2d. 143 (Ga. Ct. App. 2012)).

92. See Schopler, *supra* note 87, § 5 (citing cases) (providing standard for contributory negligence).

93. See J.D. LEE & BARRY LINDHAL, MODERN TORT LAW: LIABILITY & LITIGATION § 9:13 (2d updated June 2013), available at Westlaw MTLII (describing doctrine's application in negligence actions and noting most frequent application is in context of sports and recreational activities); see also Standen, *supra* note 10, at 72 (noting viability of assumption of risk doctrine in negligence actions arising out of sports).

94. LEE & LINDHAL, *supra* note 93, at *2 & n.27 (defining general rule of assumption of risk as applied to sports and recreation and citing numerous cases from which rule is generated). This rule reflects the primary assumption of risk doctrine. See *id.* (explaining relationship between rule and doctrine). Primary assumption of the risk applies in cases in which, due to the nature of the activity and the parties' relationship to the activity, the defendant has no legal obligation to protect the plaintiff from a particular risk of harm. *Accord Knight*, 234 P.2d at 707-08 (summarizing doctrine and noting defense functions as complete bar to recovery). Secondary assumption of risk applies in cases in which a legal duty exists between the parties, but the plaintiff decides to encounter a known risk that has been caused by the defendant's breach of duty. See *id.* at 708 (describing difference between primary and secondary assumption of risk).

sport.⁹⁵ This general rule is typically referred to as the “no duty” rule.⁹⁶

While a defendant does not have a duty to protect a participant by eliminating the risks inherent to the sport or activity, the defendant does have a duty not to *increase* those risks.⁹⁷ For example, there are certain dangers inherent in the sport of skiing, including the risk of harm from moguls on a ski slope.⁹⁸ However, the operator of the mountain is under no legal duty to remove the moguls because they are part of the nature of skiing.⁹⁹ While the operator does not need to eliminate the risk posed by the moguls, the operator *does* need to use due care to maintain other aspects of the mountain, such as towropes and chairlifts, to avoid increasing the risk of harm to skiers.¹⁰⁰

The assumption of risk affirmative defense has been applied in a variety of sports-negligence cases involving both participants and spectators.¹⁰¹ In participant-injury cases, different standards apply depending on the nature of the activity or sport, and the relation-

95. See Horton, *supra* note 87, at 612-13 (explaining primary assumption of risk doctrine). *But see Knight*, 234 P.2d at 705-06 (rejecting idea that plaintiff can “impliedly consent” to risk of harm). The *Knight* court eschewed the emphasis placed on “plaintiff’s subjective knowledge and awareness” in assumed risk analyses, choosing to adopt a pure duty approach. See *id.* (preferring to adopt different standard for assumed risk affirmative defense). “Contrary to the implied consent approach to the doctrine of assumption of risk . . . the duty approach provides an answer which does not depend on the particular plaintiff’s subjective knowledge or appreciation of the potential risk.” *Id.* at 709 (explaining preference for pure duty approach). Despite the *Knight* court’s outright refusal to consider a plaintiff’s subjective state, it has been observed that courts applying an implied consent approach to assumption of risk cases tend to come out the same way as courts that apply the pure duty approach “because they generally conclude that plaintiffs did not consent to face dangers created by a defendant’s negligence.” Horton, *supra* at 615 (footnotes omitted) (analyzing doctrinal approaches to no duty rule and citing cases).

96. See Horton, *supra* note 87 at 611-15 (describing “no duty” rule).

97. See *Knight*, 234 P.2d at 708 (specifying defendant’s duty to refrain from increasing risk of participating in sport or activity).

98. See *id.* (presenting hypothetical to illustrate doctrine).

99. See *id.* (providing example to show how “the nature of a sport is highly relevant in defining the duty of care owed by the particular defendant”) (citations omitted).

100. See *id.* (expanding hypothetical to further illustrate defendant’s duty) (citations omitted).

101. See generally Scott D. Marrs & Sean P. Milligan, *Courts and Sports: Player Injuries – Assumption of the Risk or Illegal Foul?*, 50 Hous. Law. 10 (2012) (discussing sports participant injury cases); Leigh Augustine, *Who Is Responsible When Spectators are Injured While Attending Professional Sporting Events?*, 2008 DEN. U. SPORTS & ENT. L. J. 39 (2008) (discussing liability arising from spectator injuries at sporting events).

ship between the parties.¹⁰² In order to recover for an injury sustained during a non-contact sport, a plaintiff must only show negligence on the part of a co-participant defendant, rather than reckless or intentional conduct.¹⁰³

Conversely, in contact sports, the duty owed to a co-participant is much more limited.¹⁰⁴ An injured plaintiff must show that their injury was caused by a co-participant's reckless or intentional conduct.¹⁰⁵ This heightened standard required to prove liability, coupled with the assumed risk doctrine, reflects the general policy concern that imposing liability would chill vigorous participation

102. See *Knight*, 834 P.2d at 710 (“[I]n the sports setting, as elsewhere, the nature of the applicable duty or standard of care frequently varies with the role of the defendant whose conduct is at issue in a given case.”).

103. See generally *Mallin v. Paesani*, 892 A.2d 1043, 1044 (Conn. 2005) (rejecting defendant's argument that plaintiff was required to show reckless or intentional conduct to establish liability).

104. See *id.* (explaining sports exception doctrine which requires different standard for contact and non-contact sports); *Crawn v. Campo*, 643 A.2d 600, 603 (N.J. 1994) (“The majority of jurisdictions that have considered the issue of a person's duty to exercise care to avoid injury when engaging in a sports activity have concluded that to constitute a tort, conduct must exceed the level of ordinary negligence.”); see also *Marrs & Milligan*, *supra* note 101, at 14 (stating, specifically, that heightened standard applies to contact sports).

105. See *Crawn v. Campo*, 643 A.2d at 603 (“Most courts have determined that the appropriate duty players owe to one another is not to engage in conduct that is reckless or intentional.”) (citations omitted); *Knight*, 834 P.2d at 710 (concluding co-participants duty of care should be limited). The *Knight* court explained:

[I]t is improper to hold a sports participant liable to a coparticipant for ordinary careless conduct committed during the sport – for example, for an injury resulting from a carelessly thrown ball or bat during a baseball game – and that liability properly may be imposed on a participant only when he or she intentionally injures another player or engages in reckless conduct that is totally outside the range of the ordinary activity involved in the sport.

Id. (noting majority approach to participant injury cases) (citations omitted); see also *Hackbart v. Cincinnati Bengals, Inc.*, 601 F.2d 516, 520-21 (10th Cir.) (holding that professional football player does not consent to injuries caused by conduct prohibited by rules and, therefore, defendant could be liable for injuries in tort despite rough nature of football); *Nabozny v. Barnhill*, 334 N.E.2d 258 (Ill. App. Ct. 1975) (establishing recklessness standard in participant-injury cases). “[A] player is liable for injury in a tort action if his conduct is such that it is either deliberate, willful or with a reckless disregard for the safety of the other player so as to cause injury to that player” *Id.* at 261 (stating new rule). *But see Avila v. Citrus Community College Dist.*, 131 P.3d 383, 393 (Ca. 2006) (holding that being hit by pitch is inherent risk of baseball regardless of whether hit was intentional or not). “For better or for worse, being *intentionally* thrown at is a fundamental part and inherent risk of the sport of baseball. It is not the function of tort law to police such conduct.” *Id.* at 394 (declining to impose liability for intentional conduct considered custom of baseball).

and healthy competition in athletic activities, which would diminish the positive social value derived from participation in athletics.¹⁰⁶

The limited duty that applies to co-participants does not apply to all potential defendants in participant-injury cases.¹⁰⁷ Venue operators and coaches, for example, are often held to a higher standard of care because they occupy a different role relative to the participant.¹⁰⁸ Because coaches and instructors occupy a superior role, they have a duty to use reasonable care not to increase dangers beyond those inherent in the nature of the sport.¹⁰⁹ Accordingly, even when a risk is foreseeable, and a player acts in the presence of obvious and apparent risks, the voluntary nature of participation may be obscured by a coach or trainers' assurance of safety, or a direction to play.¹¹⁰ "Coaches must instruct their players in a manner that does not create additional risks. . . . [and] supervise their players proportionately to the amount of risk inherent in the activity."¹¹¹ Ultimately, if a duty does in fact exist, the court must inquire as to the nature of that duty and consider both fairness and policy concerns.¹¹²

106. See Lee & Lindhall, *supra* note 93 (describing benefit of assumed risk doctrine) (footnotes omitted); Mars & Milligan, *supra* note 104, at 14 (stating justification for heightened standard in contact sport participant-injury cases).

107. See *Knight*, 834 P.2d at 696 (explaining scope of legal duty varies depending on defendant's role in, or relationship to, sport).

108. See *Galardi v. Seahorse Riding Club*, 20 Cal. Rptr. 2d 270, 274 (Cal. Ct. App. 1993) ("[A]lthough co-participants in a sport ordinarily owe no duty to each other, 'the general rule is that coaches and instructors owe a duty of care to persons in their charge.'" (quoting *Tan v. Goddard*, 17 Cal. Rptr. 2d 89, 93 (Cal. Ct. App. 1993))). In *Galardi*, the plaintiff, an equestrian, was injured while training for a horse show after her trainer instructed the plaintiff to jump over fences that were "unreasonably and unnecessarily high for the circumstances." *Id.* at 271-72 (stating facts of case). The court held that although the risk of injury posed by fence-jumping was certainly inherent to the sport of horse-jumping, "the defendants clearly had a duty to avoid an unreasonable risk of injury to the plaintiff and to take care that the jumping array was not beyond the capability of the horse and rider." *Id.* at 274 (holding defendants liable).

109. See *Benitez v. New York City Bd. of Educ.*, 73 N.Y.2d 650, 658 (1989) (holding coaches have duty to exercise ordinary reasonable care to protect voluntary participants from "unassumed, concealed or unreasonably increased risks").

110. See *id.* at 658 (noting important element of assumed risk analysis in sporting context). "Though the risk is foreseen, an assurance of safety generally implicit in the supervisor's direction supplants the plaintiff's assumption of the risk by requiring action despite prudent cautionary concerns." *Id.* at 658-59 (discussing one aspect of compulsion despite athlete's awareness of risk) (citations omitted).

111. See *Charnley*, *supra* note 71, at 62 (footnotes omitted) (discussing elevated duty of care for coaches).

112. See *Rosania v. Carmona*, 706 A.2d 191, 195 (N.J. Super. Ct. App. Div. 1998) (determining duty owed to participant by karate instructor and citing cases).

III. ANALYSIS

Decades ago, athletes generally, and football players specifically, were not aware of the specific long-term effects or risks associated with concussions.¹¹³ In recent years, the devastating long-term effects of concussions have become glaringly clear due to an explosion of scientific research and public attention paid to the lawsuits filed against the NFL and NCAA by former athletes suffering from neurocognitive deficits and degeneration.¹¹⁴ Unfortunately, concussion awareness has also increased as a result of numerous reports of former players who have taken their own lives after suffering for years with the crippling effects of brain injuries sustained playing football, especially in the NFL.¹¹⁵ Autopsies performed on the donated brains of professional athletes have confirmed multiple diagnoses of CTE.¹¹⁶ In response to emerging research and public outcry, the NFL has devoted significant resources to concussion awareness and education.¹¹⁷ The NCAA has also implemented rule changes aimed at reducing concussions, and

113. See Persky, *supra* note 4 (explaining that during 1960's and 1970's players were in very different situation, economically, socially than players from more recent years and that, even if information existed regarding risk of head injuries, earlier players "relied more heavily upon the NFL for medical information than the later generations of players" (quoting W. Burlett Carter, Professor of Sports Law and Evidence at George Washington University Law School) (internal quotation marks omitted)).

114. For a brief discussion of how the lawsuits have increased awareness, see *supra* notes 4-5 and accompanying text.

115. See Wilner, *supra* note 68 (describing struggles of former NFL player Junior Seau during years before suicide). Seau was often irritable and forgetful and he suffered from depression and insomnia. *Id.* (relaying account from Seau's family). Two other players have also committed suicide in recent years. *Id.* (mentioning that Seau's suicide was not first). Former Chicago Bears defensive back Dave Duerson shot himself in the chest and left a note requesting that his brain be studied for signs of trauma. *Id.* (describing another suicide). In April 2012, Ray Easterling, a former safety for the Atlanta Falcons during the 1970, also ended his life after years of suffering. *Id.* (providing another tragic example). Easterling's wife reported that her late husband also suffered from dementia, depression and insomnia following his career and before his death. *Id.* (describing Easterling's symptoms); see also Mike Freeman, *Anniversary of Junior Seau Death Still Focuses NFL on CTE*, CBS SPORTS (May 2, 2013), <http://www.cbssports.com/nfl/writer/mike-freeman/22183367/anniversary-of-junior-seau-death-still-focuses-nfl-on-cte> (reporting that at least six NFL players have committed suicide since 2011).

116. See Wilner, *supra* note 115 (reporting results from post-mortem examination of Seau's brain revealed CTE and stating that CTE has also been diagnosed in Ray Easterling and Dave Duerson, two other former players who committed suicide).

117. See Persky, *supra* note 4 (describing NFL's efforts, and noting that NFL made \$30 million donation to National Institute of Health's Neurology Institute for brain injury research and implemented rule changes aimed at minimizing risk of concussion); see also Hruby, *supra* note 3 (observing that after drawing attention and publicity to concussion issue, NFL was "shamed into action").

has required member schools to adopt concussion management plans for athletes suspected of having a concussion.¹¹⁸

A. The Assumed Risk Defense and Concussions – Potential Applications

Although the lawsuit against the NFL has since been settled, a number of commentators had analyzed the viability of an assumed risk defense.¹¹⁹ Proponents argued that injuries – specifically concussions – are an inherent part of the sport and that players voluntarily assumed the risk of injury by participating.¹²⁰ Furthermore, it had been suggested for years that players had access to a wealth of information and research regarding football injuries and the potential effects of those injuries on players' long-term health.¹²¹ Other commentators doubted the success of an assumed risk defense because the awareness and knowledge surrounding the specific long-term effects of concussions was not only limited, but also actively suppressed by league officials who down-played the relationship between multiple concussions and cognitive decline later in life.¹²²

118. See *NCAA's New Kickoff Rule Doing Its Job, Reducing Concussions*, CONCUSSION POLICY & LAW (Oct. 23, 2012), <http://concussionpolicyandthelaw.com/2012/10/23/ncaas-new-kickoff-rule-is-doing-its-job-reducing-concussions/> (noting NCAA has moved kickoffs from 30-yard-line to 35-yard-line and moved start position after touchbacks from 20 to 25-yard line); see also Hruby, *supra* note 3 (describing but, also, criticizing NCAA requirement).

119. For a discussion of both sides of the analyses, see *infra* notes 120-122 and accompanying text.

120. See Persky, *supra* note 4 (quoting former NFL player calling game “brutal” and noting that injuries are part of nature of contact sports). “Sports experts say one of the NFL’s strongest arguments [was] that when a football player decides to join the league, he knows that he risks getting injured.” *Id.* (analyzing strength of assumption of risk defense).

121. See Standen, *supra* note 10, at 78-79 (describing players’ job of proving they were unaware of risks as “difficult” because of information and research that was available to players as well as to NFL).

122. See Hanna & Kain, *supra* note 74, at 11 (stating that although former players might have known about risk of injuries, including concussions, they were not aware of long-term effects especially because evidence suggests that NFL covered up and actively suppressed independent research purporting long-term effects and risks of multiple concussions).

DeMaurice Smith, executive director of the NFLPA, described [the] NFL Committee policy as such: “[u]nfortunately, the NFL . . . diminished [independent] studies, [and] urged the suppression of [independent] findings . . . for years.” Thus, the NFL Committee arguably stripped players of their right to make an intelligent choice about the long-term risks associated with NFL concussions.

Id. (alterations in original) (footnote omitted) (citations omitted) (explaining why NFL players lacked actual knowledge required for assumed risk defense); see also Persky, *supra* note 4 (“[P]layers understood that football was a contact sport and as such recognize that certain injuries may occur. They did not know, however, that

In response to the growing awareness surrounding concussions, a number of high-profile former players have said that if they knew of the long-term neurological risks of playing football, they never would have played the game.¹²³ Hall of Fame linebacker Harry Carson, formerly of the New York Giants, was diagnosed with post-concussion syndrome in 1990.¹²⁴ Although he leads a “pretty normal life,” Carson admitted “[f]rom a physical risk standpoint, I knew that you could get hurt physically and I assumed that risk . . . But from a neurological risk standpoint, I didn’t know. So knowing what I know now, I would never have played football.”¹²⁵

Conversely, today’s athletes have been raised in a culture of emerging concussion awareness, and therefore, know the risks associated with concussions.¹²⁶ The increase in awareness and general knowledge surrounding the effects of concussions has become evident, as a number of players have turned down full athletic scholarships and potentially lucrative careers in the NFL, citing concussions as their primary reason.¹²⁷ For instance, in September 2012, after suffering his fifth concussion, Richy Klepal, an offensive lineman who had committed to play football at Florida State, decided “it would be in [his] best interest to quit.”¹²⁸ Similarly, An-

playing in the NFL could lead to irreversible brain damage because the NFL deliberately concealed this fact from its players.”) (internal quotation marks omitted).

123. See Julie Parise, *NFL Hall of Famer Harry Carson Says He Never Would’ve Played Football Had He Known Effects of Concussions*, CBS NEW YORK (Oct. 8, 2012, 9:04 AM), <http://newyork.cbslocal.com/2012/10/08/nfl-hall-of-famer-harry-carson-says-he-never-wouldve-played-football-had-he-known-effects-of-concussions/> (presenting story of Harry Carson and other former players who said they never would have played if they knew risks and who now warn their grandsons not to play).

124. See *id.* (noting Carson has dealt with long-term effects of concussions). Harry Carson told *Outside the Lines*: “I can’t help but look at the concussions I sustained as a reason for the headaches, the depression, the blurred vision, the slurred speech that I might have at some times[.]” Peter Keating, *Doctor Yes*, ESPN MAG., Nov. 26, 2006, available at <http://sports.espn.go.com/nfl/news/story?id=2636795> (internal quotations omitted) (quoting Harry Carson as he describes his struggle that he attributes to multiple head impacts during his time in NFL).

125. Parise, *supra* note 123 (quoting Carson) (internal quotations omitted).

126. See Dashnaw, *supra* note 27, at 1 (noting public’s interest, concern and understanding regarding concussions has “skyrocket[ed]”).

127. See Peter Barzilai, *Another Rookie Cites Concussions in Passing on NFL*, USATODAY.COM (May 18, 2012, 10:56 AM), <http://content.usatoday.com/communities/thehuddle/post/2012/05/another-rookie-cites-concussions-in-passing-on-nfl/1#Ujo85j3rdUR> (describing case of Chad Diehl who retired after sustaining concussion in rookie minicamp and noting another former player, Andrew Sweat’s decision to attend law school instead of pursuing career in NFL).

128. See Corey Dowler, *FSU Honors Offer to Richy Klepal*, ESPN.COM (Sept. 12, 2012, 12:12 PM), http://espn.go.com/college-football/story/_/id/8405297/florida-state-seminoles-commit-richy-klepal-quits-football-fifth-concussion (reporting Klepal’s decision).

drew Sweat, a former linebacker at Ohio State who had signed as a free agent with the Cleveland Browns, decided to leave the sport after experiencing “a reoccurrence of concussion symptoms.”¹²⁹ Sweat told the media, “It was a tough decision for me, but in a sense, it wasn’t that tough.”¹³⁰ Like Klepal and Sweat, athletes who are properly diagnosed with a concussion, told of the dangers of continued play, and then given the chance to process the information once their neurocognitive symptoms resolve, have the opportunity *not* to assume the risk.¹³¹

Going forward, current and future players who elect to continue their football careers following a concussion could face significant hurdles imposed by an assumed risk affirmative defense because the dangers of concussions are now common knowledge.¹³² The viability of an assumed risk defense is bolstered by the fact that some players may either fail to report their concussion symptoms or lie about the existence and severity of them.¹³³ However, validly assuming the risk of continued play following a concussion depends on a variety of factors including diagnosis and adherence to return-to-play protocol.¹³⁴ After suffering a concussive hit, qualified medical personnel must evaluate the player, provide a proper, preliminary sideline diagnosis, and prevent the athlete from returning to play that day.¹³⁵ This process will ensure

129. See NFL Notebook: *Concussions Caused Ohio State’s Sweat to Quit Football*, COLUMBUS DISPATCH (May 15, 2012, 5:27 AM), <http://buckeyextra.dispatch.com/content/stories/2012/05/15/concussions-caused-sweat-to-quit-football.html> (reporting Sweat’s decision to leave professional football).

130. See *id.* (quoting Andrew Sweat) (internal quotation marks omitted).

131. See generally Mike Florio, *Best’s Case Shows Why Players Want to Take Chances With Concussions*, PRO FOOTBALL TALK (Nov. 26, 2011, 1:12 PM) <http://profootballtalk.nbcsports.com/2011/11/26/bests-case-shows-why-players-want-to-take-chances-with-concussions/> (discussing concussed player’s ability to assume risk of play following concussion).

132. See Brandt, *supra* note 4 (“Unfortunately, players may face unanticipated consequences of the new awareness on concussions.”); see also Shane Clemons, *Chris Carter Could Be the Voice of Reason in Concussion Litigation*, BLOGUIN.COM (May 7, 2012, 3:30 PM), <http://www.bloguin.com/thisgivensunday/2012-articles/may/chris-carter-could-be-the-voice-of-reason-in-concussion-litigation.html> (reporting interview with NFL player, Cris Carter, who says that he and other players knew of risks prior to play).

133. See Persky, *supra* note 4 (describing players’ failure to report injuries as “a common problem”).

134. For a discussion of return-to-play protocol, see *infra* notes 135-138 and accompanying text.

135. See generally Harmon, *supra* note 14 (providing “an evidence-based, best practices summary to assist physicians with the evaluation and management of sports concussion”); see also Bentz & Purzycki, *supra* note 54, at 88 (calling proper evaluation “essential”); Michael McCrea et al., *Immediate Neurocognitive Effects of Concussion*, 50 NEUROSURGERY 1032, 1039 (May 2002) (emphasizing “importance of

that a player has sufficient time to realize and understand that he has suffered a brain injury so that he can accept the elevated risk of subsequent injury encountered by returning to play in a concussed state.¹³⁶ Ideally, the concussed player will not return to play while experiencing symptoms.¹³⁷ However, even after symptoms have resolved, a previously concussed player who elects to continue his football career will have assumed the increased risk of any long-term, neurocognitive effects that may result from continued play and repetitive impacts to their head.¹³⁸ Unfortunately, concussion diagnosis and management is, typically, not as simple as the previously described scenario.¹³⁹

B. The Nature of a Concussion Precludes Assumption of Risk

The very nature of a concussion prevents certain subsets of concussed athletes from satisfying the subjective knowledge requirement of assumed risk because a concussion impairs an athlete's brain function and his ability to adequately understand the

systematic assessment of cognitive functioning at the time of concussion for accurate" diagnosis). For additional information regarding McCrea's study, see *infra* note 139, and accompanying text. "A delay of even 24 hours before formal assessment of the neurocognitive status of injured subjects significantly limits the accuracy of injury severity classification and predictions of the expected course of postconcussive recovery." *Id.* (explaining importance of timely diagnosis). For an additional discussion of why proper and timely diagnosis is crucial to concussion management, see *supra* note 50, and accompanying text.

136. See Florio, *supra* note 131 (acknowledging that concussions are serious injuries but that at certain point, athletes understand risk of playing with symptoms).

137. See McCrory, *supra* note 11, at 3 (explaining importance of keeping athletes from play while they are experiencing concussion symptoms). For a detailed discussion of the danger of playing with a concussion, see *supra* notes 50-51, 55-56 and accompanying text.

138. See Florio, *supra* note 131 (describing football players' desire to assume risk following concussion). "[A concussion is] a serious medical condition that needs to be properly evaluated and treated. At some point, however, after the player has regained basic functions and is capable of understanding and accepting the risks, he should have the ability to choose to take that risk." *Id.* (suggesting that athletes may assume risk of playing with concussion at certain point during recovery); see also, Brandt, *supra* note 4 (noting that some players intentionally underperform on pre-season tests measuring baseline cognitive and neurological function so as not to appear concussed in case of actual injury); Angel Gustavo Rivera, *The Big Hit: NCAA Concussions Policy a Nightmare for Student Athletes*, HEALTH L. PERSPECTIVES (Mar. 20, 2013, 1:14 PM), http://www.law.uh.edu/healthlaw/perspectives/2013/Rivera_The%20Big%20Hit_NCAA%20Concussions%20Policy%20a%20Nightmare%20for%20Student-Athletes.pdf (reporting that many athletes play through concussion symptoms or immediately upon resolution of physical symptoms although recovery may not be complete).

139. See Hruby, *supra* note 3 (describing concussions as "notoriously difficult to diagnose and treat" and noting wide range in accepted return-to-play guidelines).

imminent and significant increase in risk presented by a fresh or repeated concussion.¹⁴⁰ A concussion can lead to “diminished functioning . . . in aspects of executive functioning including attention and concentration, speed of information processing, and memory.”¹⁴¹ Immediately following a concussive hit, an athlete may feel confused, disoriented, and forgetful.¹⁴² Moreover, because a concussion affects the very organ responsible for complex information processing, the symptomatic athlete may be unable to process his own symptoms, let alone weigh the risks against the benefits of continued play.¹⁴³ Therefore, an athlete who returns to play immediately following a concussion has not validly assumed the risks inherent in the game of football.¹⁴⁴ Ideally, every player who

140. See generally McCrea, *supra* note 134 (measuring immediate neurocognitive effects of concussions). In the study, McCrea and his team used the Standardized Assessment of Concussion (SAC) to measure athletes’ cognitive deficits immediately following concussions. See *id.* at 1033 (describing study). The SAC can detect deficits in four cognitive domains including orientation, immediate memory, concentration, and delayed recall. See *id.* at 1034 (stating assessment tools’ purpose). Fifteen minutes after sustaining a concussion, injured athletes had mean scores that were significantly below their preseason levels. See *id.* at 1038 (stating results). For an additional discussion regarding the immediate symptoms, cognitive effects and impairments caused by a concussion, see *supra* notes 24-31 and accompanying text.

141. See Alex Taylor, *Neuropsychological Evaluation and Management of Sport-Related Concussion*, 24 NEUROLOGY 717, 718 (2012) (footnotes omitted) (describing effect of concussion on brain function).

142. For a discussion of the symptoms of a concussion, see *supra* notes 32-41 and accompanying text.

143. See Paige Dimakos, *Blake’s Story: Recognizing the Impact of a Concussion*, BRYAN HEALTH, <http://www.bryanhealth.com/blakelawrence> (last visited Sept. 21, 2013) (presenting story of concussed player). Blake Lawrence suffered a concussion during a college football game and, although he knew that something was wrong, he could not identify the source or meaning of his confusion. *Id.* (“‘What’s wrong with you, Blake?’ ask[ed] [his teammate]. Lawrence did not know what to tell him. All he knew was he couldn’t remember a single play.” (quoting Colton Koehler)); see also Bentz & Purzycki, *supra* note 54, at 88 (explaining “[i]ndividuals who sustain concussions are often unaware that their cognition is compromised”); Harmon, *supra* note 14, at 9 (stating “cognitive processing speed and reaction time” are functions that are affected by concussion); McCrea, *supra* note 140, at 1037 (reporting findings that athletes who had been “ding[ed]” showed “significant deterioration from their preinjury baseline levels of cognitive functioning”). McCrea’s findings supported results from studies that found that “neurocognitive functioning is the component of neurological status that is most susceptible to change” after a concussion. *Id.* (footnote omitted) (explaining need for more sensitive tools to detect subtle changes in mental functioning in absence of classic concussion symptoms).

144. See Kain, *supra* note 60, at 716 (concluding that player cannot “knowingly and voluntarily assume[]” risks of a subsequent concussion if he “lacks adequate knowledge of the risks attendant to returning to play”). Similarly, a player who has not processed the fact that he has a concussion lacks the adequate knowledge of his increased risk. See *id.* (explaining why concussed athletes cannot validly assume the risk). In order for a participant to assume the risk, he must be subjectively

suffered a concussion would be immediately and properly diagnosed and removed from play until symptoms have resolved completely, cognitive functioning has returned to pre-concussive, baseline levels, and the neurologic injury has healed.¹⁴⁵ However, a growing body of scientific research and anecdotal evidence suggests an opposite reality – a shocking number of concussed athletes *do not realize that they have suffered a concussion*.¹⁴⁶

1. *Is Any Hit to the Head Safe?: Accumulated Sub-concussive Impacts Affects Cognitive Functioning*

A recent scientific study suggests that accumulated “sub-concussive” impacts produce marked neurocognitive deficits.¹⁴⁷ These neurocognitive deficits have been observed in players who do not present with observable concussive symptoms.¹⁴⁸ In this study, researchers observed statistically significant neurocognitive and neurophysiological deficits in players who had neither exhibited any clinically observable impairment during the season nor reported concussive symptoms.¹⁴⁹ The researchers believe that those players’ decline was attributable to multiple impacts that, on their own, were insufficient to produce short-term symptoms or deficits that reached the clinical diagnostic threshold for a concussion, but that, nonetheless, resulted in accumulated damage throughout the season.¹⁵⁰ Moreover, “[t]his finding of degraded neurological performance in the absence of classical symptoms of concussion is consistent with prior observations of CTE in the absence of a

aware of the risk involved in participation. *See supra* notes, 74-75 and accompanying text.

145. *See* McCrory, *supra* note 11, at 2-3 (describing diagnostic and return-to-play criteria).

146. *See* Taylor, *supra* note 144, at 717 (emphasis added) (noting that evidence suggests up to 90% of sports related concussions may go undetected or unreported) (footnote omitted).

147. *See, e.g.*, Talvage, *supra* note 11, at 7-8 (observing statistically significant neurocognitive and neurophysiological deficits in players at end of season compared to beginning of season). For a complete discussion of the Talvage study, see *supra* note 48 and accompanying text.

148. *See* Beckwith, *supra* note 49, at 743 (“[A] subset of athletes exists who experience in-season cognitive decline without experiencing abnormal symptomology.”). *See generally* Mulligan, *supra* note 37. In their study, Mulligan and his colleagues measured the differences in neurocognitive and neurophysiologic functioning in collegiate football players forty-eight hours following a game as compared to their preseason baseline measurements. *Id.* at 626 (describing study); *see also* Talvage, *supra* note 11, at 1 (suggesting injury may be accumulated when players are not removed from play).

149. *See generally* Talvage, *supra* note 11 (describing study).

150. *See id.* at 9 (describing scientific inference based on their results).

commensurate history of concussion in two ex-NFL offensive linemen and a defensive back.”¹⁵¹ Unfortunately, players within this subset of concussed athletes may face a higher likelihood of long-term neurodegeneration, all the while remaining completely unaware of the incremental, yet significant, damage being done to their brain every play.¹⁵²

Football players who sustain repeated sub-concussive hits and experience clinically unperceived, yet, statistically significant cognitive decline are believed to be at an increased risk of developing CTE later in life.¹⁵³ However, long-term neurocognitive decline and neurodegeneration are not risks inherent in football.¹⁵⁴ It would be incorrect to allege that players who are unaware of the slow but steady brain damage accumulated throughout a season are subjectively aware of their own increased risk of long-term impairment.¹⁵⁵

C. Evolving Symptoms – A Player Cannot Assume the Risk if He Does Not Know He is Concussed

Concussions are classified as an evolving injury that affects an individual’s cognitive ability and neurological functioning.¹⁵⁶ Due to their evolving nature, symptoms and deficits may not become apparent until several minutes or even hours after the concussive impact.¹⁵⁷ An athlete who suffers a concussive impact but does not experience immediate or “classic” symptoms (such as loss of consciousness or marked amnesia), may not recognize these concussive

151. *See id.* (making inferential observations based on fact that majority of players in this diagnostic group were also linemen, who have greater helmet-to-helmet contact than any other player on field).

152. *See id.* (noting higher risk of long-term damage and reiterating fact that damage will occur without symptoms triggering evaluation from healthcare professional) (footnotes omitted).

153. *See id.* (describing possible risks of repetitive subconcussive impacts). For a more detailed discussion of the long-term risks for players in this category, see *supra* notes 149-152 and accompanying text.

154. *See Vecsey supra* note 5 (reporting that NCAA concussion guidelines did not warn athletes about dangers of repeated concussions). In order for an athlete to assume the risk of play, he must be subjectively aware of the risk. *See supra* notes 74-75 and accompanying text.

155. *See Persky, supra* note 4 (explaining that although players knew that football was dangerous they did not know it could lead to “irreversible brain damage”). In order for an athlete to assume the risk of play, he must be subjectively aware of the risk. *See supra* notes 74-75 and accompanying text.

156. For a discussion of the evolution of a concussion and specific scientific literature, see *supra* notes 46, 48 and accompanying text.

157. For a discussion of the evolution of a concussion and specific scientific literature, see *supra* notes 46, 48 and accompanying text.

symptoms when they do begin to manifest.¹⁵⁸ Although the athlete may feel dazed or “out-of-it,” increased adrenaline from the pressure of game-time situations may prevent the athlete from attributing their evolving underlying issues to a particular hit or impact.¹⁵⁹ Moreover, since concussions have been shown to effect working (i.e. short-term) memory, a concussed player may not even remember experiencing a significant impact when symptoms finally become apparent.¹⁶⁰ As a result, an athlete is unlikely to report concussion-like symptoms to the appropriate personnel and is, therefore, unlikely to receive a positive diagnosis.¹⁶¹

Due to the evolution of the injury and delayed-onset of neurocognitive deficits, a player who receives a concussive hit may successfully pass sideline neurologic exams and be “cleared” by an athletic trainer or medical personnel on the sideline, despite exhibiting signs of a concussion.¹⁶² For instance, during the 2012 NFL season, New York Jets running back Shonn Green was “blasted” on a helmet-to-helmet hit by an opponent.¹⁶³ Following the hit, he approached the huddle and appeared “dazed and wobbly,” which prompted his quarterback, Mark Sanchez, to push him towards the sidelines.¹⁶⁴ Although Green was cleared to play after passing con-

158. See Mulligan, *supra* note 37, at 628-29 (“[T]he symptoms associated with concussion may present several hours following the concussion, and, therefore, the athlete may not correlate these symptoms with the injury that occurred during practice or competition.”) (footnote omitted).

159. See Mulligan, *supra* note 37, at 629 (“The athlete may also be unaware that the signs and symptoms may be indicative of a potential concussion.”); see also McCrea, *supra* note 140, at 1037 (reporting result of scientific study examining immediate effects of concussion). “Nearly 85% of the injured subjects in [McCrea’s] study experienced no [loss of consciousness], [post-traumatic amnesia], or change in gross neurological status but exhibited measurable deficits in orientation, concentration, and memory function in standardized mental status testing immediately after concussion.” *Id.* (explaining that although loss of consciousness is commonly regarded as “defining feature” of concussion, study showed that marked neurocognitive deficits appeared in majority of concussions that occurred without loss of consciousness).

160. See Harmon, *supra* note 14, at 9 (stating memory is one cognitive function most effected by concussion).

161. See Mulligan, *supra* note 37, at 629 (explaining that athlete may not seek care from health professional if they are unable to recognize or associate their symptoms with concussive event).

162. See, e.g., *infra* notes 171-172, 179 and accompanying text.

163. See Mark Fainaru-Wada & Steve Fainaru, *NFL Reports Remain Inconsistent*, ESPN.COM (Dec. 13, 2012, 12:04 PM), http://espn.go.com/espn/otl/story/_/id/8706409/nfl-concussion-program-marked-inconsistencies-making-difficult-assess-whether-league-making-progress-issue (describing hit that led to Green’s concussion).

164. See *id.* (describing signs of injury observed and subsequent actions taken by Green’s teammates).

cussion tests, he later admitted that he did not remember his teammate pushing him to the sidelines.¹⁶⁵ In response to the injury, the Jets explained: “Out of respect for the injury, we took him to the locker room to perform a thorough evaluation to be sure We were concerned enough to perform the testing, but all signs and tests suggest that [Green] did not have a concussion.”¹⁶⁶ However, the Jets, apparently, did not respect the injury enough: Green returned to the field even after exhibiting two of the six concussion symptoms that the NFL’s Standardized Concussion Assessment Tool (SCAT) considers grounds for “disqualification.”¹⁶⁷

An alarming number of instances involving players remaining in, or returning to play, have occurred during nationally televised college football games despite apparently obvious concussive symptoms.¹⁶⁸ In 2008, Stevon Threet, a former quarterback for the University of Michigan, sustained a helmet-to-helmet collision that resulted in a concussion with retrograde amnesia.¹⁶⁹ He returned to play after undergoing sideline testing however “[h]e can’t recall what tests he was given on the sidelines or what happened moments later. But he can watch a recording of the game and see himself head right back into the huddle.”¹⁷⁰

165. *See id.* (noting that Green was allowed to return to play after he passed memory and balance tests administered by Jets’ team doctor in locker room, and illustrating instance of Green’s amnesia).

166. *See id.* (internal quotations omitted) (quoting Jets spokesman).

167. *See id.* (noting Green failed to satisfy SCAT protocol yet still returned to play and further pointing out inconsistencies between suggested and actual concussion management in NFL). The Jets stated that Green was “dizzy” following the collision, but claimed his symptoms cleared “quickly.” *Id.* (reporting Jets response to Green’s injury and criticizing team’s decision to allow Green to return to play despite exhibiting two of six “obvious signs of disqualification (i.e., No Go)” from play.” (citing guideline from SCAT)). The SCAT advocates a “conservative ‘safety first’ approach” to concussion management and provides that “[a]n athlete suspected of sustaining a concussion is a “No Go” and *does not return to play in the same game or practice.*” *See NFL Sideline Concussion Assessment Tool*, available at http://www.asac.arkansas.gov/pdfs/reports/Concussions_-_NFL_Sideline_Post_Injury_Standardized_Test.pdf (last visited Sept. 24, 2013) (emphasis added) (stating concussion management guideline). According to the SCAT the “obvious signs of disqualification” include: “1) loss of consciousness or unresponsiveness; 2) confusion; 3) Amnesia, either retrograde or anterograde; 4) new and/or persistent symptoms (accompanied by a subsequent checklist); 5) abnormal neurological findings; and, 6) progressive, persistent or worsening of symptoms” *See id.* (stating “No Go” criteria).

168. For examples of college football players being cleared to play despite exhibiting concussive symptoms, see *infra* notes 167-181 and accompanying text.

169. *See* Brad Wolverton, *Coach Makes the Call*, CHRON. HIGHER EDUC. (Sept. 2, 2013), <http://chronicle.com/article/Trainers-Butt-Heads-With/141333/> (describing Threet’s injury).

170. *See id.* (describing Threet’s concussion and emphasizing fact that Threet continued to play, yet has no memory of entire event). “He doesn’t remember the

More recently, during the 2012 season, Florida State quarterback, E.J. Manuel, took a “vicious hit to the head” in a game against Florida, which resulted in his needing help coming off the field.¹⁷¹ On the sidelines, Manuel completed an “abbreviated medical examination” and returned to play a few minutes later.¹⁷² In an interview the following Monday, Manuel told reporters that he was “fine” and although he was hit in the head, it was “[b]asically in the jaw.”¹⁷³ Manuel continued: “I think they went through some preliminary [concussion] tests and obviously I passed them and I was able to go back in and play . . . Whatever test they did do, I don’t know for sure, I passed it so I was able to go back in and play.”¹⁷⁴

In another questionable instance from the 2012 season, University of Southern California wide receiver Robert Woods took a “nasty hit” which caused him to fall face down on the ground.¹⁷⁵ Although Woods immediately jumped to his feet, he stumbled and fell as he tried to run to the *opposing team’s sideline*.¹⁷⁶ A laughing Woods passed a sideline concussion test and returned to the game one play later.¹⁷⁷ “However, nobody was laughing when he immediately turned inside on a pass that [was thrown] to the outside.”¹⁷⁸ It was eventually revealed that the sideline concussion test completed by Woods consisted of three questions: “What’s today’s date? Who

Purdue University player who hit him or the penalty flags that flew.” *Id.* (illustrating extent of Threet’s amnesia).

171. See Goldwein, *supra* note 12 (describing circumstances of Manuel’s injury).

172. See *id.* (describing sideline evaluation following Manuel’s hit).

173. See Paul Thomas, *Manuel Was Tested for Concussion, Cleared to Play*, WARCHANT.COM (Nov. 27, 2012), http://floridastate.rivals.com/barrier_noentry.asp?ReturnTo=&sid=&script=content.asp&cid=1441719&fid=&tid=&mid=&rid (reporting interview with Manuel) (internal quotations omitted).

174. Thomas, *supra* note 173 (quoting Manuel) (internal quotations omitted).

175. See Travis Waldron, *Robert Woods and the Case for Standardizing College Football’s Concussion Evaluations*, THINKPROGRESS (Oct. 10, 2012, 3:37 PM), <http://thinkprogress.org/alyssa/2012/10/10/985671/robert-woods-and-the-case-for-standardizing-college-footballs-concussion-evaluations/?mobile=nc> (reporting Woods’s concussion).

176. See Waldron, *supra* note 175 (describing Woods’s behavior after collision) (emphasis added).

177. See Bill Plaschke, *USC’s Matt Barkley Comes Back with Answers to All the Questions*, L.A. TIMES (Oct. 5, 2012), <http://articles.latimes.com/2012/oct/05/sports/la-sp-1005-plaschke-usc-utah-20121005> (describing Woods’s behavior during concussion test); see also Waldron, *supra* note 175 (describing sideline evaluation); see also Wolverton, *supra* note 169 (noting Woods missed only one play before returning to game).

178. See Plaschke, *supra* note 177 (describing Woods’ disoriented behavior on next play).

is the president? What's 100 minus 7, minus 7?"¹⁷⁹ It was also later reported that Woods failed that test.¹⁸⁰ Woods told reporters that he was "jacked up" and "kinda like gone" after the hit.¹⁸¹

Neither Woods's nor Manuel's concussions were confirmed by their teams' coaching staffs.¹⁸² However, the media and the general football-watching population who watched those games reasonably assumed that Woods and Manuel sustained concussions based on fairly obvious and overt displays of symptoms typically exhibited by concussed players.¹⁸³ By setting the bar for passing a sideline concussion test irresponsibly low, players who suffered a head injury, like Woods and Manuel, are allowed to return to the field, where they have a substantially higher risk of concussion.¹⁸⁴

These players want to play, and if a trainer tells them they are fine based on the results of a shoddy sideline examination, the player is likely to believe that report and take advantage of their "medical clearance," even if symptoms eventually present or worsen.¹⁸⁵ Clearing these players so rapidly deprives them of the

179. See Wolverton, *supra* note 169 (criticizing decision to return Robert Woods to play and expressing skepticism over concussion test employed on sideline).

180. See Tim Polzer, *Report: Witness Believes USC's Robert Woods Failed Concussion Test*, SI WIRE (Oct. 9, 2012), <http://tracking.si.com/2012/10/09/ncaafb-usc-robert-woods-concussion-test-pac-12/> (reporting allegation tweeted by Utah insider, Brian Smith, and providing copy of Smith's tweet).

181. See *id.* (quoting Woods's interview and noting Woods insisting he passed concussion tests).

182. See Goldwein, *supra* note 12 (stating Manuel's coach, Jimbo Fisher, told reporters Manuel sustained abdominal injury).

183. See Frank Schwab, *Robert Woods' Return After Stumbling Around "Shows What Kind of Tough Kid He Is," Lane Kiffin Says*, YAHOO SPORTS (Oct. 5, 2012, 9:58 AM), <http://sports.yahoo.com/blogs/ncaaf-dr-saturday/robert-woods-return-shows-kind-tough-kid-lane-135835790—ncaaf.html> (stating USC training staff denied Woods suffered concussion; but also noting that although no one can be sure what happened to Woods, "[f]ans, who might have ignorantly laughed before, are now trained to know that Woods had concussion symptoms"). Schwab continued: "Just like we're trained to roll our eyes when we see Arizona Cardinals running back Ryan Williams apparently get knocked cold against the Rams on Thursday night, go limp and fall face first into the turf but hear the team term it a 'shoulder injury.'" *Id.* (describing shift in reactions to head injuries due to recent increased awareness of concussions).

184. See Harmon, *supra* note 14, at 11 ("Concussion decreases cognitive ability and reaction time, which theoretically diminishes an athlete's ability to respond to the demands of the sport, increasing the risk of second brain impact and injury to other body parts.").

185. See Wolverton, *supra* note 169 (opining that "the bar for passing a sideline concussion test still seems low"). "[The diagnostic] tools give trainers and physicians a pretty clear idea of whether players have concussions, but athletes can still fool the tests. For that reason, some coaches aren't convinced that they're worth doing." *Id.* (commenting on effectiveness of current sideline diagnostic tools). An unidentified head football coach in the Southeastern Conference re-

graduated and continued monitoring required for proper diagnosis, undermines and abandons the diagnostic process, and immediately convinces the perhaps-injured player that he is injury free.¹⁸⁶ A player who is told he does not have a concussion is unlikely to attribute emerging symptoms to a concussion and may even attribute the symptoms to an entirely different injury.¹⁸⁷ An unknowingly concussed player may continue to play without fully appreciating the elevated risks of a subsequent concussion, which can cause the fatal second impact syndrome.¹⁸⁸

D. The Duty to Protect Against Increased Risk – Whose Duty Is It?

A concussion affects the very organ responsible for reasoning, deduction and logical thinking.¹⁸⁹ It is unrealistic to place upon

portedly told the head trainer at the school: “You’re just trying to cover your ass. . . . Those tests are worthless.” See *id.* (quoting trainer to support criticism of sideline concussion tests) (internal quotations omitted). For a discussion of the inherent compulsion aspect to assumed risk, which involves players relying on assurances of safety from coaches, see *supra* note 110 and accompanying text.

186. See McCrory, *supra* note 11, at 2 (stating that abbreviated diagnostic tests are designed to rapidly diagnose concussions but are not meant to replace comprehensive neurophysiological testing, which he recommends should be performed by trained and qualified neurophysiologists). Moreover, sideline tests “should [not] be used as a stand-alone tool for the ongoing management of sports concussions.” See *id.* (reiterating need for comprehensive testing and emphasizing fact that “appearance of symptoms or cognitive deficit might be delayed several hours following a concussive episode and [a] concussion should be seen as an evolving injury in the acute stage”).

187. See Dan Diamond, *Arizona Just Broke the NCAA’s Concussion Policy. Will It Matter?*, FORBES.COM (Oct. 27, 2012, 9:27 PM), <http://www.forbes.com/sites/dandiamond/2012/10/27/arizona-just-broke-the-ncaas-concussion-policy-will-it-matter/> (noting Matt Scott started puking on sidelines following hit, yet trainers and Scott attributed on-field and sideline vomiting to being “winded”); see also Justine Hendricks, *Matt Scott Plays Through Possible Concussion; Testing Must Improve*, RANT SPORTS (Oct. 28, 2012, 3:55 PM), <http://www.rantsports.com/ncaa-football/2012/10/28/matt-scott-plays-through-possible-concussion-testing-must-improve/> (conceding vomiting during game could be due to number of reasons but harshly criticizing training and coaching staffs for not immediately evaluating Scott when vomiting occurred so soon after absorbing helmet-to-helmet hit). For a discussion of Matt Scott’s concussion symptoms and the way his injury was handled, see *infra* notes 191-195 and accompanying text.

188. See Hruby, *supra* note 3 (providing cases of concussed players who were removed from play but noting that they would have been at risk for second-impact syndrome had they returned to play); see also Keating, *supra* note 124 (noting study performed by NCAA that found that college football players who had suffered concussion were more susceptible to additional head injury for period of seven to ten days following initial injury). For a discussion of second-impact-syndrome and a doctor’s account from a patient diagnosed with second-impact-syndrome, see *supra* note 55 and accompanying text.

189. See Anand S. Pandit, *Traumatic Brain Injury Impairs Small-World Topology*, 80 NEUROLOGY 1826, 1831 (May 2013) (explaining “high-level cognitive func-

the concussed athlete, the burden of deciding whether or not he is fit to play, particularly when the very organ responsible for each of these complex, multi-process decisions is the one that is compromised.¹⁹⁰ Last season, late in a game against USC, Arizona quarterback Matt Scott sustained multiple helmet-to-helmet hits and began vomiting on the field – a telltale sign and symptom of a concussion.¹⁹¹ Scott remained on the field for four more plays before being pulled from the game.¹⁹² One commentator criticized the response of the coaching staff and the trainers stating “when a player takes a hit like Scott did and then starts vomiting, it’s *unconscionable* to allow him to continue to play without first being evaluated.”¹⁹³ Once he returned to the sidelines, Scott told his teammates and his coach he felt “fine.”¹⁹⁴ But, “[t]hat’s not his call to make. It’s not the coach’s either. . . [Everyone] watching on television could see Scott *wasn’t* fine. The trainers should’ve known, alerted the coach, and gotten Scott out of the game immediately. His life could’ve depended on it.”¹⁹⁵

tions . . . are likely to be disrupted [by a concussion]”). For a discussion of concussions, including the signs, symptoms, and process for diagnosing them, see *supra* 24-49 and accompanying text.

190. See Rivera, *supra* note 138, at 5 (criticizing NCAA’s concussion policy). “The [NCAA] guideline reject any measure of responsibility for the NCAA, its member schools, and the coaching staff or individual teams and, instead puts the burden on the shoulders of student-athletes who have just sustained fresh head trauma to not just seek out medical attention, but decide whether to seek it in the first place.” *Id.* (explaining problem with NCAA policy regarding concussions). For a discussion of why it is unrealistic and irresponsible to place the burden of seeking medical attention on the injured athletes themselves, see *supra* note 15.

191. See, e.g., Anthony Gimino, *Arizona Wildcats Football QB Matt Scott Suffered Concussion in Loss to UCLA*, AZ CENTRAL (Nov. 5, 2012, 3:21 PM), <http://www.azcentral.com/sports/ua/articles/20121105arizona-wildcats-football-matt-scott-concussion.html> (describing Scott’s hits); see also Hendricks, *supra* note 187 (describing Scott’s behavior and symptomology after hits). For a discussion of concussion symptoms, see *supra* note 33-35 and accompanying text.

192. See, e.g., Hendricks, *supra* note 187 (noting Scott’s continued play despite exhibiting concussions symptoms).

193. *Id.* (criticizing lack of action on part of trainers and coaching staff following Scott’s hit).

194. See Kevin Zimmerman, *Matt Scott Concussion: Quarterback Will Be Evaluated, Situation Was Mishandled*, SB NATION (Oct. 27, 2012, 9:30 PM), <http://www.azdesertswarm.com/football/2012/10/27/3565436/matt-scott-concussion-arizona-wildcats> (stating quote from Scott on sidelines) (citing Ryan Finley, *Arizona Wildcats Football: QB Scott Tells Teammates He’s “Good”, “Fine” Following Apparent Concussion*, ARIZONA DAILY STAR (Oct. 27, 2012, 6:55 PM), http://azstarnet.com/sports/blogs/finley/arizona-wildcats-football-qb-scott-tells-teammates-he-s-good/article_8e2b7548-20a2-11e2-be20-001a4bcf887a.html) (internal quotations omitted).

195. See Hendricks, *supra* note 187 (describing Scott’s injury and suggesting proper way to handle suspected concussion of that nature). Scott eventually underwent a concussion test and was removed from play but the coaching staff never

In moments like these, players cannot assume the increased risk of playing football with a brain injury.¹⁹⁶ Assumption of risk centers on the participants subjective knowledge of the risks.¹⁹⁷ An athlete who suffers a concussion, yet remains undiagnosed and continues play, is missing a significant and essential piece of information – an awareness of their injury – that affects their ability to analyze the risks and benefits of continued play.¹⁹⁸ However, even if the athlete has exhibited symptoms and was, at one point, previously told about the risks of playing with a concussion, the potentially concussed athlete still cannot validly assume the risk because his cognitive ability and neuropsychological functioning is undeniably compromised.¹⁹⁹ His ability to think clearly and rationally is impaired and the only safeguards in place to prevent the athlete from returning to play are the medical personnel, athletic trainers, and coaches on the sidelines.²⁰⁰

The doctrine of assumption of risk provides that although defendants generally do not have a duty to mitigate risks, they do have a duty not to *increase* those risks.²⁰¹ In the case of concussions and

confirmed nor denied his concussion. *See id.* (noting absence of confirmation or denial of injury). A week later, Scott sustained another forceful impact during a game against UCLA and, this time, his concussion was confirmed and he was kept from play the next week as well. *See Gimino, supra* note 191 (drawing attention to Arizona’s “more proactive approach” in handling Scott’s concussion against UCLA).

196. Concussed individuals are often not even aware that their cognition is compromised. *See Bentz & Purzycki, supra* note 54, at 88 (discussing difficulty of diagnosing concussions). For an explanation of the immediate cognitive impairment caused by a concussion and the subsequent increased risk of play, see *infra* notes 140-143, 184 and accompanying text.

197. For a discussion of the subjective awareness and knowledge required for assumed risk, see *infra* notes 73-86 and accompanying text.

198. *See Kain, supra* note 60, at 716 (“[I]f a player lacks adequate knowledge of the risks attendant to returning to play before his concussions symptoms have subsided, he cannot be considered to have knowingly and voluntarily assumed the short and long-term risks of such injury.”); *see also McCrea, supra* note 140, at 1037 (explaining that neurocognitive functioning is most susceptible to change following concussion and deterioration from baseline levels of functioning is often “significant”).

199. For a discussion of subjective awareness requirement, see *infra* notes 76-84 and accompanying text.

200. *See Harmon, supra* note 14, at 11 (stating that concussion diminishes athlete’s cognitive ability and impairs their ability to participate in sport). Harmon suggests that “[w]hen a player is being evaluated for, or has been diagnosed with, a concussion, it is a good safety strategy to sequester an essential piece of playing equipment to avoid an ‘inadvertent’ return to the game.” *Id.* at 8 (advising those responsible for player safety of ways to prevent concussed players return to play).

201. For a discussion of the duty of care required by coaches, trainers and other individuals occupying a supervisory role over athletes, see *infra* notes 98-100 and notes 107-112, and accompanying text.

football, the duty owed by coaches, trainers, and sideline medical personnel to protect athletes from concussions varies depending on the level of play and the age of the players.²⁰² However, across all levels of play, coaches, trainers, medical personnel, and leagues have a duty to not increase the risks that are associated with, or inherent in, football.²⁰³

The risk of sustaining a concussion is certainly a risk inherent in football.²⁰⁴ Tackling is an integral part of football and there is no duty on anyone's part to eradicate an athlete's risk of sustaining a concussion by eliminating that aspect of the game.²⁰⁵ However, the elevated risk of a concussion immediately following an initial head injury, and the increased risk of long-term cognitive deficits, should not be considered a risk inherent in football, because this damage can be prevented.²⁰⁶ By participating in the sport, football players assume the risk of suffering a concussion; however, they do

202. See *Benitez v. New York City Bd. of Educ.*, 73 N.Y.2d 650, 657 (1989) (explaining that awareness and assumption of risk must be evaluated in light of player's skill and experience and noting that higher degree of awareness imputed to professionals than to amateurs) (citations omitted); see also Video: "Concussion Conundrum": Panel 2: Building the Case – A Legal and Medical Background of Concussions, 2013 Annual Jeffrey S. Moorad Sports Law Symposium, Mar. 6, 2013, <http://youtu.be/F8Vuylljbuk> [hereinafter "Concussion Conundrum"] (observing varying levels of caution across different levels of competition within football). "It certainly changes when you move up the spectrum into even collegiate and professional levels." *Id.* (quoting Dr. Michael Marino) (explaining that while parents are happy to remove their children from play, athletes and coaches are not as cautious at higher levels of competition).

203. See Hruby, *supra* note 3 (explaining that college athletes he works with understand football is dangerous, and although they do not expect NCAA to eliminate risk, they want NCAA to *try* (emphasis in original)); see also Harmon, *supra* note 14, at 13 (pointing out that coaches and trainers play important role in athlete health and safety and that increased education for sideline personal will improve concussion detection, treatment, and prevention).

204. See Hruby, *supra* note 3 ("Everyone knows football is a brutal game" (quoting Ramogi Huma)); see also Kain, *supra* note 60, at 728 (noting concussions in football are inevitable because collisions are "integral" part of game); see also Harmon, *supra* note 14, at 13 (conceding that it is impossible to prevent all sports-related concussions).

205. See Kain, *supra* note 60, at 728 (recommending changes in concussion management protocol as way to decrease long-term effects).

206. See Curtis Crabtree, *Jeff Hartings Says He Faked His Way Through Concussion Tests*, PRO FOOTBALL TALK (July 18, 2013, 2:33 AM), <http://profootballtalk.nbcsports.com/2013/07/18/jeff-hartings-says-he-faked-his-way-through-concussion-tests/> (reporting former player's belief that concussions can be "handled properly so that the long-term effects of concussions aren't problematic"). Dr. Michael Marino tells his patients that "full neurologic recovery" is possible however, he warns that "with each successive concussive injury typically the recovery time becomes longer and longer." See Concussion Conundrum, *supra* note 202 (explaining increased risk for already-concussed athletes). "The amount of trauma needed to the brain to induce a concussion gets lower and lower and the risks of permanent neurological sequelae increase."

not assume the risk of long-term brain damage.²⁰⁷ “The risk isn’t concussions. The risk is dementia, [A]lzheimer’s, suicide.”²⁰⁸ The failure to properly diagnose and monitor a potentially concussed athlete enables an injured athlete’s premature return and elevates the sport’s inherent risks beyond what is reasonable or expected.²⁰⁹

Studies have shown that when proper concussion management protocol is followed, most concussed athletes will make a full recovery.²¹⁰ Conversely, if a player returns to practice or competition before their head injury has completely healed, the athlete is more susceptible to a subsequent, repeated concussion, which, in turn, markedly increases the player’s risk of suffering from long-term cognitive deficits and CTE.²¹¹ Coaches, trainers, and anyone on the sideline responsible for player-management, therefore, have a duty to diligently monitor athletes for concussion symptoms so as not to increase the risk of repeated concussions and long-term deficits.²¹² If even the slightest suspicion of a concussion exists, the sideline personnel in supervisory roles on the sideline have a duty to promptly remove the player from play, and prevent that player’s

207. *Contra Brain Injuries Just Can’t Get No Respect*, PRO FOOTBALL CONCUSSION REP. (May 28, 2013), <http://profootballconcussions.com/brain-injuries-just-cant-get-no-respect/> [hereinafter “*No Respect*”] (stating some players believe athletes knew long-term risks) “We signed up for it. We know what can happen . . . Junior [Seau] gave everything to football, and I’m sure he’s looking down with no regrets.’ Weird thing to say about a wealthy, young, popular retired father who shoots and kills himself one morning while his girlfriend’s at the gym.” *Id.* (quoting Ed Reed).

208. *They Still Don’t Know the Risk*, PRO FOOTBALL CONCUSSION REP. (June 21, 2013), <http://profootballconcussions.com/they-dont-know-the-risks/> (noting that risk is greater than concussions and that players do not seem to be aware of long-term and subsequent risks of having concussions).

209. For a discussion of the duty of care owed by coaches and trainers, see *infra* note 108-110 and accompanying text. For a discussion of the risk of returning to play with a concussion, see *infra* notes 49, 55-56 and accompanying text.

210. See Taylor, *supra* note 141 (stating that long-term physical, cognitive and emotional deficits and impairment are more likely when sports-related concussion are managed improperly).

211. See McKee, *supra* note 52, at 12 (stating that “a second concussion occurs much more frequently in the immediate period after a concussion” and advising that “the easiest way to decrease the incidence of CTE is to decrease the number of concussions”). Returning to play in the immediate aftermath of a concussion places an athlete at a higher risk for a subsequent concussion caused by a lesser amount of force than the original injury, which is particularly dangerous, as studies have found that at least 17% of individuals who suffer repetitive concussions eventually develop CTE. See *id.* (explaining potential implications of playing while concussed).

212. See Kain, *supra* note 60, at 728 (suggesting that despite inevitability of concussions in football, diagnosis, management, and treatment can and should be revised).

immediate attempt to return to play, so as not to increase that player's risk beyond the risk of an injury or a concussion.²¹³

Although progress has been made in increasing awareness and knowledge of concussions, the injury is still not being taken as seriously as it should be.²¹⁴ Steven Threet, a former college football player, told Congress: "A mild brain injury is not a mild shoulder separation. It's not an injury to be played through."²¹⁵ Unfortunately, many athletes continue to play while concussed because they have been "cleared" by a trainer or doctor on the sideline.²¹⁶ This is due, in part, to the fact that cursory sideline concussion tests often fail to detect subtle cognitive changes, or rely, to a great extent, on self-reported symptoms, which may not have emerged immediately following a concussive incident.²¹⁷ Moreover, despite the emphasis placed on detection and diagnosis of concussions, head injuries are still not being treated with as much caution as other injuries evaluated on the sidelines.²¹⁸ For instance, when a player injures his knee during a game, it may not be immediately clear if that player's knee is just sprained or if a more serious injury has

213. See Harmon, *supra* note 14, at 8 (suggesting "it is a good safety strategy to sequester an essential piece of playing equipment to avoid an 'inadvertent' return to the game").

214. Athletes exhibiting symptoms of concussions are still returned to play quite regularly. See Schwab, *supra* note 183 (asking, "But what about what we saw – remember, the stumbling and falling after the hard hit?" after USC trainers determined Robert Woods did not suffer concussion). Schwab also notes that the assistant to Woods' coach later tweeted a photo of Woods reviewing game tape to see "how he got knocked out" as a result of the hit. *Id.* (quoting tweet from Kyras McCowan). Although Woods was exhibiting obvious and classic concussive symptoms, "None of the team doctors and athletic trainers on USC's sideline put up enough of a fight to keep Woods out of the game." *Id.* (noting that concussions are not being taken as seriously as they should be despite new awareness of risk). For a more in-depth discussion of the way Robert Woods' purported concussion was handled, see *infra* notes 175-181 and accompanying text.

215. See Steven Threet, *Detection and Treatment of Concussions in Student Athletes*, C-SPAN (Oct. 19, 2011), <http://www.c-spanvideo.org/program/302174-1> (testifying in front of Congress).

216. For examples of players being cleared and returned to play even while exhibiting concussive symptoms, see *supra* notes 163-167, 171-181, 226-230 and accompanying text.

217. See Conboy, *supra* note 43 (explaining that despite recent advancements in concussion research "we're still woefully ill-equipped" to detect and diagnose injuries on day of injury). Moreover, the insufficiency with sideline evaluations is exacerbated by the fact that the assessments are being performed *on the sidelines*, where the pressures of the game are still felt and the athlete's injured brain is exposed to a multitude of distracting stimuli. See *id.* (noting problem with sideline evaluations is "when and where [they] are administered").

218. See *No Respect*, *supra* note 207 (observing differences in way knee injuries and concussions are treated on sideline and stating "[k]nee injuries . . . get respect.").

occurred.²¹⁹ The knee specialist present on the field generally recognizes the limits of a sideline evaluation.²²⁰ Out of an abundance of caution, the injured player will be kept from play until a definitive diagnosis can be made, often following an x-ray or an MRI.²²¹

With concussions, however, quite the opposite course of action occurs.²²² A player who presents himself with a possible concussion, but who “passes” a cursory sideline concussion test, is typically returned to play immediately, even in the presence of classic and observable, concussive symptoms.²²³ While the limits of sideline concussion evaluations may be recognized, they are too often disrespected.²²⁴ Instead of withholding potentially concussed athletes from play pending more sensitive and conclusive testing, players

219. See Dave Siebert, *NFL Injury Diagnostics: Primer on X-Rays, CT Scans and MRIs for the 2013 Season*, BLEACHER REPORT (Sept. 4, 2013), <http://bleacherreport.com/articles/1760905-nfl-injury-diagnostics-primer-on-x-rays-ct-scans-and-mris-for-the-2013-season> (describing diagnostic process for injuries sustained during football and explaining different tools employed for definitive diagnosis); see also Danny Cox, *Chicago Bears Brian Urlacher Would Lie to Hide a Concussion*, CBS LAS VEGAS (Nov. 16, 2012, 7:20 AM), <http://lasvegas.cbslocal.com/2012/11/16/chicago-bears-brian-urlacher-would-lie-to-hide-a-concussion/> (reporting that in Urlacher’s opinion, concussions and knee injuries are treated differently because serious knee injuries can sideline player for whole season while concussions, in isolation, are not considered career-ending).

220. See generally Siebert, *supra* note 219 (explaining purpose of various diagnostic tools as well as limitations of those tools); see also Zach Hicks, *Tackling Concussions*, ROYAL PURPLE NEWS, <http://royalpurplenews.com/?p=8537> (last visited Oct. 1, 2013) (“There are special tests you can do to study the integrity of the ligaments and the joints. With a concussion, though, I can’t tell if someone has a headache or sensitivity to light.” (quoting Head Athletic Trainer, Steve Hillmer)).

221. See Siebert, *supra* note 219 (“X-rays are usually just the first of multiple diagnostic imaging tests. Negative X-rays are a good start, but they are also no where near the end.”); see also Chris Stankovich, *Concussion – Knee Injury Debate is a Big One for NFL & Sports Leagues Everywhere*, SPORTS DOC (Aug. 22, 2013), <http://blog.drstankovich.com/concussion-knee-injury-debate-is-a-big-one-for-nfl/> (noting serious knee injuries have equally as serious career implications while concussions are “less problematic” in immediate aftermath of injury).

222. See generally Conboy, *supra* note 43 (presenting Calvin Johnson’s concussion as example of poor concussion management). For a further discussion of Calvin Johnson’s concussion and the improper way in which it was handled, see *infra* notes 226-230 and accompanying text.

223. For an example of a player who returned to play despite exhibiting outward signs of a concussion, see *infra* notes 226-230 and accompanying text.

224. See NFL CONCUSSION PROTOCOL, *supra* note 50, at 23 (“The athlete may have a concussion despite being able to complete the NFL Sideline Concussion Assessment ‘within normal limits’ compared to their baseline, due to the limitations of a brief sideline assessment.”); see also Steve Wyche, *League, Union to Probe Browns’ Concussion Protocol*, NFL.COM (Dec. 12, 2011, 5:00 PM), <http://www.nfl.com/news/story/09000d5d824fe43f/article/league-union-to-probe-browns-concussion-protocol> (describing Brian Westbrook’s experience with concussions, and noting that, although Eagles’ medical staff were “diligent” in treatment and return to play decisions, Westbrook still suffered two concussions in three weeks, including one that left him unconscious on field).

who pass a cursory sideline concussion test are told, definitively, that they have not suffered a concussion and that it is safe for them to return to play.²²⁵

For instance, last season, Calvin Johnson suffered “a hit that should have ended his game.”²²⁶ Immediately following the hit, trainers ran to Johnson and helped him to the sideline where he “fell to his knees and clutched his head.”²²⁷ Despite exhibiting outward signs of a concussion, Johnson returned to the game less than 12 minutes later after being “‘thoroughly checked’” and “cleared” to return to play.²²⁸ Later, Johnson described the evaluation he received on the sideline: “They come and do the little test with the finger, ask you what day, what game it is, stuff like that[.]”²²⁹ While “Johnson may well have been *cleared* to resume playing[.] [w]hether he was *fit* to resume playing is another question entirely.”²³⁰

In order to prevent potentially concussed players from returning to play in these situations, sideline personnel have a duty to approach and treat head injuries with at least as much, if not more, caution than other types of injuries to prevent further, long-term damage to a player.²³¹ In light of the increased knowledge of the short and long-term risks associated with multiple and repeated concussions, as well as increased vulnerability during the acute phases of a concussion, allowing a player to return to play after passing a cursory sideline examination in the presence of observa-

225. For an example of a player who was “cleared,” see *infra* notes 226-229 and accompanying text.

226. See Conboy, *supra* note 43 (describing hit sustained by Calvin Johnson).

227. See *id.* (describing aftermath of hit sustained by Johnson and his outward display of symptoms); see also NFL CONCUSSION PROTOCOL, *supra* note 50, at 2 (stating “clutching of head after contact” constitutes “Potential Concussion Sign (Observable)”).

228. See Conboy, *supra* note 43 (quoting Lion’s head coach, Jim Schwartz). At a press conference, Schwartz told the media that Johnson had not suffered a concussion, contradicting an earlier statement made by Johnson himself. *Id.* (relaying statements made by Schwartz).

229. See *id.* (quoting Johnson) (internal quotation marks omitted) (describing sideline assessment used for medical clearance).

230. See *id.* (illustrating limitations of sideline concussion tests by highlighting difference between being “cleared” and being safe).

231. See Crabtree, *supra* note 206 (describing shift in attitude regarding concussions).

[Y]ou have to take concussions seriously. . . . I don’t want to make a comparison to a sprained ankle but when a player sprains his ankle you sit him out. When he injures his brain, you need to sit him out and you’ve got to take that even more seriously and make sure when they come back they’re fully ready to come back.

Id. (quoting former NFL player Jeff Hartings reflecting on how his attitude regarding concussions has changed as youth football coach compared to when he was in NFL).

ble symptoms “may amount to such careless disregard for the safety of [the player] as to create risks not fairly assumed.”²³²

“Clearing” a potentially concussed player based on the results of a cursory sideline concussion test functions as an assurance of safety.²³³ The permission to play signals to the player that they are injury-free, which, due to the evolving nature of a concussion, may not actually be the case.²³⁴ Although the athlete may feel a bit “off,” the concussion, unlike a serious knee or shoulder injury, will not physically prevent the athlete from participating in the game.²³⁵ As Willis McGahee, a running back for the Cleveland Browns, put it: “getting a concussion and hurting your knee are two different things. *You get back up from a concussion.*”²³⁶ Moreover, if and when concussion symptoms manifest, the player who has been told he did not suffer a concussion is unlikely to attribute emerging and evolving symptoms to an evolving head injury.²³⁷ The player is even

232. See Kain, *supra* note 60, at 715-16 (footnote omitted) (internal quotation marks omitted) (noting that in some instances coaches, trainers, or sideline personnel can be liable for negligence).

233. See generally *Hamilton v. Standard Oil Co.*, 19 S.W.2d 679 (Mo. 1929) (concluding plaintiff relied on clearance given by defendant-employer’s physician as assurance that he was cleared to return to his previous work). The *Hamilton* court also concluded that a defendant-employer would be liable for any careless or negligent assurance of safety given by a physician whose services they provide. See *id.* (describing standard for liability). For a more detailed discussion of a plaintiff’s reliance on an assurance of safety from a defendant-employed physician, see *supra* notes 81-86 and accompanying text.

234. For an example of a player who took his clearance as a sign he was “injury-free,” see *supra* notes 171-174 and accompanying text.

235. See Tom Junod, *Theater of Pain*, *ESQUIRE* (Jan. 18, 2013, 8:00 AM), <http://www.esquire.com/features/nfl-injuries-0213> (describing how players perceive knee injuries and concussions differently). Junod sat down with Willis McGahee, a player whose career, in his opinion, “has been defined by very public injuries and whose very public injuries have defined the state of football over the last ten years.” *Id.* (describing motivation for interviewing McGahee). McGahee’s injuries have included a “gruesome” knee injury during college, a concussion, which caused him to be taken from the field on a stretcher, and a torn medial collateral ligament (MCL). *Id.* (describing McGahee’s injuries). McGahee disagreed with Junod’s characterization, however, and said “[i]njury has not been a part of my career . . . I’ve only gotten hurt twice. I got hurt once in college and once in the pros.” *Id.* (quoting McGahee).

236. See *id.* (emphasis added) (quoting McGahee’s response to whether he considered his concussion an injury).

237. See *id.* (writing that culture in professional football is to play through pain unless you are physically unable to do so). Due to football’s gladiator culture, many players are heavily medicated on game days, so that they are able to play through the pain. *Id.* (noting common practice in NFL). As a result, they are often unaware that they have, in fact, been hurt or injured. *Id.* (according to Matt Hasselbeck, “A lot of times you don’t know exactly when the injury happens, because you’re taking drugs like Toradol . . . so you’re feeling good.”).

more unlikely to remove himself from play to seek further evaluation if he has already been told that he is “fine.”²³⁸

Remaining in the game undoubtedly increases the risk of subsequent concussions and amplifies the risk of long-term cognitive deficits and CTE.²³⁹ However, the athlete who relies on the assurance of safety has not knowingly and voluntarily assumed the risks posed by playing with a concussion – a risk much greater than those inherent in the sport of football.²⁴⁰ Although a concussed or potentially concussed player has passed the cursory sideline examination and has been told they can play, that player has not assumed the increased risk of playing with a head injury, even if the athlete returns to play while experiencing symptoms.²⁴¹ The assurance that the player is not concussed, and a subsequent direction to play, invalidates the voluntary aspect of assumption of risk because the athlete is not subjectively aware of his own increased vulnerability.²⁴²

IV. CONCLUSION

In a perfect world, every concussion would be properly and immediately diagnosed and treated.²⁴³ Unfortunately, until scientists

238. For a further discussion of players’ reliance on safety assurances given by doctors, trainers, or coaches, see *supra* notes 80-85 and accompanying text. It is only natural for players to rely on an assurance of safety given by a doctor, trainer or coach. *See id.*

239. *See Kain, supra* note 60, at 704 (noting that athletes who return to play before their concussion has healed “are significantly vulnerable for recurrent, cumulative and even catastrophic consequences of a second concussive injury”) (citations omitted) (internal quotation marks omitted).

240. *See generally* *Hamilton v. Standard Oil Co.*, 19 S.W.2d 679, 682 (Mo. 1929) (holding that plaintiff who relies on assurance of safety does not assume risk of exacerbating injury). For a more detailed discussion of the standard set forth by *Hamilton v. Standard Oil Co.*, see *supra* notes 82-86.

241. *See Benitez v. New York City Bd. of Educ.*, 73 N.Y.2d 650, 658 (1989) (concluding athletes may be compelled to participate, even when faced with obvious and apparent risk when they are encouraged or directed by coach). If a coach or another individual who is responsible for player safety provides an assurance of safety, the assurance that it is safe for the athlete to return to play will void any assumption of risk. For a more detailed discussion of the increased duty of care owed by coaches to athletes, see *supra* notes 109-111 and accompanying text.

242. *See Benitez*, 73 N.Y.2d at 658 (explaining that although certain risk may be foreseen, assurance of safety from individual in supervisory role will negate any assumption of risk). If an athlete is not aware that he has a concussion and is told that it is safe to play, it cannot be said that he has validly assumed an increased risk of injury. *See Kain, supra* note 60, at 716 (explaining “assumption of risk doctrine ‘imports a knowledge and awareness of the particular hazard that caused the injury’” (quoting *Dillard v. Little League Baseball, Inc.*, 390 N.Y.S.2d 735, 737 (N.Y. App. Div. 1977)) (emphasis added)).

243. *See generally* *Conboy, supra* note 43 (discussing limitations of current sideline assessment tools).

develop a reliable and entirely objective sideline concussion test, players will continue to play in concussed states.²⁴⁴ New diagnostic tools, such as highly sensitive balance sensors and blood tests that detect neurochemical changes, are currently being developed and refined.²⁴⁵ However, until those tests become economically feasible realities on every sideline, coaches, trainers, doctors and other sideline personnel have an increased duty to prevent players who show even the slightest signs or symptoms of a concussion from returning to play.²⁴⁶ During the acute phase of a concussion, the concussed athlete who remains undiagnosed, or improperly diagnosed, and is subsequently allowed to return to play, faces an elevated risk of an additional and potentially more severe concussion.²⁴⁷ Given the knowledge and awareness surrounding the dangers of concussions and their long-term effects, those individuals responsible for player safety and medical clearance need to act with much greater caution by withholding even questionably concussed players from play in order to prevent, or at the very least to minimize, an increased risk of subsequent injury.²⁴⁸ Although this recommendation has al-

244. See *Combating Sports-Related Concussions: New Device Accurately and Objectively Diagnoses Concussions From the Sidelines*, SCIENCE DAILY (Aug. 28, 2013), <http://www.sciencedaily.com/releases/2013/08/130828092300.htm> [hereinafter “*Combating Concussions*”] (lamenting that “there is no objective test available to accurately diagnose concussion on the sidelines”).

245. See *id.* (reporting development of new, entirely objective diagnostic tool that can be used to detect concussions on sidelines by measuring players’ balance). The balance board, developed by researchers at San Diego State University can measure balance with 99% accuracy. *Id.* (reporting efficacy rate of new test); see also David Epstein, *Study: Blood Test Could Detect Brain Damage in Active Athletes*, SI.COM (Mar. 7, 2013, 9:09 AM), <http://sportsillustrated.cnn.com/more/news/2013/0307/new-blood-test-for-brain-damage/> (reporting results of recent study that detected higher levels of protein associated with head injury in blood streams of players who sustained greater number of head impacts during college football game).

246. See *Combating Concussions*, *supra* note 244 (noting current balance board model is cost-prohibitive for high schools and colleges). The original balance board uses force plates that can cost up to \$10,000; however, the researchers at SDSU have developed and are testing a new, less expensive version. *Id.* (reporting efforts by SDSU researchers). Dan Gobel, the leader of the research team at SDSU hopes their version of the balance board will eventually be available for under \$1,000. See Amanda Woerner, *New Device May Help Detect Athletes’ Concussion on Sidelines*, FOX NEWS (Aug. 28, 2013), <http://www.foxnews.com/health/2013/08/28/new-device-may-help-detect-athletes-concussions-on-sidelines/> (stating developer’s hope is that new balance board will be “a more practical alternative for coaches and trainers”).

247. For a discussion of the increased risk faced by players who have suffered a concussion, see *supra* note 49 and accompanying text, notes 55-56 and note 63 and accompanying text.

248. See *Concussion Conundrum*, *supra* note 202 (“I think the general concept is that you can never be wrong in being overcautious. You can only be wrong if you send an athlete back too soon.” (quoting Dr. Michael Marino)).

ready been promulgated and adopted by various medical consensus groups, scientific experts, schools and sports leagues, the recommendation must be adhered to more strictly.²⁴⁹

For a number of reasons, players need to be protected from themselves.²⁵⁰ This reality is particularly important in the context of football-related concussions, where the risk of additional head injury is not only markedly elevated, but the long-term consequences of playing while concussed have also proved to be devastating.²⁵¹ The goal of coaches, doctors, and trainers on the sideline needs to be a player's *safe* return to play, rather than a hasty, under-informed decision made in the interest of competition.²⁵² The burden of reporting concussive symptoms and withholding a concussed player from play *cannot* be placed entirely on the concussed athlete himself.²⁵³ Instead, the duty of protecting the already concussed player from the increased risk of brain damage and long-term cognitive deficits of multiple concussions must lie with the doctors, trainers, and coaches on the sideline.²⁵⁴

Ultimately, the concussion crisis will not be solved unless the educational outreach and awareness efforts initiated in the last decade continue with the same force and vigor.²⁵⁵ Although strides have been made in the field of concussion research and general knowledge and awareness of the signs, symptoms, and risks of con-

249. For a further discussion of return-to-play protocols set forth by medical consensus groups, the NFL and the NCAA, see *supra* note 50.

250. See Andrew Brandt, *Moving on From 'Denial'*, MMQB (Oct. 9, 2013), <http://mmqb.si.com/2013/10/09/andrew-brandt-league-of-denial/> (providing “fundamental and unresolved issue[] of concussion treatment and return-to-play”); see also Charnley, *supra* note 71, at 55 (noting many believe football players “push past their physical limitations”).

251. See *No Respect*, *supra* note 207 (“Brain damage is the worst injury a football player can suffer. It’s different from wrecked knees, from bad shoulders.”).

252. See Fainaru-Wada & Fainaru, *supra* note 163 (observing “the pressures on the sideline are too great” (citing neurologist David Dodick)). For an illustration of the difference between being “cleared” to play based on cursory sideline assessment and being “fit” to return to play, see *supra* notes 223-240 and accompanying text.

253. For a discussion of why it is inappropriate to place this burden on an athlete with a brain injury, see *supra* note 15 and note 190 and accompanying text.

254. See *supra* notes 184-205 and 231-233 and accompanying text (discussing concussed player’s inability to weigh risks and benefits of play in concussed state).

255. For a discussion of the increase in awareness surrounding concussion, see *supra* notes 4-6, 126-130 and accompanying text.

cussions certainly has increased, concussions still continue to occur.²⁵⁶ It would be unrealistic to attempt to eradicate concussions from occurring in football, or even contact sports in general.²⁵⁷ Going forward, the goals should be first, to continue to increase awareness, especially regarding sub-concussive hits, while emphasizing the long-term impacts associated with multiple, repeated concussions.²⁵⁸ Second, research must focus on more objective and affordable methods of diagnosing concussions that occur immediately following a significant impact as well as concussions that may result from accumulated impacts throughout the course of a game or season.²⁵⁹ Finally, players across all levels of football, but especially those who play professionally, must be emphatically encouraged to openly acknowledge and respect any concussion symptoms in order to continue to effectuate the necessary change in the way concussions are perceived within the culture of football.²⁶⁰ Concussions cannot be prevented, but all efforts must be

256. See Reilly, *supra* note 2, at 518 (noting concussion still occur despite increased safety measures).

257. See *id.* (explaining concussions are part of football).

258. See Conboy, *supra* note 43. Although the suicides of Junior Seau and Dave Duerson and the confirmation that both players suffered from CTE has garnered a great deal of attention, many players still do not understand or appreciate the risks associated with continued post-concussive play. See *id.* (noting even Calvin Johnson does not seem concerned about future effects of his concussion because “I haven’t had a lot of them” (quoting Calving Johnson)). Conboy goes on to quote leading CTE researcher and professor of neurosurgery at Boston University, Dr. Robert Cantu: “If you’ve never seen it, I can understand why you might be skeptical . . . But I’ve seen it. It’s a fact.” *Id.* (internal quotation marks omitted) (explaining that single concussion could be “life-changing”).

259. For examples of new diagnostic techniques that are being developed, see *supra* notes 245-246.

260. See Hruby, *supra* note 3 (“One of the things we currently have is a culture among players who play even if they suspect they have a concussion. Our own players’ council said that the best shot of changing that is to educate athletes about the severe potential consequences of those actions.”); see also Concussion Conundrum, *supra* note 248 (discussing diagnosis and management of concussions). During the Symposium, Cailyn Reilly explained:

You know when you’re experiencing symptoms, you’re the only one that knows that you’re experiencing these symptoms, and if you can realize what the long term potential implications of playing through a concussion are, you know, hopefully, you’re going to make the right decision and get some help. . . . [I]t’s important that people tell their stories and realize that other athletes feel this way and you can get help and you can help others by telling your story.

Id. (quoting Reilly) (noting concussions will occur but suggesting ways to minimize that number).

taken to ensure athletes' risks of subsequent concussions are not increased beyond the initial injury.

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* J.D. Candidate, May 2015, Villanova University School of Law; B.A. in English and Psychology, College of the Holy Cross, 2012. I would like to dedicate this article to my parents, who have been a constant example of hard work and an unending source of inspiration. Thank you to everyone who helped make this article possible.