

THE NFL AS A WORKPLACE: THE PROSPECT OF APPLYING OCCUPATIONAL HEALTH AND SAFETY LAW TO PROTECT NFL WORKERS

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The athletes who participate in professional football call themselves (and the public calls them) football “players,” not football “workers,” reflecting the reality that as exhausting and high-pressure as their efforts are, they are ultimately playing a sport. Nevertheless, we should not forget that these athletes indeed are workers; they have trained extensively to perform their roles, they do intense physical labor as part of their jobs, they are salaried employees of National Football League (“NFL”) clubs, and they are represented by a labor union, the National Football League Players Association (“NFLPA”).

This Article is the first to explore in depth what might happen if our society treated professional football like a workplace, subject to government regulation, public-private cooperation or other “soft law” mechanisms, or required information disclosure to facilitate more informed understanding of the variety of safety and health risks these workers face to provide fans with entertainment. Specifically, it examines how recognizing the NFL as a workplace, governed by the U.S. Occupational Safety and Health Administration (“OSHA”) and the law surrounding occupational health and safety, can transform our understanding of the NFL and player safety. This topic has gained considerable and growing public attention, particularly regarding the recent and controversial concerns over the possible long-term risks of neurological damage in these workers.

The Article explains that OSHA clearly has the authority to regulate the NFL. Nevertheless, there is little to no precedent or guidance for OSHA to insert itself into the on-the-field aspects of professional sports. We discuss in detail the small body of case law that bears on OSHA’s authority in entertainment and sports, which opens some doors for OSHA to issue standards but also sets limits on its ability to alter the nature of the entertainment or sport. But more importantly, there are a host of political and practical reasons we discuss, which make it very unlikely that OSHA will attempt to regulate the NFL. Nevertheless, there are a wide variety of ways for OSHA to intervene or involve itself without regulating, as discussed at length in the Article. Adding a public institution like OSHA as a party to existing labor-management discussions concerning health and safety may be the best natural evolution of the issue.

Many in the public seem to believe that football must become safer to thrive and hope that it will. Regulations or “soft law” approaches have sometimes worked well even in complicated, uncertain, and fraught issues. OSHA understands evidence from a public health lens, and it is the institution empowered by Congress and the courts to help balance the competing goals of worker protection versus cost and liberty in an open setting. So we place the onus on OSHA in this Article: the agency should be more willing to step up to this challenge and less conflicted about offering to participate in an issue where it has expertise complementary to that which the NFL and NFLPA bring, as well as a unique opportunity to help bring about constructive change.

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INTRODUCTION

The athletes who participate in professional football are commonly referred to as football “players,” not football “workers,” reflecting the reality that as exhausting and high-pressure as their efforts are, they are ultimately playing a sport. Nevertheless, we should not forget that these athletes indeed *are* workers; they have trained extensively to perform their roles, they do intense physical labor as part of their jobs, they are salaried employees of National Football League (“NFL”) clubs, and they are represented by a labor union, the National Football League Players Association (“NFLPA”). Indeed, Roger Goodell, the Commissioner of the NFL, has discussed the NFL as a “workplace.”¹

So even while they are “playing,” NFL athletes fit among the millions of laborers that Upton Sinclair had in mind when he wrote *The Jungle*,² that former Secretary of the Department of Labor Frances Perkins had in mind when she transformed the Department during the New Deal era, and that Congress had in mind in 1970 when it passed the Occupational Safety and Health Act (“OSH Act”),³ guaranteeing, *inter alia*, that “each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm.”⁴

Nevertheless, the legal literature has not engaged with any depth on the applicability of this body of law to the NFL. This Article fills that void. It examines how recognizing the NFL as a workplace, governed by the U.S. Occupational Safety and Health Administration (“OSHA” or the “Agency”) and the law surrounding occupational health and safety, can transform our understanding of the NFL and player safety—a topic of considerable and growing public attention.

NFL players frequently suffer a wide range of conditions and injuries from playing, including concussions and strains, sprains, and tears of muscles, joints, and ligaments all over the body, as well as cardiovascular, endocrine, and a host of other physical issues that may develop over time. With injury rates that exceed those of any other major professional sport,⁵ it is thus not surprising that

1. See Judy Battista, *Workplace Conduct Comes into Focus at NFL Annual Meeting*, NFL (Mar. 24, 2014, 8:42 PM), <http://www.nfl.com/news/story/0ap2000000336536/article/workplace-conduct-comes-into-focus-at-nfl-annual-meeting> [https://perma.cc/PN2E-MLX9].

2. UPTON SINCLAIR, *THE JUNGLE* (1906).

3. Occupational Safety and Health Act of 1970, Pub. L. No. 91-596, 84 Stat. 1590 (1970).

4. *Id.* § 5(a)(1).

5. CHRISTOPHER R. DEUBERT, I. GLENN COHEN & HOLLY FERNANDEZ LYNCH, *COMPARING THE HEALTH-RELATED POLICIES AND PRACTICES OF THE NFL TO OTHER PROFESSIONAL SPORTS LEAGUES* 17 (May 2017), <https://footballplayershealth.harvard.edu/wp-content/uploads/2017/05/Harvard-Comparative-League-Analysis-5.15.17.pdf> [https://perma.cc/BR6B-LZE3].

the mean career length of a drafted NFL player is approximately five years.⁶ In the long term, the medical establishment is increasingly finding links between head trauma and neurocognitive disorders. In addition to the physical consequences of these disorders, some experts claim that some players “have significant changes in mood (e.g., depression, hopelessness, impulsivity, explosiveness, rage, aggression) resulting, in part, from repetitive head impacts during their time in the NFL.”⁷ Any such long-term effects would remain with players for the rest of their lives, affecting their ability to achieve a range of off-the-field goals, from enjoying family to sustaining post-NFL employment, and may in some cases shorten their lives.⁸ While the NFL has taken considerable steps to address the health and safety concerns related to playing in the NFL,⁹ federal and state regulatory agencies have, to date, taken a hands-off approach. However, increased awareness and understanding of the neurological risks associated with football make government intervention more likely, and we believe additional steps to protect players must be considered.

This Article is the first to explore in depth what might happen if our society treated professional football like a workplace that is subject to government regulation, public-private cooperation, other “soft law” mechanisms, or required information disclosure to facilitate more informed understanding of the risks workers face to provide fans with entertainment. It discusses the extent to which there may be ways to preserve the freedom to play football while reducing the risks and explores the possible role for OSHA and other government agencies in moving the needle towards greater safety and health. Importantly, public health regulatory agencies like OSHA analyze and synthesize evidence about risks in different ways than clinicians or parties in litigation do, a theme that will run through our discussions here.

This Article consists of five parts. In Part I, we provide some basic background on OSHA and the tools available to it for regulating workplace health and safety. In Part II, we review OSHA’s prior interest in various matters directly or indirectly (as in cases involving other entertainment outlets) relevant to the NFL. In Part III, we discuss whether the health and safety risks of professional

6. See *Average NFL Career Length*, SHARP FOOTBALL ANALYSIS (Apr. 30, 2014), <http://www.sharpfootballanalysis.com/blog/?p=2133> [<http://perma.cc/X8QV-77A3>] (analyzing NFLPA’s claim that the average career is about three and a half years and the NFL’s claim that the average career is about six years and determining that the average drafted player plays about five years).

7. Declaration of Robert A. Stern ¶ 33, *In re: Nat’l Football League Players’ Concussion Injury Litig.*, No. 2:12-md-02323 (E.D. Pa. Oct. 6, 2014), ECF No. 6201-16.

8. See *id.* (asserting that many former NFL players suffer from the following problems: “the inability to maintain employment, homelessness, social isolation, domestic abuse, divorce, substance abuse, excessive gambling, poor financial decision-making, and death from accidental drug overdose or suicide”).

9. See CHRISTOPHER R. DEUBERT, I. GLENN COHEN & HOLLY FERNANDEZ LYNCH, *PROTECTING AND PROMOTING THE HEALTH OF NFL PLAYERS: LEGAL AND ETHICAL ANALYSIS AND RECOMMENDATIONS* Apps. B–C (2016), https://footballplayershealth.harvard.edu/wp-content/uploads/2016/11/01_Full_Report.pdf.

football, and the means of reducing these risks, meet the various legal tests either for OSHA standard setting or for enforcement of the OSH Act's General Duty Clause (discussed in detail below). We also show, through Freedom of Information Act ("FOIA") requests we made to OSHA, that it has repeatedly punted on or erroneously denied its jurisdiction over NFL football as a workplace when fans and others have made official inquiries. Part IV explains why OSHA may be reluctant or ill-suited to act in this arena. Part V charts a possible way forward by arraying four types of interventions whereby OSHA, Congress, or other governmental entities could work (unilaterally or in partnership with the affected parties) to improve health and safety in the NFL. We conclude with some observations about the role(s) that might best be suited for OSHA in seeking to improve the health and safety of a cadre of athletes who are both "players" and workers.

I. BACKGROUND ON OSHA

Before discussing the specifics of OSHA's potential interaction with the NFL workplace, we provide some basic information about OSHA's mission and philosophy, its jurisdiction, and its authority.

A. OSHA's Mission and Philosophy

As discussed in the remainder of this Part, OSHA has specific burdens to meet before it can regulate or otherwise intervene to improve the safety and health of an industry or worksite. But its core statutory obligation—and its core constraint—is that it must concern itself only with unacceptable risks of injury and illness that can be ameliorated in feasible ways, as will be elaborated on below. What makes a workplace risk unacceptably high and makes a proposed solution feasible are the subjects of long-standing and vigorous public debate, but the basic predicate for OSHA is clear: not all workplaces are sufficiently risky to intervene, and not all high risks must or can be eliminated. So, the central question for this Article is not simply whether the NFL is a workplace under OSHA's jurisdiction, but whether the NFL is a workplace that can and should be made safer via OSHA's involvement.

To be clear, society continues to tolerate substantial risk in the employment sector. Workers in some common occupations, such as logging, commercial fishing, and roofing, still face fatality risks approaching 1 chance per 1000 workers per year, which means that over a typical (40–50 year) working career, as many as 5% of such workers will die on the job.¹⁰ Various explanations exist as to why we tolerate such high worker risks, but the most important factor is the prevalent belief that these risks arise from fully informed market transactions

10. AFL-CIO, DEATH ON THE JOB: THE TOLL OF NEGLECT 59 (24th ed. 2015), <https://aflcio.org/sites/default/files/2017-03/DOTJ2015Finalnobug.pdf> [<https://perma.cc/3LE2-N7L8>]. See *infra* note 56 for a comparison of this lifetime risk (5 chances per 100) with the one-chance-per-million risk Congress has set as a goal in other public health statutes.

and are compensated for by higher wages.¹¹ This perspective has also been voiced as to the NFL; for example, in 1994 an NFL club physician echoed this theme when he told *Sports Illustrated* that “concussions are part of the profession, an occupational risk . . . like a steelworker who goes up 100 stories.”¹²

Even if NFL players were fully informed about the probability and severity of the risks they face and the uncertainties therein, and even if they receive higher wages as a market transaction, there would still be cause for asking whether government should stay sidelined and accept a pay-for-risk situation. Questioning this proposition is especially important in cases where the risk could readily be reduced or where the consequences are long delayed such that consent to risks in the present may not reflect an individual’s later preferences.¹³

All work involves tradeoffs. Construction work can be dangerous, but we value tall buildings. Treating football players like the workers they are means that we must find a *balance* between risk and regulation. One might well say that “deadly falls are part of the profession, an occupational risk” of working at heights. But that does not mean that every such risk should persist approvingly. The combination of regulation, technology, work practices, and employee/employer involvement in safety can either yield very dangerous or very safe results for identical working conditions, depending on the attitudes and competence of the public and private actors involved.¹⁴

Although we will discuss efficacy and feasibility in considerable detail below, it is useful at the outset to emphasize that OSHA has had many notable successes in reducing injuries and illnesses. For example, in the year before the OSHA Needlestick standard took effect,¹⁵ there were 40 “sharps” injuries to healthcare workers for every 100 occupied hospital beds; by 2011, that number

11. See, e.g., W. Kip Viscusi, *Job Safety*, CONCISE DICTIONARY OF ECON. (2002), <http://www.econlib.org/library/Enc1/JobSafety.html> [<https://perma.cc/J4PJ-5GT3>].

12. Michael Farber, *The Worst Case: Doctors Warn that Repeated Concussions Can Lead to Permanent Brain Dysfunction*, SPORTS ILLUSTRATED, Dec. 19, 1994, at 38, 40.

13. Behavioral biases, including optimism bias and hyperbolic discounting of future risks, have increasingly become a subject of interest for regulators. See On Amir & Orly Lobel, *Liberalism and Lifestyle: Informing Regulatory Governance with Behavioral Research*, 3 EUROPEAN J. OF RISK REG. 17 (2012); On Amir & Orly Lobel, *Stumble, Predict, Nudge: How Behavioral Economics Informs Law and Policy*, 108 COLUM. L. REV. 2098 (2008).

14. For example, 77 workers died building the Grand Coulee Dam in the 1930s. See Arthur Weinstein, *10 Deadliest Construction Projects in U.S. History*, LISTOSAUR.COM (Jun. 4, 2015), <http://listosaur.com/history/10-deadliest-construction-projects-u-s-history/> [<https://perma.cc/KL3N-HP23>]. In notable contrast, more than 62 million work hours went into constructing the venues for the 2012 London Olympic Games, without a single worker fatality. See Eric Glass, *Exploring the Record-Breaking Health and Safety Performance of the 2012 Olympic Games*, EHS TODAY (July 9, 2013), <http://ehstoday.com/construction/exploring-record-breaking-health-and-safety-performance-2012-olympic-games> [<https://perma.cc/2H28-TR3C>].

15. See *infra* note 374 and accompanying text.

had been cut by more than half.¹⁶ In 1978, more than 51,000 workers in the textile industry suffered from byssinosis (“brown lung” disease); OSHA issued its cotton-dust standard in that year and, by 1983, the number of diseased workers had dropped by 97%.¹⁷ It is possible that better regulation of the NFL as a workplace could yield similarly tangible benefits in terms of risk reductions to NFL workers.

B. OSHA’s Jurisdiction

In 1971, the Department of Labor created OSHA to administer and enforce the OSH Act.¹⁸ The OSH Act applies to most private-sector employers and is administered by OSHA or an OSHA-approved state program,¹⁹ as discussed in detail in Section I.G below. OSHA serves to help ensure that employers across a wide range of industries provide employees with a work environment safe from risks of acute injury and of chronic illness.²⁰ To be clear, as discussed below, OSHA is charged not with the elimination of *all* possible risks inherent in work environments, but rather those recognized hazards that can “feasibly” be eliminated or reduced to levels considered “insignificant.”²¹

OSHA only regulates those workplaces where there is an employer–employee relationship.²² The OSH Act defines *employee* as “an employee of an employer who is employed in a business of his employer which affects commerce.”²³ An *employer* is defined as “a person engaged in a business affecting commerce who has employees.”²⁴ While these definitions are in part circular, generally the employment relationship has been interpreted broadly for the purposes of OSHA regulation and relies on the common-law definition of the term *employee*.²⁵

16. Sarah Schilie et al., *CDC Guidance for Evaluating Health-Care Personnel for Hepatitis B Virus Protection and for Administering Postexposure Management*, 62 MORBIDITY AND MORTALITY WKLY. REP. 1 (Dec. 20, 2013), <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6210a1.htm>.

17. Susan Hall Fleming, *OSHA at 30: Three Decades of Progress in Occupational Safety and Health*, 12 JOB SAFETY & HEALTH Q. 23, 26 (2001). Substantial evidence also suggests that when OSHA standards are enforced, individual workplaces benefit as part of broader salutary national trends. See David I. Levine, Michael W. Toffel & Matthew S. Johnson, *Randomized Government Safety Inspections Reduce Worker Injuries with No Detectable Job Loss*, 336 SCIENCE 907, 910 (2012).

18. Secretary of Labor’s Order 12-71, 36 Fed. Reg. 8754–55 (May 12, 1971).

19. 29 U.S.C. § 652(5) (1998) (defining the term *employer*, as regulated by the OSH Act, as “a person engaged in a business affecting commerce who has employees, but does not include the United States . . . or any State or political subdivision of a State”).

20. 29 U.S.C. § 651 (1970).

21. For definitions of these key terms, see *infra* Subsections I.D.1–2.

22. See 29 U.S.C. § 654(b) (1970) (describing “[d]uties of employers and employees”).

23. 29 U.S.C. § 652(6) (1998).

24. 29 U.S.C. § 652(5) (1998); *Who is “employer” for purposes of Occupational Safety and Health Act*, 153 A.L.R. Fed. 303 (Originally published 1999).

25. *Nationwide Mutual Ins. v. Darden*, 503 U.S. 318, 322–25 (1992).

In reviewing decisions from the Occupational Safety and Health Review Commission (“OSHRC”), the independent federal agency that provides a forum for contesting OSHA citations and penalties,²⁶ courts analyzing the possible existence of an employer–employee relationship have also considered other relevant factors set forth by the Supreme Court, including the following:

the skill required; the source of the instrumentalities and tools; the location of the work; the duration of the relationship between the parties; whether the hiring party has the right to assign additional projects to the hired party; the extent of the hired party’s discretion over when and how long to work; the method of payment; the hired party’s role in hiring and paying assistants; whether the work is part of the regular business of the hiring party; whether the hiring party is in business; the provision of employee benefits; and the tax treatment of the hired party.²⁷

In Section III.A, we apply this law to the NFL context and explain that OSHA clearly has jurisdiction over the NFL workplace.

C. Introduction to OSHA’s Regulatory Methods

How is it that OSHA regulates those workplaces over which it has jurisdiction? The OSH Act declares that an employer “(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or likely to cause death or serious physical harm to his employees; [and] (2) shall comply with occupational safety and health standards promulgated under this [Act].”²⁸ The OSH Act thus creates two separate routes by which OSHA typically regulates industries. The first route, derived from the first obligation under the OSH Act, is known as General Duty Clause enforcement and is discussed in detail in Section I.F.

The second route speaks to OSHA’s authority under the OSH Act to set standards concerning workplace safety and health.²⁹ OSHA is empowered to enact standards that are “reasonably necessary or appropriate to provide safe or healthful employment and places of employment.”³⁰ Although OSHA has considerable discretion about when to deem a hazard or industry ripe for regulation,³¹ in at least one instance, a court has ordered OSHA to promulgate a standard where the court found that OSHA “could not justify indefinite delay and recalcitrance in the face of an admittedly grave risk to public health.”³²

26. See *About the Commission*, OCCUPATIONAL HEALTH & SAFETY REVIEW COMM’N, <http://www.oshrc.gov/> [<https://perma.cc/5253-VGXM>].

27. See *Nationwide Mutual Ins.*, 503 U.S. at 323–24; *Loomis Cabinet Co. v. OSHRC*, 20 F.3d 938, 942 (9th Cir. 1994).

28. 29 U.S.C. § 654(a) (2012).

29. See 29 U.S.C. § 655 (2012) (discussing authority to promulgate standards).

30. 29 U.S.C. § 652(8) (2012).

31. See *infra* Part V.

32. Pub. Citizen Health Research Grp. v. Chao, 314 F.3d 143, 145 (3d Cir. 2002) (ordering OSHA to promulgate a standard for exposure to hexavalent chromium).

Standard setting is OSHA's explicit effort to regulate a *specific* workplace or set of workplaces, whereas the General Duty Clause applies to *all* workplaces. But regardless of whether an employer has violated the General Duty Clause or a relevant OSHA standard, the employer is subject to monetary fines from OSHA, injunctive relief, and the possibility of criminal action.³³

A standard "requires conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment and places of employment"³⁴ Common elements of standards include the following: permissible exposure limits; exposure monitoring; employee access to exposure monitoring results; methods of compliance; protective equipment; medical surveillance; medical removal; information and training; and recordkeeping.³⁵

Additionally, there are generally three types of standards that OSHA enacts (although hybrid standards are possible). First, there are management-based regulations, in which OSHA requires regulated firms to develop their own plans to reduce worker risks.³⁶ Compliance with management-based regulations is then defined as adherence to the elements of a plan that the firm itself creates, with some minimum standards of effectiveness included.³⁷

Second, OSHA might craft a specification standard, which details exactly what means the regulated firm or industry must employ to comply. For example, OSHA's standard for how scaffolds shall be deployed at construction sites specifies how and where guy wires and braces must be installed.³⁸

Third, and in between these two types of standards, OSHA often crafts performance standards, which specify common goals that must be achieved in all establishments subject to the standard, but do not dictate the methods or technologies that shall be used to achieve them. OSHA makes extensive use of performance standards, especially in regulating chemicals in the workplace, where establishments must reduce (using any means they prefer) the airborne concentrations of a given substance to below a certain level.³⁹

33. See 29 U.S.C. § 659 (2012) (empowering OSHA to bring enforcement actions); 29 U.S.C. § 662 (2012) (empowering OSHA to obtain injunctive relief); 29 U.S.C. § 666 (2012) (explaining civil and criminal penalties arising out of violations of the OSH Act and OSHA standards).

34. 29 C.F.R. § 1910.2(f) (2017).

35. See, e.g., 29 C.F.R. § 1910.1027 (2017) (OSHA's standard for occupational exposure to cadmium).

36. The paradigm OSHA management-based standard is 29 C.F.R. § 1910.119 (2017), titled "Process Safety Management of Highly Hazardous Chemicals."

37. E.g., Cary Coglianese & David Lazer, *Management-Based Regulation: Prescribing Private Management to Achieve Public Goals*, 37 LAW & SOC'Y REV. 691 (2003).

38. 29 C.F.R. § 1926.451 (2017).

39. See, e.g., 29 C.F.R. § 1910.1052 (2017) (setting concentration limits for methylene chloride).

Irrespective of the tools it uses to effectuate its regulatory authority, OSHA has the discretion to apply its standards in either of two orthogonal ways. Occasionally, OSHA promulgates a “vertical standard,” in which it focuses on one particular industry sector and regulates many or all of the disparate hazards in that sector alone.⁴⁰ More commonly, OSHA issues “horizontal standards,” in which it focuses on one particular safety hazard or toxic substance and regulates its use(s) in most or all applicable industrial settings.⁴¹ We return to this distinction in Part V.

OSHA’s standard-setting authority can also potentially be divided based on the type of workplace hazard being regulated. As discussed below, some courts have held that the requirements OSHA must meet to set a standard depend on whether OSHA is regulating a “toxic material or harmful physical agent.”⁴² The definition of a *toxic material or harmful physical agent* under the OSH Act and implementing regulations includes, in relevant part, “physical stress” that “[h]as yielded positive evidence of an acute or chronic health hazard in testing conducted by, or known to, the employer.”⁴³

Beyond this definition, courts have rarely explicitly considered what constitutes a *harmful physical agent*. Courts have held that “energy isolating devices,” such as circuit breakers, are not harmful physical agents,⁴⁴ while noise is.⁴⁵ Moreover, standards that govern a toxic material or harmful physical agent are often referred to as *health standards*. These are standards “for which there is not an immediate cause-and-effect relationship between workplace conditions and harm to workers.”⁴⁶ In contrast, standards that do not concern toxic materials or harmful physical agents are generally referred to as *safety standards*. These standards regulate “hazards that produce immediately noticeable harm.”⁴⁷

The question of which hazards present in professional football would be considered safety hazards and which, if any, would be considered “health hazards associated with harmful physical agents” is a challenging one. There is minimal precedent on the issue. Some of the hazards associated with playing in the NFL could seemingly be covered by a health standard (e.g., the long-term risks of neurocognitive disorders) while others seem clearly to involve safety issues (e.g., a player’s torn ACL). Moreover, as alluded to above and as will also be discussed

40. See, e.g., 29 C.F.R. § 1910.265 (2017) (setting design and performance standards for a variety of hazards but applying only to sawmills).

41. See, e.g., 29 C.F.R. § 1910.1027 (2017) (setting exposure limits for cadmium and certain of its compounds, irrespective of industry sector).

42. See *infra* Section I.E.

43. 29 C.F.R. § 1910.1020(c)(13)(ii) (2017); Occupational Safety Health Rev. Comm’n v. General Motors, O.S.H.R.C. Docket No. 85-1082, 1986 WL 191714, at *3 (May 9, 1986).

44. UAW v. OSHA, 938 F.2d 1310, 1313–16 (D.C. Cir. 1991).

45. See Forging Indus. Ass’n v. Sec’y of Labor, 773 F.2d 1436, 1444 (4th Cir. 1985).

46. GREGORY N. DALE & P. MATTHEW SHUDTZ, OCCUPATIONAL SAFETY AND HEALTH LAW 472 (3d ed. 2013).

47. UAW v. OSHA, 37 F.3d 665, 668 (D.C. Cir. 1994).

below, there is an open question as to whether the elements OSHA must show to set a standard really do change significantly based on the type of hazard being regulated.

TABLE 1: OSHA's Regulatory Methods

1. Standard Setting for Toxic Materials or Harmful Physical Agents
2. Standard Setting for Hazards that Are Not Toxic Materials or Harmful Physical Agents
3. General Duty Clause Enforcement

D. Standard Setting: Toxic Materials or Harmful Physical Agents

OSHA's authority to promulgate health standards is constrained by two Supreme Court decisions interpreting the OSH Act.

In the first case, *Industrial Union Department, AFL-CIO v. American Petroleum Institute*,⁴⁸ known as the Benzene Case, the Court considered a challenge to an OSHA standard concerning occupational exposure to the chemical benzene. The Court held that OSHA's authority to promulgate "reasonably necessary or appropriate" standards required OSHA to make three findings: (1) that the workplace hazard presented a "significant risk of material impairment of health or functional capacity" to the employees;⁴⁹ (2) that a new standard will eliminate or reduce that risk;⁵⁰ and (3) that remedies selected will reduce the risk to the lowest feasible level.⁵¹ In practice, the second element has largely been folded into the analysis of whether a significant risk exists, and is rarely challenged.⁵² These requirements are discussed in more detail below.

In the second case, *American Textile Manufacturers Institute v. Donovan*,⁵³ known as the Cotton Dust Case, the Court, considering a challenge to an OSHA standard concerning exposure to cotton dust, held that it must also be "technologically and economically feasible" for employers to comply with any OSHA-imposed standard.⁵⁴

We turn now to the following: (1) what it means for there to be a significant risk of material impairment; and (2) what it means for a standard to be feasible.

48. 448 U.S. 607 (1980).

49. While the words *significant risk* were added by the Supreme Court in the Benzene Case, the remainder of the quote comes directly from the OSH Act, § 6(b)(5). See 29 U.S.C. § 655(b)(5) (2012). In Subsection III.B.7, we discuss instances where OSHA has drawn lines between health effects it deems "material impairment" versus not.

50. *Indus. Union Dep't, AFL-CIO*, 448 U.S. at 642–45.

51. *Id.* at 637.

52. DALE & SHUDTZ, *supra* note 46, at 554–55.

53. 452 U.S. 490 (1981).

54. *Id.* at 522–36.

1. Significant Risk of Material Impairment

OSHA can establish that there is a significant risk of material impairment of health in many ways, provided it has done so with substantial evidence.⁵⁵ The most common method by which OSHA establishes significant risk comes from the Benzene Case. In that case, in dicta, the Supreme Court stated that an excess probability of grave harm to an employee, over her working lifetime, that equaled or exceeded 1 chance in 1,000 would clearly be considered a “significant” risk.⁵⁶ At the same time, the Court said that an additional probability of one chance in one billion would clearly be insignificant and unworthy of regulation.⁵⁷ Since that time, OSHA has regularly cited the uppermost (1/1,000) figure in support of regulations it has promulgated as being a rate at which a risk could clearly be considered significant, triggering its standard-setting authority.⁵⁸ In the past 20 years, OSHA has elaborated in its health rulemakings that it has discretion to deem risks far lower than 1/1,000 as significant.⁵⁹ However, in practice OSHA has declined to lower risks below 1/1,000, generally claiming that more stringent standards would not be economically or technologically feasible regardless of whether otherwise allowed by risk considerations.⁶⁰

While this may seem like a straightforward rule, there is some nuance in the way OSHA calculates risk in light of the Benzene Case. First, the Supreme Court has instructed OSHA to focus on individual probability of harm—the odds that a representative or a specific employee exposed to a given concentration of a

55. *Indus. Union Dep’t, AFL-CIO*, 448 U.S. at 653.

56. *Id.* at 655. Note that this probability is 1,000 times higher than the 1 chance in 1 million bright line of unacceptable risk that Congress has written into several statutes governing other involuntary health hazards, such as the Clean Air Act Amendments of 1990. *See also* Frank Cross, *Dangerous Compromises of the Food Quality Protection Act*, 1155 WASH. L.Q. 1163 (1997).

57. *Indus. Union Dep’t, AFL-CIO*, 448 U.S. at 655.

58. *See, e.g.*, Occupational Exposure to Beryllium and Beryllium Compounds, 80 Fed. Reg. 47,566, 47,577 (Aug. 7, 2015) (amending exposure limits for beryllium); Occupational Exposure to Inorganic Arsenic, 47 Fed. Reg. 15358-01 (Apr. 9, 1982) (amending regulations concerning exposure to inorganic arsenic); *see also* Brian S. Prestes, *Disciplining the Americans with Disabilities Act’s Direct Threat Defense*, 22 BERKELEY J. EMP. & LAB. L. 409, 451 (2001) (OSHA “adopted the ‘one in a thousand’ standard as a policy norm”).

59. *See, e.g.*, Occupational Exposure to Methylene Chloride, 62 Fed. Reg. 1494, 1560 (Jan. 10, 1997). A “risk of 1/1000 (10^{-3}) is clearly significant.” *See id.* It “represents the uppermost end of a million-fold range suggested by the Court, somewhere below which the boundary of acceptable versus unacceptable risk must fall.” *Id.*

60. OSHA has promulgated 11 substance-specific health standards since the Benzene Case, each of which contained a quantitative risk assessment for the excess probability of cancer. In 10 of the 11 cases, OSHA’s risk estimate at the *post-regulatory* exposure limit exceeds 1 chance per 1,000; in the 11th case (the 1992 formaldehyde standard), OSHA’s uncertainty range for the risk extended below as well as above 1/1000. *See* Adam M. Finkel & P. Barry Ryan, *Risk in the Workplace: Where Analysis Began and Problems Remain Unsolved*, in *RISK ASSESSMENT FOR ENVIRONMENTAL HEALTH* tbl. 9.6 (Mark G. Robson & William A. Toscano eds., 2007).

toxic substance would develop cancer or some other grave disease. In other words, the Court did not demarcate *significant risk* with reference to the expected number of cases of the disease across the entire exposed population.⁶¹ Nevertheless, the size of the exposed population, which establishes the number of expected fatalities or cases of disease, is relevant to the total benefits of a regulation when compared to its costs. Thus, even though OSHA is not required by statute to balance costs and benefits quantitatively, it must be wary when it seeks to reduce significant risks to very small groups of workers.⁶²

In addition, the process of estimating the probability of harm at a given concentration of a toxic substance is laden with scientific and science-policy assumptions, both qualitative (e.g., a substance that can produce large excesses of tumors among laboratory animals is generally assumed to also be a cancer risk to humans) and quantitative.⁶³ An important example of an assumption that must be made quantitatively is how to interpret the OSH Act's requirement that OSHA reduce risks of material impairment of health "even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life."⁶⁴ Defining a standard "working lifetime" requires some subjectivity, since the number of years persons work in the same occupation can vary substantially both across occupations and across individuals in the same occupation. OSHA nevertheless uses a "standard working lifetime" of 45 years, which it intends to represent a "conservative," but not a worst-case figure.⁶⁵ As we discuss below,

61. For example, the Benzene Case did not instruct OSHA to regard "5,000 annual additional fatalities in the U.S. workforce as clearly significant, whereas 5 additional fatalities every century must clearly be insignificant." *Indus. Union Dep't, AFL-CIO v. Am. Petroleum Inst.*, 448 U.S. 607 (1980). For a discussion of the difference between probability-of-individual-harm measures in regulatory policy versus "body count" measures, see Adam M. Finkel, *EPA Underestimates, Oversimplifies, Miscommunicates, and Mismanages Cancer Risks by Ignoring Human Susceptibility*, 34 RISK ANALYSIS 1785, 1792 (2014).

62. The recent OSHA health standard that benefited the smallest number of exposed workers was the 1996 standard reducing exposures to the carcinogen 1,3-butadiene, where OSHA estimated that about 9,700 workers would benefit from the regulation, and that the rule would reduce annual cancer deaths by slightly more than 1 case per year nationwide, at an annual cost of about \$2.85 million nationwide. Occupational Exposure to 1,3-Butadiene, 61 Fed. Reg. 56,746, 56,794–56,797 (Nov. 4, 1996).

63. See Lorenz R. Rhomberg, *A Survey of Methods for Chemical Health Risk Assessment Among Federal Regulatory Agencies*, 6 HUM. & ECOLOGICAL RISK ASSESSMENT: AN INT'L J. 1029 (1997). It is essential to note that, unique among federal health regulatory agencies, OSHA has received explicit license from the Supreme Court to interpret uncertain quantitative information in a precautionary manner: "the Agency is free to use conservative assumptions in interpreting the data with respect to carcinogens, risking error on the side of overprotection rather than underprotection." *Indus. Union Dep't, AFL-CIO v. Am. Petroleum Inst.*, 448 U.S. 607, 656 (1980). See also *infra* note 235 for a discussion of precautionary assumptions as they relate to causality.

64. 29 U.S.C. § 655(b)(5) (2012).

65. See Occupational Exposure to Respirable Crystalline Silica, 81 Fed. Reg. 16,286, 16,291 (Mar. 25, 2016). ("This policy is not based on empirical data that most employees are exposed to a particular hazard for 45 years. Instead, OSHA has adopted the

OSHA has rarely considered health risks in an occupation like NFL football, where a person's entire career may only be a few years long. However, it seems clear that a 45-year assumption would not be appropriate and that OSHA would likely use either a mean or (more consistently with its past practice) a reasonable upper-bound estimate for the "working lifetime" in football. Perhaps this estimate would be 12 or 15 years, reflecting the reality that a substantial minority of players indeed have careers at least this long.

Finally, it is important to clarify OSHA's burden to establish significant risk. As stated above, OSHA must establish that a risk is significant by substantial evidence.⁶⁶ However, importantly, OSHA does not have to prove that the harm suffered by any particular employee was *caused* by a workplace hazard. Instead, OSHA is permitted to rely on "the best available evidence"⁶⁷ to establish that groups of workers face higher risks as compared to groups of unexposed (or less-exposed) workers or the general population.⁶⁸ "[S]o long as [OSHA's findings] are supported by a body of reputable scientific thought, the Agency is free to use conservative assumptions in interpreting the data . . . , risking error on the side of overprotection rather than underprotection."⁶⁹ Moreover, courts have recognized that OSHA often regulates "on the frontiers of scientific knowledge" and thus must be given ample deference as to the evidence upon which it relies to establish significant risk,⁷⁰ even with sparse or no direct human data from which to draw.

In sum, while OSHA has not always succeeded in convincing courts that it has properly demonstrated significant risk,⁷¹ in general the courts have been forgiving in their review of its standard setting, imposing a relatively low burden on the agency to demonstrate significant risk and giving it considerable discretion in how it demonstrates that risk.⁷²

practice to be consistent with the statutory directive that 'no employee' suffer material impairment of health 'even if' such employee is exposed to the hazard for the period of his or her working life.").

66. *Indus. Union Dep't, AFL-CIO*, 448 U.S. at 653.

67. 29 U.S.C. § 655(b)(5) (2012).

68. *Indus. Union Dep't, AFL-CIO*, 448 U.S. at 656; *see also* DALE & SHUDTZ, *supra* note 46, at 540 ("When OSHA regulates, particularly when it seeks to prevent latent health effects, it often does so when scientific data fail to conclusively establish a causal link between occupational exposure and disease.").

69. *Indus. Union Dep't, AFL-CIO*, 448 U.S. at 656.

70. *Pub. Citizen Health Research Grp. v. Tyson*, 796 F.2d 1479, 1495 (D.C. Cir. 1986) (rejecting argument that OSHA was required to "prove[] a relationship between [chemical] exposure and various adverse health effects").

71. *See* *Am. Fed. of Labor & Congress of Indus. Orgs. v. OSHA*, 965 F.2d 962, 980 (11th Cir. 1992); *UAW v. Pendergrass*, 938 F.2d 1310, 1322 (D.C. Cir. 1991); *UAW v. Pendergrass*, 878 F.2d 389, 398 (D.C. Cir. 1989).

72. For more on this issue, *see* D. Hiep Truong, *Daubert and Judicial Review: How Does an Administrative Agency Distinguish Valid Science from Junk Science?*, 33 AKRON L. REV. 365, 379–89 (2000).

2. Feasibility

With an understanding of what it means for a risk to be significant, we now turn to what it means for a standard to be feasible. The Cotton Dust Case, which considered the feasibility requirement for the first time, analyzed feasibility in terms of economics and technology.⁷³

Historically, OSHA has enjoyed broad discretion with respect to economic feasibility. The D.C. Circuit has held that “[a] standard is economically feasible if the costs it imposes do not threaten massive dislocation to, or imperil the existence of, the industry.”⁷⁴ Generally, OSHA’s determination of economic feasibility is likely to be upheld, so long as OSHA’s rulemaking process has provided the industry an opportunity to respond and OSHA has made reasonable calculations concerning the cost of compliance.⁷⁵ Among the factors OSHA includes in its economic feasibility analysis are the effects of the cost of compliance on industry revenues⁷⁶ and profits.⁷⁷

OSHA’s views about when a standard is not economically feasible have evolved over time. For example, in regulating the cottonseed industry, with annual gross revenues of \$777.6 million, OSHA concluded (and the D.C. Circuit agreed) that a cost of \$70,671 (0.0091% of gross revenues) to comply with the new standard was economically feasible.⁷⁸ In another case, the Fourth Circuit found a standard that would cost \$210.3 million in compliance was economically feasible because it constituted only 0.0148% of the industry’s sales.⁷⁹ OSHA was more ambitious in its 1997 standard governing exposure to methylene chloride; there, OSHA stated that “the standard is clearly economically feasible” because “on average, annualized compliance costs amount to only 0.18% of estimated sales and 3.79% of profits.”⁸⁰ In 2016, OSHA more clearly articulated how costly a standard can be while remaining economically feasible, stating that

while there is no hard and fast rule, in the absence of evidence to the contrary, OSHA generally considers a standard to be economically

73. See *Am. Textile Mfrs. Inst. v. Donovan*, 452 U.S. 490, 503–04 (1981).

74. *Am. Iron & Steel Inst. v. OSHA*, 939 F.2d 975, 980 (D.C. Cir. 1991) (internal quotations and citations omitted); see also *United Steelworkers of Am., AFL-CIO-CLC v. Marshall*, 647 F.2d 1189, 1265 (D.C. Cir. 1981) (“[T]he practical question is whether the standard threatens the competitive stability of an industry”). We emphasize that in the Cotton Dust Case, the Supreme Court found that OSHA reasonably concluded that this particular standard did *not* threaten the competitive stability of an industry, and therefore the Court left open the possibility that even such a standard might be feasible. See *Am. Textile Mfrs. Inst.*, 452 U.S. at 530 n.55: “these cases do not present, and we do not decide, the question whether a standard that threatens the long-term profitability and competitiveness of an industry is ‘feasible’ within the meaning of 6(b)(5) of the Act.”

75. MARK A. ROTHSTEIN, *OCCUPATIONAL SAFETY AND HEALTH LAW* 107 (1998).

76. *Nat’l Cottonseed Products Ass’n v. Brock*, 825 F.2d 482, 488 (D.C. Cir. 1987).

77. *Forging Indus. Ass’n v. Sec’y of Labor*, 773 F.2d 1436, 1453 (4th Cir. 1985).

78. *Nat’l Cottonseed Products Ass’n*, 825 F.2d at 488.

79. *Forging Indus. Ass’n*, 773 F.2d at 1453.

80. *Exposure to Methylene Chloride*, 62 Fed. Reg. 1494, 1567 (Jan. 10, 1997).

feasible for an industry when the annualized costs of compliance are less than a threshold level of ten percent of annual profits. In the context of economic feasibility, the Agency believes this threshold level to be fairly modest, given that normal year-to-year variations in profit rates in an industry can exceed 40 percent or more.⁸¹

Importantly, the feasibility requirement does not command that OSHA choose the least costly alternative safety measure in its standard setting.⁸²

Moving from economic to technological feasibility, the principal test for determining whether a proposed OSHA standard is technologically feasible comes from the D.C. Circuit's decision in *United Steelworkers of America, AFL-CIO-CLC*:

OSHA must prove a reasonable possibility that the typical firm will be able to develop and install engineering and work practice controls that can meet the [proposed standard] in most of its operations. OSHA can do so by pointing to technology that is either already in use or has been conceived and is reasonably capable of experimental refinement and distribution within the standard's deadlines Insufficient proof of technological feasibility for a few isolated operations within an industry . . . will not undermine this general presumption in favor of feasibility.⁸³

This standard has been widely followed by other courts.⁸⁴

Courts have also ruled that OSHA may construe "technologically feasible" in a very generous and ambitious sense. In *Boise Cascade Corp., Composite Can Division v. Secretary of Labor & Occupational Safety and Health Review Commission*, the Ninth Circuit noted that "[i]n promulgating a standard [OSHA] is not restricted to the state of the art in the regulated industry. [It] may impose requirements that force technological development beyond what the industry is presently capable of producing."⁸⁵ Similarly, in a 1975 case, the Third Circuit held that the OSH Act is a "technology-forcing piece of legislation" and that a standard is not "infeasible when the necessary technology looms on today's horizon."⁸⁶

81. Occupational Exposure to Respirable Crystalline Silica, 81 Fed. Reg. 16,286, 16,533 (Mar. 25, 2016).

82. Building & Construction Trades Dep't v. Brock, 838 F.2d 1258, 1269 (D.C. Cir. 1988).

83. United Steelworkers of Am., AFL-CIO-CLC v. Marshall, 647 F.2d 1189, 1272 (D.C. Cir. 1980).

84. See DALE & SHUDTZ, *supra* note 46, at 559 (listing cases).

85. 694 F.2d 584, 590 (9th Cir. 1982); *United Steelworkers of Am., AFL-CIO-CLC*, 647 F.2d at 1264 ("So long as [the Secretary] presents substantial evidence that companies acting vigorously and in good faith can develop the technology, OSHA can require industry to meet [standards] never attained anywhere.").

86. Am. Fed. Labor & Congress of Indus. Orgs. v. Brennan, 530 F.2d 109, 121 (3d Cir. 1975).

In sum, where a proposed OSHA standard concerns toxic materials or harmful physical agents, OSHA must show that the standard is economically and technologically feasible for the employer. While the exact limits to feasibility of either kind are somewhat amorphous, the existing case law gives OSHA a relatively wide berth, especially as to technological feasibility. We return to this issue of feasibility as applied to the NFL in Part III.

TABLE 2: Requirements for OSHA Standard Setting for Toxic Materials or Harmful Physical Agents

1. The hazard presents a significant risk of material impairment to the employees.
2. The standard will eliminate or reduce the harm.
3. The standard is economically feasible.
4. The standard is technologically feasible.

E. Standard Setting: Hazards Other Than Toxic Materials or Harmful Physical Agents

As discussed above, it is not clear which agents, if any, in the NFL workplace would have to be regulated as “harmful physical agents” or otherwise fall under the rubric of a health standard. Any other hazards could be regulated under the requirements governing safety standards—but as explained below, these requirements are not particularly clear. However, since in most respects the requirements to promulgate an OSHA safety standard are less stringent than for a health standard, we will make the conservative choice and analyze OSHA’s regulatory burden *as if* any agent(s) in the NFL workplace it wanted to regulate were health hazards rather than safety hazards.

As an initial matter, in setting a standard for a hazard other than a toxic material or harmful physical agent, OSHA must still show that there is a significant risk of material impairment of health to employees.⁸⁷ However, OSHA is not required to quantify a safety risk before determining that it is significant.⁸⁸ In practice, OSHA increasingly conducts quantitative risk analysis for safety standards, but of a much different type than it does for health standards. Rather than looking to the probability of individual harm for significance in safety standards, OSHA looks to the overall *incidence* of injuries from hazards covered by a proposed standard to gauge whether the toll is significant.⁸⁹

87. See *UAW v. OSHA*, 938 F.2d 1310, 1316–17, 1322 (D.C. Cir. 1991).

88. *Nat’l Maritime Safety Ass’n v. OSHA*, 649 F.3d 743, 751 (D.C. Cir. 2011).

89. This dichotomy was summarized in the Preamble to OSHA’s 2000 rule governing ergonomic hazards:

The risk assessment for this standard, as for a typical safety standard, is based on the number of injuries that have resulted from past exposures to the hazard being regulated and the percentage of those injuries that are preventable. By contrast, for a typical health standard, the risk assessment is based on mathematical projections to determine the significance of the risk at various levels of exposure There is no

Beyond demonstrating a significant incidence, OSHA's requirements for standards governing hazards other than harmful physical agents are not particularly clear. In *National Grain and Feed Association*, the Fifth Circuit held that while OSHA did not have to perform an economic-feasibility analysis, it did have to provide "a specie[s] of cost-benefit justification" by demonstrating that the expected benefits of the standard bear a reasonable relationship to the costs.⁹⁰ The Court explained that this test "is an intermediate one between the feasibility mandate [for standards governing toxic materials and harmful physical agents] and a strict cost-benefit analysis that requires a more formal, specific weighing of quantified benefits against costs."⁹¹

F. The General Duty Clause

Thus far, we have discussed OSHA's jurisdiction and authority to set specific standards for a workplace or group of workplaces. As mentioned above, in addition to the specific standards that OSHA sets, employers must also comply with the General Duty Clause of the OSH Act, which requires an employer to "furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."⁹²

To establish a violation of the General Duty Clause, OSHA must establish that: (1) an activity or condition in the employer's workplace presented a hazard to an employee, (2) either the employer or the industry recognized the condition or activity as a hazard,⁹³ (3) the hazard was likely to cause, or actually caused, death or serious physical harm, and (4) a feasible means to eliminate or materially reduce the hazard existed.⁹⁴

As in the case of standard setting, the means of eliminating or materially reducing a hazard in a General Duty Clause enforcement case must be both economically

need, in the case of musculoskeletal disorders, for OSHA to engage in risk modeling, low-dose extrapolation, or other techniques of projecting theoretical risk to identify the magnitude of the risk confronting workers exposed to ergonomic risk factors. The evidence of significant risk is apparent in the annual toll reported by the Bureau of Labor Statistics, the vast amount of medical and indemnity payments being made to injured workers and others every year . . . and the lost production to the U.S. economy imposed by these disorders.

Ergonomics Program: Final Rule, 65 Fed. Reg. 68262, 68271 (Nov. 14, 2000).

90. *Nat'l Grain & Feed Ass'n v. OSHA*, 866 F.2d 717, 733 (5th Cir. 1988).

91. *Id.*

92. 29 U.S.C. § 654(a)(1) (2012).

93. A recognized hazard is one that is either known to the employer, or is generally recognized in the industry as a hazard. Knowledge of a hazard can come in four different forms: (1) actual knowledge; (2) constructive knowledge; (3) hazard detectable by senses; and (4) hazard detectable with an instrument. *What is "Recognized Hazard" Within Meaning of General Duty Clause*, 50 A.L.R. Fed. 741 (Originally published in 1980).

94. *SeaWorld of Florida, LLC v. Perez*, 748 F.3d 1202, 1207 (D.C. Cir. 2014).

and technologically feasible.⁹⁵ When the OSH Act was passed, the House Committee on Education and Labor explained that the General Duty Clause is intended to “provide for the protection of employees who are working under such *unique* circumstances that no standard has yet been enacted to cover this situation.”⁹⁶ While Congress may have thought such circumstances would soon become rare, in fact the vast majority of employment settings are ones for which there are no specific OSHA standards, which makes General Duty Clause enforcement far from “unique.”

When OSHA seeks to cite an employer for a violation of the General Duty Clause, OSHA bears the burden of proving that the hazard in contention was not only recognizable but also “preventable.”⁹⁷

An instructive recent example of litigation concerning the General Duty Clause involves SeaWorld, the marine animal theme park (“SeaWorld Case”). In the SeaWorld Case, OSHA alleged a General Duty Clause violation after an animal trainer was killed while interacting with an orca. Following an evidentiary hearing, an Administrative Law Judge (“ALJ”) for the OSHRC found in OSHA’s favor,⁹⁸ a decision affirmed by the D.C. Circuit in 2014.⁹⁹

SeaWorld did not dispute the first and third elements of a General Duty Clause violation enumerated above (that there was a hazard, one likely to cause harm).¹⁰⁰ SeaWorld did contest the second and fourth elements—that the hazard was recognized and that there was a feasible abatement method.¹⁰¹

As to the second element, OSHA primarily relied on three pieces of evidence to establish that SeaWorld knew of a recognized hazard: (1) the three previous human deaths involving orcas in captivity; (2) SeaWorld’s written training manuals and safety lectures; and (3) SeaWorld’s incident reports.¹⁰² In this case, the orca involved, Tilikum, was known to have aggressive tendencies and was involved in the death of another animal trainer in 1991.¹⁰³ Moreover, Tilikum was infamous around SeaWorld for being aggressive and new employees were given the “Tili Talk,” a warning that that they might not survive an incident in the water with Tilikum.¹⁰⁴

As to the fourth element, the ALJ agreed with OSHA that SeaWorld could have reduced the hazard by not allowing animal trainers to have any contact with Tilikum unless they were protected by a physical barrier or some other means

95. *Id.*; see also DALE & SCHUDTZ, *supra* note 46, at 111 (collecting cases).

96. *Perez*, 748 F.3d at 1207.

97. *Id.* at 1216.

98. Sec’y of Labor v. SeaWorld of Florida, LLC, 24 O.S.H.C. BNA. 1303 (No. 10-1705, 2012) (ALJ).

99. *Perez*, 748 F.3d at 1208.

100. *Id.*

101. *Id.*

102. Sec’y of Labor v. SeaWorld of Florida, LLC, 24 O.S.H.C. BNA. 1303 (No. 10-1705, 2012) (ALJ).

103. *Id.* at *10.

104. *Id.* at *16.

to keep them safe, such as keeping a sizable distance between the whales and trainers.¹⁰⁵ The D.C. Circuit found that the ALJ's findings were based on substantial evidence and affirmed the finding of a General Duty Clause violation.¹⁰⁶

Importantly, as demonstrated by the SeaWorld Case, establishing that a feasible means exists to eliminate or materially reduce a hazard is often a controversial element of a General Duty Clause violation claim. As discussed in Subsection III.B.2 below, the SeaWorld Case's application to the NFL is particularly apt in light of its consideration of whether the abatement measures changed the essential nature of the entertainment business involved.¹⁰⁷

TABLE 3: Elements of a General Duty Clause Violation

1. An activity or condition in the employer's workplace presented a hazard to an employee.
2. Either the employer or the industry recognized the condition or activity as a hazard.
3. The hazard was likely to cause, or actually caused, death or serious physical harm.
4. An economically feasible means to eliminate or materially reduce the hazard existed.
5. A technologically feasible means to eliminate or materially reduce the hazard existed.

G. Conflicts with Other Federal Law

OSHA is a federal agency with the general authority to regulate private American workplaces. However, there are other federal statutes and agencies that have jurisdiction over workplace health and safety issues, raising the question of which laws or regulations control in the event of conflict. On this point, the OSH Act prescribes OSHA's authority narrowly. The OSH Act declares that OSHA does not have enforcement authority over "working conditions of employees with respect to which other federal agencies . . . exercise statutory authority to prescribe or enforce standards or regulations affecting occupational safety and health."¹⁰⁸ This provision seeks to avoid overlapping federal jurisdiction that would burden employers with conflicting regulatory requirements.

Generally, other federal statutes displace the OSH Act—and OSHA does not seek to regulate employers—in the following circumstances: (1) the employer is covered by another federal statutory scheme; (2) another federal agency possesses—and has actually exercised—statutory authority to prescribe regulations affecting the health and safety of the employees in question; and (3) the other

105. *Id.* at *24–25.
 106. *Perez*, 748 F.3d at 1215–16.
 107. *See id.* at 1210.
 108. 29 U.S.C. § 653(b)(1) (2012).

agency's regulation(s) have worker safety as a primary purpose, rather than incidentally subsuming worker protection.¹⁰⁹ To avoid disputes, OSHA has entered into memoranda of understanding with many federal agencies about their respective jurisdictions.¹¹⁰

In Section III.E, we analyze whether there are any other federal laws that could displace OSHA's potential authority to regulate the NFL workplace.

H. Relationship with State Law

The OSH Act permits states to administer their own employment-safety programs, provided they are at least as effective as the federal OSH Act in providing safe worksites and conditions.¹¹¹ In other words, the federal OSH Act is a floor, and states can create their own laws and programs that are as protective or more protective, of employees.¹¹² Thus, in those states that have OSHA-approved plans, federal OSHA will defer to its state counterpart in enforcing the relevant regulations. Twenty-six states currently have OSHA-approved plans for which the federal government provides up to 50% of the funding.¹¹³

The relationship between OSHA and state common law is also important. The OSH Act does not contain any language indicating that Congress meant the statute or regulations promulgated under it to preempt state tort actions. Indeed, the Act provides that nothing in it shall enlarge, diminish, or affect the common law or statutory rights, duties, or liabilities of employees and employers under any law with respect to injuries in the course of employment.¹¹⁴ Moreover, as the D.C. Circuit stated in *United Steelworkers of America, AFL-CIO-CLC*, "when a worker actually asserts a claim under workmen's compensation law or some other state law, neither the worker nor the party against whom the claim is made can assert that any OSHA regulation or the OSH Act itself preempts any element of the state law."¹¹⁵

In Section III.E, we analyze how OSHA's interaction with state law might interact with OSHA's possible jurisdiction over the NFL workplace.

109. See DALE & SHUDTZ, *supra* note 46, at 1004–05; *S. Pac. Trans. Co. v. Userly*, 539 F.2d 386, 391–93 (5th Cir. 1976); see also *S. Ry. Co. v. OSHRC*, 539 F.2d 335, 339–40 (4th Cir. 1976) (finding that the Federal Railroad Administration's authority only preempted OSHA regulations where the agency "prescribe[d] standards affecting occupational safety or health" for employee *working conditions*, i.e., the "environmental area in which an employee customarily goes about his daily tasks").

110. DALE & SHUDTZ, *supra* note 46, at 1007–09.

111. 29 U.S.C. § 667(c)(2) (2012).

112. *Nevada's Workplace Health and Safety Enforcement Program: OSHA's Findings and Recommendations: Hearing Before the H. Comm. on Education and Labor*, 111th Cong. 15 (2009) (statement of Jordan Barab, Assistant Sec'y, OSHA).

113. *State Plans*, U.S. DEP'T LABOR, <https://www.osha.gov/dcsdp/osp/index.html> [<https://perma.cc/Y9Y9-X6ND>] (last visited Feb. 25, 2018).

114. 29 U.S.C. § 653(b)(4) (2012).

115. *United Steelworkers of Am., AFL-CIO-CLC v. Marshall*, 647 F.2d 1189, 1235–36 (D.C. Cir. 1980).

While admittedly a bit technical, this Part has explained the complex jurisprudence regarding OSHA's ability to set standards and intervene to require abatement of workplace hazards as a prelude to our application of this body of statutory, regulatory, and case law to the NFL in Part III. In particular, we established the following: (1) that OSHA has jurisdiction over private sector employees; (2) that OSHA can only issue standards where there is a significant risk and the standard is economically and technologically feasible; (3) that OSHA is given a wide berth in establishing a significant risk; (4) that there are four mandatory elements of a General Duty Clause violation; (5) that other federal laws generally do not displace OSHA's jurisdiction; and (6) that state OSHA programs can set workplace standards that are more stringent than the federal OSHA requirements.

In the next Part, we discuss the ways in which OSHA has exercised its authority over the sports and entertainment industry. These previous applications of OSHA's authority will provide context for the following discussion on ways in which OSHA might seek to regulate the NFL.

II. OSHA'S PRIOR INVOLVEMENT IN THE ENTERTAINMENT AND SPORTS INDUSTRIES

OSHA has previously taken action in both the entertainment and sports industries. On multiple occasions, OSHA has cited circus or theatre performances where employees fell and were injured because of a failure to develop or follow proper safety protocols.¹¹⁶ For example, in October 2013, OSHA issued a total of \$32,235 in fines against Cirque du Soleil and the MGM Grand Hotel surrounding an incident that killed an acrobat, after OSHA concluded the acrobat had not received proper training (and that the employer had removed evidence from the scene without OSHA's authorization).¹¹⁷

116. In May 2014, OSHA cited the Ringling Bros. circus for a performance in Providence, RI, in which eight acrobats were severely injured when a carabiner (metal clip) was overloaded (the fine of \$7,000 was for one serious violation). See Mohammad Ayub, *Investigation of the May 4, 2014 Incident at the Ringling Bros. and Barnum & Bailey Performance in Providence, RI*, U.S. DEP'T LABOR (Oct. 2014), https://www.osha.gov/doc/engineering/2014_r_05.html [<https://perma.cc/98AH-39TT>]. Similarly, in March 2011, OSHA cited the production company for the Broadway play "Spider-Man: Turn Off the Dark," after four separate incidents in which employees were injured by falls and struck by moving components (a total of \$12,600 in penalties). See *US Department of Labor's OSHA Cites Spider-Man Broadway Musical Production Company Following Injuries to Cast Members*, U.S. DEP'T LABOR (Mar. 4, 2011), https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=NEWS_RELEASES&p_id=19362 [<https://perma.cc/N2LQ-NE8J>].

117. See Jacob Coakley, *OSHA Issues Fines for Death of Cirque du Soleil Performer*, STAGE DIRECTIONS (Oct. 29, 2013), <http://stage-directions.com/news/5552-osha-issues-fines-for-death-of-cirque-du-soleil-performer.html> [<https://perma.cc/B9V6-7KHE>].

Most of OSHA's involvement in the professional sports industry¹¹⁸ has arisen out of concerns with the actual facilities hosting the events. For example, during the construction of the Milwaukee Brewers' new Major League Baseball stadium in 1999, OSHA responded to several accidents including a crane collapse that killed three men.¹¹⁹ OSHA issued a total of \$539,800 in fines split among three subcontracting firms.¹²⁰ Similarly, when the Dallas Cowboys, New York Giants, University of Georgia, and Arizona State University football practice domes collapsed, OSHA investigated the incidents.¹²¹ OSHA also investigated a 2003 accident in which a worker at the St. Louis Rams' stadium fell to his death.¹²² Finally, the California Division of Occupational Safety and Health issued \$18,000 in fines after a worker was killed during construction of the San Francisco 49ers' new stadium in 2013.¹²³

The incidents mentioned above are not an exhaustive list of OSHA's regulation of the entertainment and sports industries, but they are illustrative. Of course, NFL clubs are subject to the same OSHA standards as other workplaces, including but not limited to those concerning walking-working surfaces, exit routes, emergency planning, flammable and corrosive materials, sanitation, blood-borne pathogens, and electrical systems.¹²⁴ Nevertheless, OSHA's prior actions in this area do not address the issues with which we are most concerned—the physical harm that players face in playing (and preparing to play) the game.

118. With the exception of at least one NFL player incident, discussed in Section III.E, *infra*.

119. See *OSHA Cites Subcontractors in Miller Park Fatal Crane Collapse, Milwaukee*, U.S. DEP'T LABOR (Jan. 12, 2000), <http://archive.is/czzyZ>.

120. *The Great American Ballpark*, U.S. DEP'T LABOR (Apr. 2005), https://www.osha.gov/dcs/success_stories/compliance_assistance/abbott/stadium_construction.html [<https://perma.cc/M7S3-YM8U>].

121. *OSHA Sorts Through Flattened Facility*, ESPN (May 5, 2009), <http://sports.espn.go.com/nfl/news/story?id=4136258> [<https://perma.cc/LF5H-BG3A>]; Daniel Engber, *Does OSHA Keep Tabs on the NFL?*, SLATE (Feb. 3, 2006), http://www.slate.com/articles/news_and_politics/explainer/2006/02/does_osh_keep_tabs_on_the_nfl.html [<https://perma.cc/LB78-ZYNN>].

122. See *Deadly Fall in Dome*, INDUS. SAFETY & HYGIENE NEWS (Jan. 24, 2003), <http://www.ishn.com/articles/84752-deadly-fall-in-dome> [<https://perma.cc/LEA6-TBEB>].

123. Lars Anderson, *In the Shadow of the Super Bowl*, BLEACHER REP. (Feb. 4, 2016), <http://thelab.bleacherreport.com/in-the-shadow-of-the-super-bowl/> [<https://perma.cc/SDV2-CAPH>].

124. See 29 C.F.R. §§ 1910.21–30, 1910.33–39, 1910.101–20, 1910.141, 1910.301–99 (2013). For example, in 2015, NFL running back Reggie Bush suffered a knee injury when he slipped on the concrete surface surrounding the playing field at St. Louis's Edward Jones Dome, resulting in a lawsuit. See *Bush v. St. Louis Reg'l Convention*, No. 4:16-CV-250, 2016 WL 3125869, at *1 (E.D. Mo. June 3, 2016). Of note, several NFL players have sued their clubs after becoming infected with staphylococcus ("staph"), raising concerns about the cleanliness of the clubs' facilities. See *Tynes v. Buccaneers Ltd. P'ship*, No. 15-cv-1594, 2015 WL 5680135 (M.D. Fl. Sept. 24, 2015); *Jurevicius v. Cleveland Browns Football Co.*, No. 1:09-CV-1803, 2010 WL 8461220, at *1–2 (N.D. Ohio Mar. 31, 2010); *Bentley v. Cleveland Browns Football Co.*, 958 N.E.2d 585, 586–87 (Ohio Ct. App. 2011). Our research has not revealed any involvement by OSHA in these cases.

However, the SeaWorld Case, briefly discussed above in Section I.F and on which we will now elaborate, provides a much better guide for potential OSHA regulation of the NFL workplace that focuses on harm to players.

A. The SeaWorld Case

The SeaWorld Case is important because it concerned the entertainment industry, something that the judges explicitly recognized in their opinions.

In the SeaWorld Case, OSHA alleged a General Duty Clause violation after an animal trainer was killed while interacting with an orca. Among other arguments, SeaWorld claimed that the abatement methods imposed by OSHA improperly “change[d] the nature of a trainer’s job.”¹²⁵ More specifically, SeaWorld argued that eliminating “waterwork” (trainers swimming with the whales) changed the nature of its business so fundamentally that it could not be considered a feasible means of eliminating or reducing the hazard, the fourth element of a General Duty Clause violation.

The ALJ and circuit court disagreed with SeaWorld. The court found that “[t]he remedy imposed for SeaWorld’s violations does not change the essential nature of its business.”¹²⁶ The court cited SeaWorld’s voluntary decision to temporarily suspend waterwork after the fatality there (and previously in response to other trainer fatalities in waterparks elsewhere) as proof that SeaWorld has “implemented similar abatement measures and done so without any suggestion of harm to its profits.”¹²⁷ The court’s finding was further supported by the fact that at oral argument SeaWorld disavowed “that a public perception of danger to its trainers is essential to its business.”¹²⁸

The SeaWorld Case included a notable dissent from Circuit Judge Brett M. Kavanaugh which, while not binding law, could prove persuasive to future courts in the NFL context.¹²⁹ Particularly important for our purposes was the way Judge Kavanaugh’s dissent applied a 1986 decision by the OSHRC, which vacated OSHA’s penalties against a chemical manufacturer, Pelron Corporation, under the General Duty Clause.¹³⁰ In applying the *Pelron* case to the sports and

125. SeaWorld of Florida, LLC v. Perez, 748 F.3d 1202, 1208 (D.C. Cir. 2014).

126. *Id.* at 1210.

127. *Id.* at 1211; *see also id.* at 1216 (the evidence “support[s] the finding that these changes were feasible and would not fundamentally alter the nature of the trainers’ employment or SeaWorld’s business”). Also of note, in 2016, SeaWorld announced it would phase killer whales out of its parks. Sewell Chan, *SeaWorld Says It Will End Breeding of Killer Whales*, N.Y. TIMES (Mar. 17, 2016), <http://www.nytimes.com/2016/03/18/us/seaworld-breeding-killer-whales.html> [<https://perma.cc/H65R-E6W5>].

128. *Perez*, 748 F.3d. at 1210.

129. Despite Judge Kavanaugh’s forceful dissent, SeaWorld did not seek *en banc* review of the Circuit Court’s decision.

130. Sec’y of Labor v. Pelron Corp., 12 BNA OSHC 1833 (No. 82-388, 1986). In *Pelron*, OSHA asserted (and an Administrative Law Judge agreed) that the company had allowed a recognized hazard (the accumulation of unreacted quantities of ethylene oxide in a pressure vessel) to persist. *Id.* at *2. However, the Commission vacated the citation

entertainment industries, Judge Kavanaugh mentioned professional football specifically:

In the sports and entertainment fields, the activity itself frequently carries some risk that cannot be eliminated without fundamentally altering the nature of the activity as defined within the industry. Tackling is part of football, speeding is part of stock car racing, playing with dangerous animals is part of zoo and animal shows, and punching is part of boxing, as those industries define themselves.¹³¹

Judge Kavanaugh concluded that OSHA, for the first time ever, was trying to regulate the “normal activities of participants in sports events or entertainment shows,” which, under *Pelron*, it could not do.¹³² He further articulated that OSHA cannot “completely forbid an industry from offering its product” and stated further that “in sports events and entertainment shows, there is no distinction between the product being offered and its production: the product *is* the production.”¹³³

Finally, what also troubled Judge Kavanaugh was that during the case, on multiple occasions, OSHA “disclaimed authority under the General Duty Clause to ban, for example, tackling in the NFL or excessive speed in NASCAR races.”¹³⁴ In response, OSHA, while contending that sports and entertainment operations are *not* exempt from the requirements of the OSH Act,¹³⁵ said “it would never dictate such outcomes in those sports because ‘physical contact between players is intrinsic to professional football, as is high speed driving to professional auto racing.’”¹³⁶ Judge Kavanaugh was unsatisfied with OSHA’s fence-sitting, stating

because while using ethylene oxide *is* dangerous, OSHA had failed to demonstrate a feasible means of abatement. *Id.* at *7. According to Judge Kavanaugh, “*Pelron* means that some activities, though dangerous, are among the ‘normal activities’ intrinsic to the industry and therefore cannot be proscribed or penalized under the General Duty Clause.” *Perez*, 748 F.3d at 1219. The majority responded that Judge Kavanaugh was “stretching *Pelron* beyond its moorings,” and listed many industries (construction, metal pouring, logging, welding, firefighting, roofing, electrical power line installation, handling explosives) where the “normal activities” of the industry were “extremely dangerous” but that OSHA nonetheless had authority to regulate. *Id.* at 1211–13.

131. *Perez*, 748 F.3d at 1211.

132. *Id.* at 1220.

133. *Id.* at 1220 n.4.

134. *Id.* at 1220; *see also* Transcript of Oral Argument at 19:1–5, 20:21–21:1, *SeaWorld of Florida, LLC v. Perez*, 748 F.3d 1202 (D.C. Cir. 2014) (No. 12-1375) (Counsel for Department of Labor stating that OSHA could not ban tackling in the NFL because it would potentially “put[] an entire industry out of business”).

135. Transcript of Oral Argument at 29:10–12, *SeaWorld of Florida, LLC v. Perez*, 748 F.3d 1202 (D.C. Cir. 2014) (No. 12-1375) (Counsel for Department of Labor: “there’s . . . no rule that entertainment industries are exempt from . . . their employees having the protections of the [OSH] Act”).

136. *Perez*, 748 F.3d at 1220.

that OSHA “either has authority to regulate sports and entertainment so as to prevent injuries to participants, or it does not.”¹³⁷

The majority disagreed with Judge Kavanaugh’s lumping of the SeaWorld Case into sports and entertainment industries stating, “this case is only about a single ‘entertainment show.’”¹³⁸ Moreover, the majority dismissed Judge Kavanaugh’s argument about whether OSHA has authority to regulate the sports industry as a hypothetical not before the Court.¹³⁹ In Section III.C, we take up this issue and examine the hypothetical boundaries of OSHA’s regulation of the sports industry through the General Duty Clause.

There is one final aspect of the OSH Act, as articulated in the SeaWorld Case, of potential relevance to the NFL workplace. SeaWorld argued that the “extensive safety training of its trainers and the operant conditioning of its killer whales [was] an adequate means of abatement that materially reduces the hazard the killer whales present to the trainer.”¹⁴⁰ Relatedly, SeaWorld argued that the trainers had accepted the risks by signing waivers in which the trainers acknowledged the risks of working with orcas.¹⁴¹ However, the Circuit Court explained that “the duty to ensure a safe and healthy workplace [is] on the employer, not the employee.”¹⁴² Thus, SeaWorld could not escape its obligations to provide a safe workplace by training its employees to avoid hazards or by having them sign waivers. Presumably, the NFL and its clubs similarly could not claim to have met OSH Act obligations merely by instructing players on safer

137. *Id.* at 1221.

138. *Id.* at 1212.

139. *Id.* at 1212.

140. *Id.* at 1206.

141. *Id.* at 1211; Sec’y of Labor v. SeaWorld of Florida, LLC, 24 O.S.H.C. BNA. 1303 at *15–16 (No. 10-1705, 2012) (ALJ).

142. *Perez*, 748 F.3d at 1211.

playing methods¹⁴³ or by having them sign waivers acknowledging the risks of playing in the NFL.¹⁴⁴

In sum, the SeaWorld Case raises interesting and unresolved questions about OSHA's authority to regulate the NFL: what is OSHA's authority under the General Duty Clause to regulate risk inherent to an employment activity, especially in the context of entertainment or sports? How far can OSHA go in requiring abatement of risk under the General Duty Clause before the changes have undermined the essential nature of the business,¹⁴⁵ such as (for example) outlawing tackling in football? We address these questions directly in the next Part.

143. Note that an employer may assert an affirmative defense of unpreventable or unforeseeable employee misconduct ("UEM") by demonstrating it took one or more of the following steps: "(1) established a work rule to prevent the reckless behavior and/or unsafe condition from occurring, (2) adequately communicated the rule to its employees, (3) took steps to discover incidents of noncompliance, and (4) effectively enforced the rule whenever employees transgressed it." *P. Gioioso & Sons, Inc. v. Occupational Safety & Health Review Comm'n*, 115 F.3d 100, 109 (1st Cir. 1997). However, employers rarely succeed on a UEM defense because they generally cannot show that they met the fourth element of enforcing safety-related discipline. See Howard Mavity, *Why Safety Requires Consistent Discipline*, FISHER & PHILLIPS LLP (June 5, 2013), <https://www.fisherphillips.com/resources/articles-why-safety-requires-consistent-discipline> (noting that "some of the nation's best safety programs revealed that 56 percent were 'not satisfied by how often supervisors discipline employees for unsafe behavior'"). Thus, so long as the NFL and its clubs can prove that they adequately communicated safer techniques to players, and that they broadly enforced progressive disciplinary measures, they may be able to shield themselves via an UEM affirmative defense.

144. For example, all NFL players receive and sign an acknowledgement of their receipt of the NFL's League Policies for Players which provide as follows:

The sport of football presents risks to players. These risks include injury to the head, neck or spine; injury to the muscular or skeletal systems; injury to internal organs; fractures; physical violence; loss and/or damage to sight, teeth or hearing; paralysis; concussions and traumatic brain injury and all of their short- and/or long-term effects including without limitation brain damage, dementia, mood disorder, and/or cognitive impairment; short- and/or long-term disability; loss of income and/or career opportunities; serious injury; and/or death.

NFL's League Policies for Players (on file with author).

145. A very recent example in the entertainment industry again touches on this issue. In 2018, OSHA cited Stalwart Films LLC (the production company for the popular television series "The Walking Dead") for one serious violation with a proposed penalty of \$12,675 (the statutory maximum) for a 2017 incident in which a stunt man was killed after falling 30 feet from a balcony. See CHRISTI GRIFFIN, YOUR CITATION SUMMARY: STALWART FILMS, LLC, U.S. DEP'T LABOR (Jan. 3, 2018), <https://www.dol.gov/sites/default/files/newsroom/newsreleases/OSHA20171676.pdf>. Among the "feasible and acceptable" abatement measures OSHA proposed, some of which might be alleged to "change the essential nature" of the entertainment, were a recommendation that the company reduce the distance of the falls it films, or that it provide personal protective equipment to stunt personnel. *Id.*

We will now discuss how courts might analyze OSHA involvement in the NFL if it chose to regulate to protect player health and safety.

III. THE OSH ACT'S APPLICATION TO THE NFL

Part I summarized the distinct requirements for OSHA to regulate a workplace. In this Part, we return to each of those elements and discuss their applicability in the specific case of the NFL.

A. OSHA's Jurisdiction

In Section I.B, we explained that OSHA has jurisdiction over private sector employees. NFL players are undoubtedly employees of NFL clubs. The collective bargaining agreement ("CBA") between the NFL and NFLPA¹⁴⁶ governs "present and future employee players in the NFL."¹⁴⁷ Moreover, the 2011 CBA explicitly identifies the National Labor Relations Act ("NLRA") as governing the CBA,¹⁴⁸ and the NLRA only governs collective bargaining between employers and employees.¹⁴⁹ The standard NFL Player Contract—used in all contracts between players and clubs—also specifically identifies players as employees of the club.¹⁵⁰ Finally, case law has clearly recognized that NFL players are employees in a variety of contexts.¹⁵¹

NFL players also easily meet most, if not all, of the non-exhaustive list of factors considered as part of the common-law test of an employee outlined in Section I.A. First, players likely consider the club their employer.¹⁵² Second, the

146. Pursuant to the National Labor Relations Act ("NLRA"), the NFLPA is "the exclusive representative" of current and rookie NFL players "for the purposes of collective bargaining in respect to rates of pay, wages, hours of employment, or other conditions of employment." 29 U.S.C. § 159(a) (2012).

147. NFL & NFL PLAYERS ASS'N, COLLECTIVE BARGAINING AGREEMENT: PREAMBLE (Aug. 4, 2011), <https://nflabor.files.wordpress.com/2010/01/collective-bargaining-agreement-2011-2020.pdf>.

148. *Id.*

149. See 29 U.S.C. § 151 (2012) (discussing the purpose of the NLRA).

150. See NFL & NFL PLAYERS ASS'N, *supra* note 147, at App. A, ¶ 2 ("Club employs Player as a skilled football player. Player accepts such employment.").

151. See, e.g., *Williams v. Nat'l Football League*, No. 27-CV-08-29778, 2010 WL 1793130 (Minn. Dist. Ct. May 6, 2010); *Jurevicius v. Cleveland Browns Football Co. LLC*, No. 1:09-CV-1803, 2010 WL 8461220, at *1 (N.D. Ohio Mar. 31, 2010); *Bentley v. Cleveland Browns Football Co.*, 958 N.E.2d 585, 586 (Ohio Ct. App. 2011); *Stringer v. Minnesota Vikings Football Club, LLC*, 705 N.W.2d 746 (Minn. 2005).

152. Apart from the clubs, it is important to clarify the players' relationship vis-à-vis the NFL. The NFL is an unincorporated association of 32 member clubs. *Am. Needle, Inc. v. Nat'l Football League*, 560 U.S. 183, 186 (2010). While the NFL also serves as a centralized body for the clubs, each club is a separate and distinct legal entity, with its own legal obligations. Thus, whether the OSH Act applies to the NFL—in addition to the individual clubs—likely turns on whether NFL players can be considered employees of the NFL, in addition to being employees of an individual club. One state trial court has found that the NFL (and not just the clubs) exercises the requisite control to be considered an employer of players pursuant to a state statute that governs drug testing in the workplace. See *Williams v. Nat'l Football League*, 27-CV-08-29778, 2010 WL 1793130 (Minn. Dist.

clubs pay the player's wages. Third, clubs have the responsibility to control the workers, as evidenced by fines meted out by the club for player behavior. Fourth, clubs control the players' work—clubs determine strict work schedules for the players, including practices, games, and permitted days off throughout the calendar year.¹⁵³ Fifth, clubs have the power to hire and fire the players. Sixth, any increase in a player's income is typically dependent on his improved skill (i.e., efficiency). Moreover, NFL clubs supply the tools and places of work—players practice and play in facilities owned or leased by NFL clubs and are provided equipment by the club.

Despite NFL players' employment status being clear, at the very least with regard to the individual clubs, OSHA has avoided answering the question as to whether it has jurisdictional authority over NFL clubs and in fact, has wrongly asserted that it does not. In response to a Freedom of Information Act ("FOIA") request we made,¹⁵⁴ OSHA provided us with all documents it said were in its possession concerning the NFL and the sport of professional football. These documents reflect OSHA's misunderstanding of NFL players' employment and an unwillingness to be involved.

First, in a June 23, 2003 letter responding to an insurer of professional sports clubs, OSHA considered the evaluation of players as either independent contractors or employees and explained this "determination must be made on a case-by-case basis after considering all of the circumstances affecting the relationship between the clubs and their players and applying the common law factors."¹⁵⁵ OSHA's 2003 analysis was wrong: the common-law factors, as well as other circumstances (including acknowledgement by the NFL and clubs), clearly support the employee designation and do not support any claim that NFL players are independent contractors.

Ct. May 6, 2010). *But see* *Brown v. Nat'l Football League*, 219 F. Supp. 2d 372, 383–84 (S.D.N.Y. 2002) (finding that players are employees of the clubs, *not* the NFL). Thus, it is possible that courts may treat the NFL as an employer (or joint employer) under certain circumstances, subjecting the League as a whole—in addition to individual clubs—to OSHA scrutiny.

153. See *NFL & NFL PLAYERS ASS'N*, *supra* note 147, at Art. 22 (governing mandatory offseason minicamps for NFL players), Art. 23 (governing mandatory preseason training camps for NFL players), Art. 35, § 1 (governing off days for NFL players), Art. 42, § 1 (listing possible club discipline for player's unexcused absences from club).

154. 5 U.S.C. § 552 (2016). In response to our FOIA request for all documents concerning "The National Football League," "The National Football League Players Association," "National Football League Member Clubs (i.e., teams)" or "The sport of professional football," OSHA provided 29 pages of documents, although only 3 pages consisted of material generated by OSHA (the remainder were incoming letters and documents from the public).

155. Letter from Frank Frodyma, Acting Director, Directorate of Evaluation and Analysis, Occupational Safety and Health Administration, to Dave Chamberlain, Director of Loss Control Services (June 23, 2003), https://www.osha.gov/pls/oshaweb/owadis.p.show_document?p_table=INTERPRETATIONS&p_id=24901 [<https://perma.cc/4Y9X-SRTW>].

Second, in a September 15, 2008 letter responding to a seemingly curious fan, OSHA's then-Director of Enforcement Programs, Richard Fairfax, reiterated that whether NFL players are employees—and thus whether OSHA has jurisdiction—“must be made on a case-by-case basis.”¹⁵⁶ Fairfax went on to say that “OSHA has no specific standards that address protection for professional athletes participating in athletic competitions,” and that “[i]n most cases . . . OSHA does not take enforcement action with regard to professional athletes.”¹⁵⁷

Finally, in a November 19, 2010 internal memorandum summarizing a telephone conversation with another inquiring fan, an official within the OSHA Directorate of Enforcement Programs stated that “OSHA's standards apply only to the employer–employee relationship, and not to professional football players or any other athlete playing a professional sport.”¹⁵⁸ Importantly, by avoiding the question of whether NFL players are employees—or by stating that they are not—OSHA avoids having to consider whether and how to regulate the NFL.

In sum, as demonstrated by the correspondence contained in OSHA's responses to our FOIA request, OSHA has at times punted (no pun intended) on the key question we are examining and at other times affirmatively suggested it has no jurisdiction. Although we do not speculate as to why OSHA has taken this approach, both conclusions seem patently erroneous for the reasons given above.

B. OSHA's Regulatory Methods Applied to the NFL: Standard Setting

In this Section, we analyze OSHA's standard-setting authority assuming conservatively that the well-established and generally more stringent elements for health standards apply to the NFL—i.e., where the hazard is a toxic material or harmful physical agent. More specifically, in this Section, we examine the following: (1) whether the NFL workplace presents a significant risk of material impairment, with an analysis of different injuries, conditions, and health outcomes prevalent or believed to be prevalent in the NFL; and (2) whether there are one or more feasible measures that could eliminate or reduce such harm.

1. Significant Risk of Material Impairment

In Subsection I.D.1, we explained that OSHA's findings of significant risk need only be “supported by a body of reputable scientific thought”¹⁵⁹ Importantly, OSHA *does not need to prove causation* between an employment hazard and harm suffered by any particular employee.

In this regard, OSHA's evidentiary burden provides an interesting contrast to other legal efforts concerning NFL player health. In *In re National*

156. Letter from Richard Fairfax, Director of Enforcement Programs, OSHA, to Joseph Aydt (Sept. 15, 2008) (on file with authors).

157. *Id.*

158. Memorandum from Jennifer E. Poythress, Safety and Occupational Health Specialist, OSHA, to Directorate of Enforcement Programs (Nov. 19, 2010) (on file with authors).

159. *Indus. Union Dep't, AFL-CIO v. Am. Petroleum Inst.*, 448 U.S. 607, 656 (1980).

Football League Players' Concussion Injury Litigation ("Concussion Litigation"), initiated in 2011, more than 5,500 former NFL players sued the NFL alleging that the NFL had negligently and fraudulently concealed the risk of brain injury associated with playing football.¹⁶⁰ In April 2015, the United States District Court for the Eastern District of Pennsylvania—over the objections of some players—approved a settlement¹⁶¹ between the parties. The settlement provided all former NFL players the opportunity to undergo baseline neurological and neuropsychological examination, and the opportunity for multi-million dollar awards (subject to various adjustments) for the following conditions: amyotrophic lateral sclerosis ("ALS"); death as of the date of the settlement with chronic traumatic encephalopathy ("CTE");¹⁶² Parkinson's disease; Alzheimer's disease; and dementia.¹⁶³ In April 2016, the Third Circuit affirmed the approval of the settlement.¹⁶⁴

The Third Circuit's reasoning for approving the settlement highlights an important contrast to OSHA's regulatory authority. The court stated that the legal and scientific challenges the former players would have in establishing causation between their injuries and having played in the NFL weighed in favor of approving the settlement.¹⁶⁵ If the players were unable to establish causation, they could not win their lawsuits against the NFL.¹⁶⁶ However, unlike the plaintiffs in the Concussion Litigation case, OSHA does *not* need to prove causation to establish significant risk of material impairment, the predicate for creating a standard governing the NFL workplace.

While those players that opted out of the settlement may face hurdles in trying to prove that playing in the NFL caused their injuries, the fact remains that OSHA is free to create standards designed to address risks of a wide variety of NFL-player injuries and conditions, including those that were not covered in the

160. See Plaintiffs' Amended Master Administrative Long-Form Complaint, *In re Nat'l Football League Players' Concussion Injury Litig.*, No. 2:12-md-02323 (E.D. Pa. July 17, 2012), ECF No. 2642; Docket, *In re Nat'l Football League Players' Concussion Injury Litig.*, No. 2:12-md-02323 (E.D. Pa. July 17, 2012) (listing Short-Form Complaints filed by players).

161. *In re Nat'l Football League Players' Concussion Injury Litig.*, 307 F.R.D. 351, 393–94 (E.D. Pa. 2015).

162. Discussed in detail in Subsections III.B.6 and 7, *infra*.

163. See Class Action Settlement Agreement (As Amended), *In re Nat'l Football League Players' Concussion Injury Litig.*, No. 2:12-md-02323 (E.D. Pa. Feb. 13, 2015), ECF No. 6481-1.

164. *In re Nat'l Football League Players' Concussion Injury Litig.*, 821 F.3d 410, 447–48 (3d Cir. 2016).

165. See *In re Nat'l Football League Players' Concussion Injury Litig.*, 307 F.R.D. at 392 ("Class Members also face serious hurdles establishing causation"); *id.* at 393 ("Even if Class Members could conclusively establish general causation, the problem of specific causation remains"); *id.* ("Given this background, continued litigation would be a risky endeavor").

166. See, e.g., RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR NEGLIGENCE CAUSING PHYSICAL HARM § 6 cmt. b (2010) (listing factual cause and proximate cause as necessary elements of a claim of negligence).

Concussion Litigation settlement (e.g., death from a diagnosis of CTE made after the date of settlement). And while OSHA must pay careful attention to verdicts that make definitive statements about the scientific evidence supporting or casting doubt on whether a particular exposure-disease (or -injury) relationship is causal, the court's approval of a negotiated settlement would have less value for OSHA's standard setting.

Having now explained what is meant by *significant risk* and OSHA's burden in demonstrating it, we now discuss what data currently exist for certain categories of player injuries and illnesses, and upon which OSHA could potentially rely in creating a standard.

2. Background and Limitations on NFL Injury Data

In promulgating standards, OSHA must rely on the best available evidence.¹⁶⁷ In many cases, the best available evidence concerning NFL player injuries consists of data that come from the NFL's Injury Surveillance System ("NFLISS"), a system implemented in 1980 that documents, tracks, and analyzes NFL injuries and provides data for medical research.¹⁶⁸ Although the NFL's past injury reporting and data analysis have been publicly criticized as incomplete, biased, or otherwise problematic, those criticisms have been directed to studies separate from the NFLISS. We are not aware of any criticism of the NFLISS. Nevertheless, there are limitations to the NFLISS, which are discussed at length in other work by some of us.¹⁶⁹ In cases where we do not use NFL data, the best available evidence comes from studies done by other researchers. In each case, we explain the limitations of and qualifications to the data being used. Our goal is not to make definitive pronouncements on the health and safety consequences of playing football. The science of detection, measurement, and treatment of many of the ailments (especially CTE) associated with playing football is a constantly evolving matter. Instead, our ambition in this section is more modest: to set out why the "best available evidence" is, at least in the case of most conditions faced by NFL players, likely sufficient to allow OSHA to meet its burden under the OSH Act of showing a "significant risk of material impairment of health or functional capacity," and thus meeting this requirement for its authority to promulgate a standard.

Throughout its history, NFL players have suffered a wide array of injuries and conditions that OSHA could examine for the presence of significant risk of material impairment of health. For purposes of considering whether there is

167. 29 U.S.C. § 655(b)(5) (2012).

168. *Injury Surveillance in the NFL: An Update from Quintiles Outcome*, APPLIED CLINICAL TRIALS (Aug. 31, 2012), <http://www.appliedclinicaltrials.com/injury-surveillance-nfl-update-quintiles-outcome> [<http://perma.cc/5EEJ-TFA6>].

169. These limitations include changes over time in the definition of a reportable injury, evolution into an electronic medical record system, generalized underreporting of sports injuries, and changes in injury reporting behavior over the years. See DEUBERT, COHEN & LYNCH, *supra* note 9, at 76.

significant risk, we examine three categories of injuries and conditions: (1) all injuries; (2) concussions; and (3) neurological conditions to which concussions may be a contributing factor. In reviewing these different categories, we acknowledge the serious effects that injuries like sprains and fractures have on players' health and quality of life, but nevertheless believe that if OSHA were to intervene in the NFL workplace, it would likely only do so to address neurological conditions. There are various reasons for this, including the fact that public attention to NFL health has focused on neurological conditions and that fractures and sprains are generally not life-threatening.¹⁷⁰

Lastly, before discussing the risks of these injuries and conditions, it is appropriate to note, as some of us have discussed in other work, that the NFL and NFLPA have made considerable efforts to reduce the risks of playing in the NFL and handling the post-career consequences,¹⁷¹ including providing health-related benefits that far exceed those of other sports leagues and likely almost all employers.¹⁷² Nevertheless, as both the NFL and NFLPA acknowledge, serious risks remain and there are still grounds for improvement.

3. Risk of Injury (*All Injuries*)

OSHA uses the Bureau of Labor Statistics' Survey of Occupational Injuries and Illnesses, as well as its own survey of employers, to decide which industries may need additional monitoring and regulation each year.¹⁷³ The NFL is part of the Performing Arts, Spectator Sports, and Related Industries group ("PSR"). This category groups together contact sports like football with less-physical sports, such as golf. Additionally, the Bureau of Labor Statistics' Survey combines sports generally with non-sport employees from the entertainment industries like actors and web designers, as well as employees in the sports industries charged with administrative and office work.¹⁷⁴ These other sports and employee groups almost certainly have much lower injury rates than NFL players.

170. In addition to the gravity of neurological conditions as they affect the workers themselves, OSHA might well consider the claims by some that CTE may put others at risk. See Philip H. Montenegro et al., *Clinical Subtypes of Chronic Traumatic Encephalopathy: Literature Review and Proposed Research Diagnostic Criteria for Traumatic Encephalopathy Syndrome*, 6 ALZHEIMER'S RES. & THERAPY 68 (2014) ("The clinical features [of CTE] include impairments in mood (for example, depression and hopelessness), [and] behavior (for example, explosivity and violence)") OSHA has in the past paid special attention to risk factors that can leave the workplace and be "taken home," particularly certain toxic substances like lead, beryllium, and asbestos that can increase risks among cohabitants; see IF YOU WORK AROUND LEAD, DON'T TAKE IT HOME!, OSHA BULLETIN (2014), <https://www.osha.gov/Publications/OSHA3680.pdf>.

171. See DEUBERT, COHEN & LYNCH, *supra* note 9, at App. I.

172. See *id.* at 127.

173. See *Establishment Specific Injury & Illness Data (OSHA Data Initiative)*, U.S. DEP'T LABOR, https://www.osha.gov/pls/odi/establishment_search.html (last visited Feb. 25, 2018).

174. See BUREAU OF LABOR STATISTICS, *NAICS 711000—Performing Arts, Spectator Sports, and Related Industries*, U.S. DEP'T LABOR (Mar. 31, 2017), http://www.bls.gov/oes/current/naics3_711000.htm.

Because of this general assemblage of statistics, PSR only averaged 7.2 “total recordable cases” of injury or illness per 100 full-time workers per annum.¹⁷⁵ Comparatively, Nursing and Residential Care Facilities averaged slightly higher, at 7.3 cases per 100 full-time workers.¹⁷⁶

Clearly, the Bureau of Labor Statistics’ Survey does not accurately capture the risk of injury in the NFL. Indeed, a 2009 study by the U.S. Government Accountability Office found many of the statistics about occupational safety alarmingly inaccurate for a variety of reasons, including that OSHA does not interview employees about injuries.¹⁷⁷ The more reliable figures come from the NFL directly.¹⁷⁸ According to NFL injury statistics, for each season between 2009 and 2015

- there was a mean of 1,026.8 injuries in preseason practices and games each preseason;
- there was a mean of 1,782.3 injuries in regular season practices and games each season; and,
- there was a mean of 5.90 injuries per regular season game.¹⁷⁹

Determining the risk of injury to players using the above data is challenging because of the difference between the preseason and regular season. During almost all of the preseason, NFL club rosters consist of 90 players,¹⁸⁰ totaling 2,880 players in NFL training camps (90 players x 32 NFL clubs). With a mean of 1,026.8 injuries per preseason, there is a mean of 0.36 injuries per player per preseason (1,026.8/2,880).

175. See *Occupational Injuries and Illnesses (Annual) News Release*, BUREAU OF LABOR STATISTICS (Dec. 4, 2014, 10:00 AM), https://www.bls.gov/news.release/archives/osh_12042014.htm [<https://perma.cc/9YUW-VA9Q>].

176. See *id.*

177. U.S. GOV’T ACCOUNTABILITY OFFICE, WORKPLACE SAFETY AND HEALTH, ENHANCING OSHA’S RECORDS AUDIT PROCESS COULD IMPROVE THE ACCURACY OF WORKER INJURY AND ILLNESS DATA (Oct. 2009), <http://www.gao.gov/new.items/d1010.pdf> [<https://perma.cc/GTV3-HAJ7>]; see also Leslie I. Boden, *Capture-Recapture Estimates of the Undercount of Workplace Injuries and Illnesses: Sensitivity Analysis*, 57 AM. J. INDUST. MED. 1090, 1098 (2014) (finding that only about 46% of worker injuries were captured in state surveys).

178. These statistics were calculated by examining the year-end NFLISS reports prepared by Quintiles for the year 2014 and the reports presented at the NFL’s annual Health & Safety Press Conference during the week of the Super Bowl. As a reminder, the injury reporting systems have changed in recent years. Consequently, the figures cannot be strictly compared across the seasons and the mean is not definitively accurate.

179. See DEUBERT, COHEN & LYNCH, *supra* note 9, at 78–79.

180. See Mike Florio, *Jeff Fisher Explains that “Younger Guys Understand” Being Cut*, NBCSPORTS: PROFOOTBALLTALK (Sept. 1, 2015, 4:58 AM), <http://profootballtalk.nbcsports.com/2015/09/01/jeff-fisher-explains-that-younger-guys-understand-being-cut/> [<https://perma.cc/Y877-9M2W>] (discussing reduction of rosters from 90 players to 75 to 53 during the last week of training camp).

We can also estimate the mean number of injuries per player per regular season. During the 2009–2015 seasons, a mean of 2,165 players played in at least one snap of a regular season NFL game each season.¹⁸¹ During this same time period, there was a mean of 1,511 regular season injuries.¹⁸² This equates to an overall rate of 0.68 injuries per season per player (1,511/2,165). However, this statistic is not the best estimation of the risks players face, because it counts players who may have appeared on the field for only a few plays during the season. In the 2016 season, 58.6% of all players (1,334 of the 2,275 total players in that season) appeared on the field for at least 10% of the total offensive or defensive snaps their team played in that year.¹⁸³ Therefore, a more accurate estimate of the rate of injuries per player-season might be closer to (1,511/1,334), or 1.13 injuries per player-season.¹⁸⁴ OSHA would likely seek to arrive at a more accurate statistic, by accounting for the mean number of snaps played by players each season. Unfortunately, this information is not readily available. Additionally, the statistic does not include injuries that occurred during preseason practices or games, or regular season practices. Thus, while helpful, these statistics give an incomplete picture of the injuries suffered by NFL players during a season.

4. Risk of Concussion

Concussions¹⁸⁵ are the injury that has undoubtedly generated the most media attention in recent years. Table 4 summarizes the most recent data on concussion incidence.

181. This statistic is derived from official NFL and NFLPA playtime figures.

182. See DEUBERT, COHEN & LYNCH, *supra* note 9, at 78.

183. This statistic is derived from official NFL and NFLPA playtime figures.

184. Although the judgment is somewhat arbitrary that playing fewer than 10% of one's team's snaps in a season is inconsistent with being a "regular" player, we note that OSHA has always calculated injury rates by defining a full-time equivalent ("FTE") as 2,000 hours of work per year; the injury rate in an establishment or sector is *not* defined as the number of injuries divided by the number of workers, but divided by the number of 2,000-hour FTEs.

185. The definition of a concussion is evolving. The leading authority on concussions has been the consensus statements issued by the International Conference on Concussion in Sport. In 2012, the doctors involved defined a concussion as "a complex pathophysiological process affecting the brain, induced by biomechanical forces." Paul McCrory et al., *Consensus Statement on Concussion in Sport—The 4th International Conference on Concussion in Sport held in Zurich, November 2012*, BRIT. J. SPORTS MED. 250 (2013) [hereinafter *Consensus Statement 2013*]. The most recent conference changed the definition slightly, defining a concussion as "a traumatic brain injury induced by biomechanical forces." Paul McCrory et al., *Consensus Statement on Concussion in Sport—The 5th International Conference on Concussion in Sport Held in Berlin, October 2016*, 51 BRIT. J. SPORTS MED. 838, 839 (2017).

TABLE 4: Number of Practice, Game, and Total Concussions, and Mean Number of Concussions Per Game in NFL Regular Season (2009–2016)¹⁸⁶

Year	# practice concussions (pre- and regular season)	# preseason game concussions	# regular-season game concussions	Total concussions	Mean # concussions per regular-season game
2009	25	40	159	224	0.62
2010	45	50	168	263	0.66
2011	37	48	167	252	0.65
2012	45	43	173	261	0.68
2013	43	38	148	229	0.58
2014	50	41	115	206	0.45
2015	38	54	183	272	0.71
2016	32	45	167	244	0.65
Total	315	359	1,280	1,951	0.63

As revealed by the data in Table 4, between 2009 and 2016, there was a mean of 160 regular-season concussions. Taking the 1,334 players who played at least 10% of their team's snaps in 2016 as a guidepost, there is a mean of 0.12 concussions per player-season. If OSHA were to treat a concussion as an injury for the purposes of initiating a standard-setting process, it would likely emphasize the total number of concussions rather than the risk per player and gauge whether the toll of this injury is significant.¹⁸⁷ However, given the increasing evidence of an association between repeated concussions and neurological consequences (discussed below), OSHA might also work with physicians to gauge whether there might be some critical number of concussions per career that would be above a threshold of significant concern and could then model the probability of a player exceeding that number against the Benzene Case benchmark of 1/1,000 lifetime excess risk as an unambiguously significant risk.¹⁸⁸

186. See DEUBERT, COHEN & LYNCH, *supra* note 9, at 78.

187. See *supra* note 89.

188. This mathematical modeling would be trivial, either assuming the probability of concussion per season was independent of the probability in any other season, or imposing some evidence-based correlation structure (perhaps the evidence would show that one concussion increases the probability of a subsequent one, or that it decreases it for other reasons). Assuming independence, a rate of 0.12 concussions per player-season, and a "reasonable upper bound" value of 10 seasons per career, see *supra* note 65 and surrounding text, simple binomial probability calculations estimate the chance of sustaining 5 or more concussions per career as about 3.7 chances per 1,000, above the Benzene Case standard for significance.

In addition, there is a concern that concussions are underreported.¹⁸⁹ Diagnosing concussions requires review of various criteria, such as whether the player has balance problems, a blank or vacant look, disorientation, or cognitive issues.¹⁹⁰ Moreover, a concussion diagnosis often requires a player to self-report symptoms such as headaches, dizziness, vision problems, or sensitivity to light or sound.¹⁹¹ Because of the vague diagnostic criteria and the ability of players to hide symptoms, concussion rates are likely higher than the reported statistics.¹⁹²

5. Risk of Neurological Conditions (Other than CTE)

The frequency of concussions in the NFL has raised concerns about neurological conditions that might be caused by or associated with concussions or other impacts sustained while playing in the NFL. These conditions include, among others: (1) Alzheimer's disease; (2) dementia; (3) Parkinson's disease; (4) amyotrophic lateral sclerosis ("ALS"); (5) depression; and (6) CTE. We differentiate these conditions from the discussion concerning concussions above because, unlike concussions, these conditions are largely diagnosed *after* a player's career (or indeed sometimes after his life) has ended. We discuss the risks of these conditions in this subsection and the two subsections following it.

Before discussing the purported prevalence of these conditions in NFL players, it is important to point out that we are not engaging in a peer review or endorsement of the papers to which we cite, their methods, or their results. Rather, we discuss them with a perspective like a potential reviewing court's: how stringently, if at all, should OSHA regulate in this area? The Supreme Court has made clear that OSHA can rely on any data "so long as [it is] supported by a body of reputable scientific thought"¹⁹³ Thus, we cite to those studies which have been published in peer-reviewed academic journals or which have been conducted by respected academics and doctors, and on which OSHA might rely, without independently assessing their quality.

From OSHA's perspective, there is one statistic about concussions that could particularly catch its attention. In September 2014, as part of the Concussion

189. E.g., Gary A. Green et al., *Mild Traumatic Brain Injury in Major and Minor League Baseball Players*, 43 AM. J. SPORTS MED. 5, 1124 (2015) (discussing historic underreporting of concussions in sports); Christine M. Baugh et al., *Frequency of Head-Impact-Related Outcomes by Position in NCAA Division I Collegiate Football Players*, 32 J. NEUROTRAUMA 5, 324 (2015).

190. See NFL Head, Neck and Spine Committee's *Protocols Regarding Diagnosis and Management of Concussion*, NFL (amended June 2017), <https://www.playsmartplaysafe.com/focus-on-safety/protecting-players/nfl-head-neck-spine-committees-protocols-regarding-diagnosis-management-concussion/> (listing "potential concussion signs observable" and "potential concussion symptoms").

191. *Id.*

192. See *infra* note 221 for a discussion of the possible role of multiple sub-concussive blows to the head on chronic neurological damage. But because the concussion rate in football is at such a level to meet OSHA's regulatory requirements, we do not dwell on whether the incidence of sub-concussive blows would also be sufficient.

193. Indus. Union Dep't, *AFL-CIO v. Am. Petroleum Inst.*, 448 U.S. 607, 656 (1980).

Litigation, the NFL retained an actuarial firm to analyze whether the money set aside for the settlement of the case would be sufficient to cover the payouts under the settlement.¹⁹⁴ The actuarial firm analyzed the rates of the conditions covered by the settlement (including ALS, Parkinson's, Alzheimer's and dementia, but not depression or CTE), in various epidemiological studies to project the prevalence of these conditions among former NFL players.¹⁹⁵ Additionally, to gauge the adequacy of the settlement, the firm "err[ed] on the side of overstating the number of players who will develop" the conditions.¹⁹⁶ Based on this analysis, the firm estimated that 28% of former NFL players would develop a condition covered by the settlement,¹⁹⁷ although the 28% estimate was not focused on whether the conditions were necessarily caused by playing football. While this statistic is only a conservative actuarial assumption that should not be taken as evidence of the actual rate of these conditions in NFL players, it is a statistic that OSHA could use to investigate the matter.

With OSHA's viewpoint in mind, we turn now to the existing data about neurocognitive conditions other than CTE among NFL players.

As part of a 2012 study published in *Neurology*,¹⁹⁸ the National Institute for Occupational Safety and Health ("NIOSH") examined the number of deaths among former NFL players caused at least in part by the neurodegenerative conditions of dementia, Alzheimer's disease, Parkinson's disease, or ALS.¹⁹⁹ Seventeen of the 334 (5%) deceased former players examined had a neurodegenerative condition included as either the underlying or contributing cause of death listed on their death certificates, a rate three times higher than that of the general population, according to the study's authors.²⁰⁰ One possible limitation of the study is that the authors did not amass information on environmental, genetic, or other risk factors for neurologic disorders, either in the NFL or the control populations. Omitting these factors might bias the results, in either direction, if they were associated both with NFL work and with neurodegenerative diseases.²⁰¹

The only other study we know of concerning the prevalence of dementia, Alzheimer's, or Parkinson's in NFL players was a 2009 NFL-funded study of

194. See Report of The Segal Group to Special Master Perry Golkin, *In re Nat'l Football League Players' Concussion Injury Litig.*, No. 2:12-md-02323 (E.D. Pa. Sept. 12, 2014), ECF No. 6168.

195. *Id.* ¶¶ 15, 23.

196. *Id.* ¶ 15.

197. *Id.* ¶ 23.

198. See HEART HEALTH CONCERNS FOR NFL PLAYERS, NAT'L INST. OCCUPATIONAL SAFETY & HEALTH (Mar. 2012), http://www.cdc.gov/niosh/pgms/worknotify/pdfs/NFL_Notification_01.pdf [<https://perma.cc/LCT5-K9UD?type=pdf>] (discussing methodology and results of 1994 study).

199. Everett J. Lehman et al., *Neurodegenerative Causes of Death Among Retired National Football League Players*, 79 *NEUROLOGY* 1970 (2012).

200. See *id.* at 1973.

201. *Id.*

former NFL players by the University of Michigan (“Michigan Study”).²⁰² The Michigan Study, via telephone interviews of 1,063 former NFL players,²⁰³ found that 1.9% of former players between the ages of 30 and 49 reported having been diagnosed with dementia, Alzheimer’s, or another memory-related disease, as compared to 0.1% in the general population.²⁰⁴ Moreover, the Michigan Study found that 6.1% of former players 50 or older reported having been diagnosed with dementia, Alzheimer’s, or another memory-related disease, as compared to 1.2% in the general population.²⁰⁵

Concerning depression, the Michigan Study found that 25.6% of former NFL players interviewed had “either been diagnosed with depression or experienced an episode of major depression in their lifetime.”²⁰⁶ By comparison, other studies have found that approximately 16% of American adults have a major depressive episode in their life.²⁰⁷ However, there are potential limitations to the Michigan Study, including the study’s eligibility criteria, the racial demographics of the study population, and the lack of a peer-review process.²⁰⁸

Kevin M. Guskiewicz, a leading researcher in NFL player injuries at the University of North Carolina, led another study concerning depression among former NFL players.²⁰⁹ Guskiewicz’s study consisted of questionnaires sent to 3,683 former NFL players.²¹⁰ Of the 2,434 former players that responded to the questionnaire with complete data (66.1%), 269 (11.1%) reported having been diagnosed previously with clinical depression.²¹¹ Of note, this is a rate

202. David R. Weir et al., *National Football League Player Care Foundation Study of Retired NFL Players*, UNIV. MICH. INST. SOC. RES. (Sept. 10, 2009), <http://ns.umich.edu/Releases/2009/Sep09/FinalReport.pdf> [<http://perma.cc/6G5Q-LN2M>].

203. *Id.* at 10. The Michigan Study population only included players that had vested rights under the NFL’s Retirement Plan, meaning the players generally had been on an NFL roster for at least three games in at least three seasons.

204. *Id.* at 32. The Michigan Study acknowledged that “[d]ementia is much more difficult to diagnose in surveys than depression or [intermittent explosive disorder], in part because it directly affects the respondent’s ability to participate.” *Id.* at 5. As a result, the surveyors conducted some of the interviews with a proxy reporter, generally the player’s wife. *Id.* The researchers did not conduct any neurological examinations. *Id.*

205. *Id.* at 32.

206. Weir et al., *supra* note 202.

207. See Laura Andrade et al., *The Epidemiology of Major Depressive Episodes*, 12 INT’L J. METHODS PSYCHIATRIC RES. 3, 13–21 (2003) (16.9% rate of major depressive episodes); see also Ronald Kessler et al., *The Epidemiology of Major Depressive Disorder: Results from the National Comorbidity Survey Replication (NCS-R)*, 289 JAMA 3095, 3099 (2003) (16.2% rate of major depressive disorder).

208. These limitations and the responses of Dr. David Weir, the lead author of the Michigan Study, are discussed more fully in other work of ours. See DEUBERT, COHEN & LYNCH, *supra* note 9, at 61.

209. Kevin Guskiewicz et al., *Recurrent Concussion and Risk of Depression in Retired Professional Football Players*, 39 MED. & SCI. SPORTS & EXERCISE 903 (2007).

210. *Id.* at 904.

211. *Id.* at 905. Also of note, the study found that retired players reporting a history of three or more previous concussions were three times more likely to be diagnosed with depression. *Id.*

substantially lower than that found by the Michigan Study and is also lower than the rate of depression in the general population. However, this study and the prior ones mentioned all used the general public as the comparison group; it is unclear whether former professional athletes, independent of head trauma, suffer from depression and other mood disorders at a greater or lesser rate than the general public given their income and other factors that distinguish them. To our knowledge, studies have not yet been conducted comparing the prevalence of depression among professional athletes with and without histories of repetitive head trauma.

6. Risk of CTE: Background Information

Finally, we turn to CTE. CTE has proven to be a complicated and controversial topic. For various reasons, including the fact that scientific and medical research on this topic is developing rapidly, we only briefly summarize the current state of CTE research. We discuss distinctions between how CTE might be viewed in a regulatory setting as compared to a clinical setting or in litigation, before we conclude with an assessment of how OSHA might regulate or otherwise intervene based on concerns about CTE.

According to a consensus statement from the National Institute of Neurological Disorders and Stroke and the National Institute of Biomedical Imaging and Bioengineering, CTE is a progressive neurodegenerative disease “characterized by the abnormal accumulation of hyperphosphorylated tau protein within the brain.”²¹² At present, there are various reasons to believe there is a link between CTE pathology and football (as well as between CTE and other sports and occupations in which repetitive head trauma is found). Retrospective case reports have found CTE pathology in the brains of former athletes—including former professional football players—most of whom had manifested mood disorders, headaches, cognitive difficulties, suicidal ideation, difficulties with speech, and aggressive behavior.²¹³ The vast majority of cases in these studies were associated with repetitive head trauma.²¹⁴ Indeed, in one published study, Mayo Clinic and

212. Ann C. McKee et al., *The First NINDS/NIBIB Consensus Meeting to Define Neuropathological Criteria for the Diagnosis of Chronic Traumatic Encephalopathy*, 131 ACTA NEUROPATHOLOGICA 75 (2016).

213. See Joseph C. Maroon et al., *Chronic Traumatic Encephalopathy in Contact Sports: A Systematic Review of All Reported Pathological Cases*, PLOS ONE (Feb. 11, 2015), <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0117338> (summarizing CTE case studies to date); see also Ann C. McKee et al., *The Spectrum of Disease in Chronic Traumatic Encephalopathy*, 136 BRAIN 43 (2013); Bennet I. Omalu, *Chronic Traumatic Encephalopathy, Suicides and Parasuicides in Professional American Athletes*, 31 AM. J. FORENSIC MED. & PATHOLOGY 130, 131 (2010); *What is CTE?*, BOSTON UNIVERSITY’S CTE CTR., <http://www.bu.edu/cte/about/what-is-cte/> [<https://perma.cc/W86H-886C>] (CTE is associated with “athletes (and others) with a history of repetitive brain trauma,” and “is associated with memory loss, confusion, impaired judgment, impulse control problems, aggression, depression, and, eventually, progressive dementia”). But see *infra* notes 243–46 for a discussion of the questions surrounding whether the CTE lesions themselves are the cause of these associated symptoms.

214. See Maroon et al., *supra* note 213.

Boston University researchers found that the brains of 21 of 66 former contact-sport athletes demonstrated CTE, while CTE pathology was not detected in any of 198 matched control individuals without exposure to contact sports.²¹⁵

However, a definitive pathophysiologic mechanism causally connecting repeated head trauma and CTE has not yet been demonstrated,²¹⁶ although various plausible mechanisms are being studied.²¹⁷ In addition, early CTE-like lesions have been found in the brains of individuals not believed to have a history of head trauma, which suggests that there might be one or more potential causes for such lesions other than head trauma, or unknown causes.²¹⁸ Similarly, whether CTE is distinct from other neurodegenerative diseases²¹⁹ or whether repetitive head traumas are necessary and sufficient to cause CTE has not been definitively established.²²⁰ Additional supporting evidence that head trauma can cause CTE could come from studies showing greater rates of symptoms in players with CTE who had sustained more frequent or more severe impacts. However, to date, findings have been mixed, with two major studies both showing a strong positive relationship between symptoms and history and number of concussions, but disagreeing on whether the number of sub-concussive impacts alone is associated with increased risk of symptoms.²²¹

Of note, at a March 14, 2016 hearing before the U.S. House of Representatives Energy and Commerce Committee, Jeffrey Miller, the NFL's Senior Vice President for Health and Safety Policy, answered "yes" when asked if there was a "link between football and degenerative brain disorders like CTE,"

215. Kevin F. Bieniek et al., *Chronic Traumatic Encephalopathy Pathology in a Neurodegenerative Disorders Brain Bank*, 130 ACTA NEUROPATHOLOGICA 877 (2015).

216. See *id.*; see also *Consensus Statement 2013*, *supra* note 185, at 254, 257.

217. See, e.g., Thor D. Stein, Victor E. Alvarez & Ann C. McKee, *Chronic Traumatic Encephalopathy: A Spectrum of Neuropathological Changes Following Repetitive Brain Trauma in Athletes and Military Personnel*, ALZHEIMER'S RES. & THERAPY (Jan. 2014), <https://alzres.biomedcentral.com/articles/10.1186/alzrt234> [<https://perma.cc/JRV8-WEAH>].

218. See Andrew F. Gao et al., *Chronic Traumatic Encephalopathy-like Neuropathological Findings Without a History of Trauma*, 3 INT'L J. PATHOLOGY & CLINICAL RES. 50 (2017); see also Shawna Noy, Sherry Krawitz & Marc R. Del Bigio, *Chronic Traumatic Encephalopathy-Like Abnormalities in a Routine Neuropathology Service*, 75 J. NEUROPATHOLOGY & EXPERIMENTAL NEUROLOGY 1145, 1147 (2016).

219. See Maroon et al., *supra* note 213.

220. See *Consensus Statement 2013*, *supra* note 185, at 257.

221. See Philip H. Montenegro et al., *Cumulative Head Impact Exposure Predicts Later-Life Depression, Apathy, Executive Dysfunction, and Cognitive Impairment in Former High School and College Football Players*, 34 J. NEUROTRAUMA 328 (2017) (positive dose-response trends for six different symptoms, as a function of estimated number of total impacts); but see generally William P. Meehan III et al., *Division III Contact Sports are Not Associated with Neurobehavioral Quality of Life*, 33 J. NEUROTRAUMA 254 (2016) (strong association between symptoms and history of concussion, but not with history of sub-concussive impacts alone).

while also explaining that what that link meant was uncertain under the current state of the science.²²²

Miller's comments were made immediately following the testimony of Dr. Ann McKee from Boston University, recognized as one of the foremost experts in CTE research. McKee explained that up to that time, she had diagnosed CTE pathology in 90 out of the 94 brains she had examined from deceased former NFL players.²²³ More recently, Jesse Mez and others (including McKee) have diagnosed CTE in 110 of 111 brains of former NFL players studied.²²⁴ Currently there is no reliable estimate of the prevalence of CTE pathology among all NFL players; instead, existing studies examine only the small subset of deceased players whose brains were autopsied by McKee and others.²²⁵ Indeed, Boston University's Dr. Robert Cantu cautioned that research results showing the proportion of former NFL players diagnosed with CTE can be skewed because many of the brains examined to date came from players who, while they were alive, had concerns about CTE.²²⁶ Dr. McKee has stated that she believes "a shockingly high percentage" of NFL players will develop CTE,²²⁷ but also acknowledges that she has "no idea" what percent of former NFL players have CTE because her lab's collection of brains is not representative of the former NFL player population.²²⁸ From OSHA's perspective, the key question will be not whether the current rate of CTE in players autopsied (110/111) is biased high, as it doubtless is, but *how* much

222. *Broad Review of Concussions: Initial Roundtable Before the House Committee on Energy, Commerce, Oversight and Investigations*, 114th Cong. (Mar. 14, 2016) (statement of Jeffrey Miller, NFL Senior Vice President for Health and Safety Policy), <https://www.c-span.org/video/?406450-1/hearing-concussions>.

223. *Id.*

224. Jesse Mez et al., *Clinicopathological Evaluation of Chronic Traumatic Encephalopathy in Players of American Football*, 318 JAMA 360, 362 (2017). Note that upon careful re-examination of the original 94 brains, three of them were later found to have CTE, which explains why the number of diagnoses of non-CTE fell from 4/94 to 1/111.

225. For example, one study states:

Despite the lack of large scale systematic and randomized studies, the reporting of CTE in former professional American football players has led to wide spread speculation far beyond the conclusions that can be drawn based on the current state of CTE research. With CTE research in the early stages and the small number of current cases, there is no credible data with which to establish the incidence or prevalence of CTE in former contact sport participants.

Maroon et al., *supra* note 213.

226. See Jason Hanna, Debra Goldschmidt & Kevin Flower, *87 of 91 Tested Ex-NFL Players Had Brain Disease Linked to Head Trauma*, CNN (Oct. 11, 2015, 8:34 AM), <http://www.cnn.com/2015/09/18/health/nfl-brain-study-cte/> [<https://perma.cc/RDT7-HTJJ>].

227. See MARK FAINARU-WADA & STEVE FAINARU, *LEAGUE OF DENIAL: THE NFL, CONCUSSIONS AND THE BATTLE FOR TRUTH* 8 (2013).

228. Benedict Carey, *On C.T.E. and Athletes, Science Remains in Its Infancy*, N.Y. TIMES (Mar. 27, 2016), <http://www.nytimes.com/2016/03/28/health/cte-brain-disease-nfl-football-research.html> [<https://perma.cc/PU75-K9PW>].

lower the true rate might turn out to be (with reference to the Benzene Case benchmark of 1 chance per 1,000).²²⁹

As the District Court noted in its Concussion Litigation settlement decision, the study of CTE is in its early stages and much is still unknown, including the variety of symptoms that can occur, and which, if any, of these symptoms are a direct result of the CTE lesions themselves.²³⁰ CTE can, at present, only be diagnosed definitively after death, upon physical examination of the brain itself. However, it is possible that physical and neurocognitive examinations, tests to rule out other conditions that can be diagnosed during life, and documentation of the patient's history can lead a physician to make a "presumptive diagnosis" of CTE during life.²³¹ The Court also opined that the studies that have examined CTE have had one or more important limitations, including small sample sizes, possible selection bias in the populations studied, reliance on family members to retrospectively report subjects' behavior, or lack of controls for other possible risk factors such as higher BMI, lifestyle changes, age, chronic pain, or substance abuse.²³²

7. Risk of CTE: OSHA's Perspective

As the scientific research on CTE continues, questions remain about how to respond to the possibility that repetitive head trauma causes CTE. However, how a court or a physician might view causation and risk differs from how OSHA views them. Experts trained in public health, and particularly analysts and decision-makers in public health regulatory agencies such as OSHA, EPA, and the U.S. Food and Drug Administration, look at evolving evidence bases differently.²³³ OSHA does not need to show specific causation, i.e., that exposure to a particular substance or environment was more likely than not to have caused a particular individual's condition, to consider regulations to reduce population exposure. Indeed, agencies such as OSHA also need not show that the substance definitively or exclusively causes the adverse health effect(s) in humans, but rather that it is *associated* with the effect(s) and not due to chance or spurious factors. Public health regulatory agencies like OSHA are required to establish a rebuttable presumption that population exposure reductions are reasonably anticipated to

229. See *infra* note 250 and accompanying text.

230. *In re Nat'l Football League Players' Concussion Injury Litigation*, 307 F.R.D. 351, 397–401 (E.D. Pa. 2015) ("Beyond identifying the existence of abnormal tau protein in a person's brain, researchers know very little about CTE.").

231. Breton M. Asken et al., *Research Gaps and Controversies in Chronic Traumatic Encephalopathy*, 74 JAMA NEUROLOGY 1255, 1257 (2017).

232. *Id.* at 398–99.

233. For regulatory agencies, the quantity and quality of evidence needed to initiate (or to conclude) rulemaking is determined by the statute(s) under which the agency received authority from Congress. Thomas O. McGarity & Sidney A. Shapiro, *Regulatory Science in Rulemaking and Tort: Unifying the Weight of the Evidence Approach*, 3 WAKE FOREST J.L. & POL'Y 65, 71 (2013). In OSHA's case, as discussed above, the agency is required only to show it is at least more likely than not that an occupational exposure presents a significant risk of material impairment, and the Benzene Case court allowed OSHA to estimate such risk using "conservative" assumptions. See *supra* Subsection I.D.1.

result in population incidence reductions.²³⁴ This presumption only requires an association between the exposure and the disease—as opposed to a causal showing—and it can hold true when the disease also is associated with (or caused by) one or more other exposures. And although large and well-conducted epidemiologic studies are very useful in establishing strong presumptions of causality,²³⁵ a significant fraction of the regulations that public health agencies do promulgate are based solely on small case series suggesting disease clusters associated with a given exposure.²³⁶

So as a practical matter, there are several observations that might severely undercut a case for specific (or general) causation, but that would not impede a public health agency like OSHA from taking regulatory action. In particular, OSHA would not be dissuaded by claims that: (1) one or more persons who have the disease of interest were not exposed to the hazard of regulatory interest (and who may also have documented exposures to one or more other hazards that could have caused the disease);²³⁷ (2) one or more persons exist who have had substantial exposure to the hazard of interest but who have not developed the disease;²³⁸ or

234. See Gerald W. Boston, *A Mass-Exposure Model of Toxic Causation: The Content of Scientific Proof and the Regulatory Experience*, 18 COLUM. J. ENVTL. L. 181, 262–63 (1993).

235. Epidemiology is a major source of information wherein regulatory agencies have all decided *not* to “risk error on the side of overprotection.” See *supra* note 69. Agencies uniformly require that the *lower* 95th percentile confidence bound on the results of an epidemiology study be positive (in other words, that there is no more than a 5% probability that the increased incidence of disease seen in exposed populations is in fact due to chance rather than to their exposures). See Diana L. Mitts, *Epidemiological Evidence as a Basis for Causation: Implications for a Suspected Pesticide-Induced Cancer*, 8 SAN JOAQUIN AGRIC. L. REV. 187, 198 (1998).

236. For example, OSHA issued a regulation in 1977 restricting workplace concentrations of the pesticide dibromochloropropane (“DBCP”), based entirely on the observation that seven workers in one plant exposed to DBCP had become sterile. See Eula Bingham & Celeste Monforton, *The Pesticide DBCP and Male Infertility*, in LATE LESSONS FROM EARLY WARNINGS: SCIENCE, PRECAUTION, INNOVATION 235–44 (2013). Moreover, public health regulatory agencies often regulate exposures based entirely on data from controlled exposures to laboratory rodents, with little or no human evidence at all, based on the reasonable presumption (amply validated in general terms from experience) that exposures capable of producing significant excesses of disease in other mammals are likely also to do so in humans. See Bruce C. Allen, Kenny S. Crump & Annette M. Shipp, *Correlation Between Carcinogenic Potency of Chemicals in Animals and Humans*, 8 RISK ANALYSIS 531 (1988). For example, OSHA issued a final regulation in 1997 severely restricting workplace concentrations of the solvent methylene chloride, based entirely on studies showing carcinogenicity in laboratory animals. See Occupational Exposure to Methylene Chloride, 62 Fed. Reg. 1494-01 (Jan. 10, 1997).

237. For example, the observation of non-small-cell lung cancer (“NSCLC”) in one, or in thousands, of lifetime non-smokers in no way changes the well-accepted presumption that smoking can cause NSCLC.

238. Similarly, the observation of one, or thousands, of lifetime smokers who died without having contracted lung cancer in no way changes the well-accepted presumption that smoking can cause (increase the risk of) the disease.

(3) some persons are more susceptible than others to the hazard of interest, perhaps because of some genetic predisposition.²³⁹

Nevertheless, evidence of an association between an exposure and a clinical pathology still does not entitle OSHA to regulate if the pathology does not rise to the level of “material impairment of health or functional capacity.” But when it is ambiguous whether a pathology is material, OSHA has a long history, upheld by various courts, of regarding as material impairment various ostensibly “minor” and reversible physiologic changes,²⁴⁰ as well as the earliest irreversible pathologic changes whether or not they can or will progress to symptoms,²⁴¹ and has even determined that becoming an asymptomatic carrier of the Hepatitis B virus is material impairment.²⁴²

So, OSHA would certainly regard CTE pathology as a material impairment absent compelling evidence to the contrary. Some assert, however, that CTE may be inconsequential—an “immuno-histochemical curiosity”²⁴³—or that the CTE lesions are “tiny abnormalities [that] might not have any specific clinical

239. Even in the limiting case where an exposure only causes disease in a susceptible subgroup, it may be possible, and cost-beneficial, to regulate exposures strictly enough to relieve this group from unacceptable risk. Moreover, it is often the case that persons other than those “susceptible” still face some risk; OSHA, for example, regulates lead in the workplace based largely on known neurological effects on fetuses, but these controls also lower the risk of hypertension in adult male workers (and hence OSHA was not permitted to control lead simply by excluding females from exposure; see *Automobile Workers v. Johnson Controls, Inc.*, 499 U.S. 187 (1991)).

240. For example, in *AFL-CIO v. OSHA*, the Court opined that there is a level at which [minor] irritation becomes so severe that employee health and job performance are severely threatened, even though those effects may be transitory. We find this explanation adequate. OSHA is not required to state with scientific certainty or precision the exact point at which each type of sensory or physical irritation becomes a material impairment.

965 F.2d 962, 975 (11th Cir. 1992).

241. See Occupational Exposure to Respirable Crystalline Silica, 81 Fed. Reg. 16826, 16837 (Mar. 25, 2016) (promulgating a final rule for exposure to crystalline silica, in which the mildest possible abnormality on a chest X-ray (a divided grade of “1/0” for small opacities) would be counted as silicosis, even though at this point in the disease process the employee would have no symptoms whatsoever); see also Occupational Exposure to Beryllium, 82 Fed. Reg. 2470, 2547 (Jan. 9, 2017) (promulgating a final rule for exposure to beryllium, in which OSHA concludes that early-stage chronic beryllium disease (“CBD”) is material impairment because of “evidence and expert testimony that early-stage CBD is a measurable change in an individual’s state of health that, with and sometimes without continued exposure, can progress to symptomatic disease” (emphasis added)).

242. See Occupational Exposure to Bloodborne Pathogens, 56 Fed. Reg. 64,004, 64,036 (Dec. 6, 1991).

243. Jim Schnabel, quoting Maryland neuropathologist Rudolph Castellani. See Jim Schnabel, *How Real is CTE?*, OBSCURE & UNPRINTABLE (Apr. 2, 2016), <http://www.jimschnabel.com/how-real-is-cte/> [https://perma.cc/JW64-JGY5].

significance.”²⁴⁴ Although there is no specific evidence supporting this claim, it is possible that some unknown factor, perhaps atrophy of the pituitary gland,²⁴⁵ might coexist with CTE and be the actual cause of symptoms that only appear to be caused by the CTE lesions.²⁴⁶ If OSHA sought to regulate repeated head trauma in football, it would certainly invite experts to enter the notice-and-comment process and provide evidence, contrary to OSHA’s presumption, that disseminated brain lesions, strongly associated with severe symptoms, are not actually consequential.

We do not try to definitely answer here whether these two OSHA triggers (significant risk and materiality of impairment) are met—rather, one of us (Finkel) has argued that they are, in a separate co-authored article.²⁴⁷ Below, we summarize some of the points raised by Finkel and Bieniek in that article.

- The existing scientific literature would support OSHA’s considering CTE as associated with repetitive head trauma. Along with many others, the existing studies, reviewed above, seem likely sufficient to establish at least a rebuttable regulatory presumption that CTE is more common with repetitive head trauma than without, and that there are plausible physiologic mechanisms connecting exposure to disease. In particular, the finding by Mez and colleagues, discussed above, that 110 of the 111 brains autopsied of football players showed CTE would provide a strong evidentiary basis for this rebuttable presumption and would likely suffice to initiate a rulemaking. It is quite plausible that this 110/111 incidence rate is biased high due to selection bias (i.e., that the investigators received most brains for diagnosis preferentially from former players who suspected, or whose survivors suspected, that they had CTE).²⁴⁸

244. Shawna Noy et al., *Chronic Traumatic Encephalopathy-Like Abnormalities in a Routine Neuropathology Service*, 75 J. NEUROPATHOLOGY & EXPERIMENTAL NEUROLOGY 1145, 1152 (2016).

245. William Meehan III et al., *Chronic Traumatic Encephalopathy and Athletes*, 85 NEUROLOGY 1504 (2015).

246. Note, however, that for this sort of explanation to rebut an OSHA presumption that CTE lesions constitute material impairment, the hitherto-unknown factor must be plausibly *uncorrelated* with repeated head trauma. Otherwise, the explanation would amount, in effect, to “correcting the incorrect name we were using for this football-related disease.” If, for example, head trauma instead causes pituitary atrophy, and *this* pathology is the source of players’ symptoms, then OSHA might reasonably seek to reduce *that* material impairment.

247. Adam M. Finkel & Kevin F. Bieniek, *A Quantitative Risk Assessment for Chronic Traumatic Encephalopathy (CTE) in NFL Football: How Public Health Science Evaluates Evidence*, HUM. & ECOLOGICAL RISK ASSESSMENT (forthcoming 2018), <https://doi.org/10.1080/10807039.2018.1456899>. A prepublication proof of the article is also permanently available at tinyurl.com/finkel-CTE.

248. This concern about bias, of course, requires one to also believe that having cognitive or behavioral symptoms is what makes one more likely to have been living with CTE—and this belief is logically inconsistent with the view that the association between CTE and symptoms is spurious. In other words, the observation (which we endorse) that the

However, that quantitative caveat would not preclude OSHA from finding sufficient evidence of an association to initiate a rulemaking. Indeed, this evidence is already stronger than that which OSHA has relied on in other instances to promulgate final rules.²⁴⁹

- In terms of quantitative risk (as required under the Benzene Case decision), even if these 110 brains were the only ones in the entire sample of former players to ever show CTE, now or in the future, the overall risk of the disease would still amply exceed OSHA's 1/1,000 benchmark. Finkel and Bieniek calculate that over the time period (roughly 1963–2008) during which time all of the players diagnosed with CTE were in the NFL, somewhere between 8,450 and 17,150 “working lifetimes” accrued in the NFL.²⁵⁰ Even using the more conservative estimate of 17,150, the risk of CTE is already 110/17,150 (or 6.4 times higher than the 1/1000 benchmark; using the less conservative estimate of career length, the risk of CTE would be 110/8,450, or 13 times the Benzene Case benchmark). This estimate of risk to the cohort of players who are or have been in the NFL cannot possibly grow smaller, but only larger with time.
- OSHA would certainly make the rebuttable presumption that CTE lesions constitute a genuine case of “material impairment of health or functional capacity.” If challenged, OSHA would support its presumption with these points, among others: (1) there is an association between CTE and symptoms, with more severe cognitive (though not mood-related) symptoms associated with former players found to have had more advanced stages of CTE;²⁵¹ (2) studies indicate that any lesions in the brain, even if individually “benign,” can perturb function by disrupting connections elsewhere in the

Mez et al. case series of 111 former players is subject to recall bias stems from the belief that there are symptoms associated with having CTE that are recalled.

249. See *supra* note 236.

250. These numbers are both smaller than the roughly 26,000 individuals who have ever appeared in an NFL game, because many of them played only a few games; Finkel and Bieniek's calculation is based on estimating the cumulative number of player-careers, considering the proportion of players entering the League and retiring each year (which by definition is the reciprocal of the average length of an NFL career; see *supra* note 6 for two estimates of career length). They observed that in the 2016 season, 1,334 of the 2,275 players who appeared on an NFL field for at least one snap played more than a trivial number (10%) of their team's offensive or defensive snaps. A public health regulatory agency like OSHA would never estimate lifetime risk by counting all exposed persons, but would estimate the number of person-years of exposure.

251. Robert A. Stern et al., *Clinical Presentation of Chronic Traumatic Encephalopathy*, 81 NEUROLOGY 1122, 1122–23 (2013); see also Jesse Mez et al., *Assessing Clinicopathological Correlation in Chronic Traumatic Encephalopathy: Rationale and Methods for the UNITE Study*, 7 ALZHEIMER'S RES. & THERAPY 62 (2015).

brain;²⁵² (3) CTE has been shown to cause injury to axons (the thread-like projections that transfer impulses from neurons to other cells), ranging from focal axonal injury in the cerebral cortex and white matter in CTE stages I and II, to more extensive, diffuse axonal injury in the cortex and white matter in stages III and IV;²⁵³ and (4) few if any truly benign lesions exist—many “benign” tumors, of course, are life-threatening even though incapable of metastasis.²⁵⁴ Clinical evidence that CTE might be, akin to certain thyroid nodules or skin lesions, truly inconsequential, would be of great interest to OSHA but would be an exception to a long-standing clinical presumption.

These claims by Finkel and Bieniek would, of course, invite rebuttal if OSHA were to start from premises such as these in initiating a public process of rulemaking or other governance options. Amongst the unresolved issues one might raise are as follows: (1) the question of the causal link between CTE lesions and material impairments to health; (2) the complication of understanding how much of the CTE association with repetitive head injury is due to NFL football play as opposed to earlier sports experience, particularly in high school and college football (during which time players are presumably not employees subject to OSHA jurisdiction); and (3) questions of genetic susceptibility.

In summary, it seems quite plausible that the existing scientific evidence—incomplete though it may be—is sufficient to satisfy OSHA’s regulatory trigger for initiating a rulemaking process concerning CTE. But Finkel and Bieniek emphasize that in the event (unlikely, in their view) that evidence reveals CTE not to be a “significant risk of material impairment” or not associated with head trauma, the “erasure” of CTE as a legitimate object of OSHA’s concern would merely represent a dead end in a network of evidence that still associates football with *other* concerns about neurological impairment, above the 1/1000 threshold of excess risk. As we discussed above, epidemiologic studies in 2009 (University of Michigan) and 2012 (NIOSH) have already found significant excesses of overall neurological disease among (respectively) former and deceased NFL players.²⁵⁵ The risk ratios from these studies imply excess absolute risks among NFL players far greater than 1/1,000, although both studies suffer from limitations that might be highlighted in an evidentiary rulemaking hearing.²⁵⁶ If it

252. Qingying Meng et al., *Traumatic Brain Injury Induces Genome-Wide Transcriptomic, Methyloomic, and Network Perturbations in Brain and Blood Predicting Neurological Disorders*, 16 EBIO MEDICINE 184, 191–92 (2017).

253. Stern et al., *supra* note 251, at 1127.

254. Emily Dwass, *The Brain Tumor is Benign, but Threats Remain*, N.Y. TIMES, Apr. 28, 2015, at D4.

255. *See supra* Subsection III.B.5.

256. In the Michigan study, 6.1% of former players 50 and older were diagnosed with dementia, Alzheimer’s, or another memory-related disease, as compared with 1.2% of this age group in the general population; this implies an excess risk of 4.9% (6.1 minus 1.2), which is 49 per 1000. The NIOSH study reported a three-fold relative risk of a neurodegenerative cause of death among NFL decedents compared to the general

turns out that the effects these studies were finding were not associated with a new disease entity (CTE), the elevated incidence among former NFL players could still serve as a regulatory trigger.

8. Feasibility

In Subsection I.D.2, we explained that OSHA standards must be both economically feasible and technologically feasible. It is difficult in the abstract to say whether an OSHA standard relevant to the NFL workplace would be economically or technologically feasible without knowing the details of such a hypothetical standard. Nevertheless, we provide some analysis at a general level.

First, consider economic feasibility. The NFL is a robust economic enterprise, with estimated revenues of \$14 billion in 2017.²⁵⁷ In addition to considerable revenues, all indications are that the NFL is highly profitable. During the 2011 CBA negotiations, the NFL argued that the amount of revenue it shared with the players had to be adjusted because some clubs had experienced a decline in profits.²⁵⁸ However, the NFL did not argue that any clubs were not profitable.²⁵⁹

If we return to one of the precedents discussed in Part I to provide a benchmark, the D.C. Circuit and Fourth Circuit upheld as feasible a standard that cost industries 0.0091% and 0.0148% of revenue respectively. Applying this to the \$14 billion in annual revenue for the NFL, this suggests that an OSHA standard could impose an annual cost of \$1,274,000 or \$2,072,200 on the NFL without violating the feasibility requirement. To be sure, these cases only approve of these percentages of costs as feasible and do not set an *upper bound* for feasibility, such that the true limit on the costs of an OSHA standard could be much higher.

The above figures suggest that the NFL could likely economically withstand an OSHA-imposed standard. Additionally, it is important to think of the

population, with a 5% incidence in the former group. Since 5% divided by 3 is approximately 1.7%, the excess risk estimate here is 3.3% (5 minus 1.7), which is 33 per 1000. *See supra* Subsection III.B.5.

257. Mike Florio, *NFL Will Reach \$14 Billion in 2017 Revenue*, NBCSPORTS: PROFOOTBALLTALK (Mar. 6, 2017, 11:29 AM), <http://profootballtalk.nbcsports.com/2017/03/06/nfl-will-reach-14-billion-in-2017-revenue>. The Concussion Litigation settlement, which is projected to cost approximately \$1 billion over 65 years, also seems to suggest feasibility. *See* Verdict, Agreement and Settlement at 125, *In re Nat'l Football League Players' Concussion Injury Litigation*, 307 F.R.D. 351 (E.D. Pa. 2015) (No. 2:12-md-02323-AB). Indeed, as the Third Circuit noted in affirming the settlement, "the NFL did not cite potential financial instability as justification for the settlement's size." *In re Nat'l Football League Players' Concussion Injury Litigation*, 821 F.3d 410, 440 (3d Cir. 2016).

258. Chris Deubert, Glenn M. Wong & John Howe, *All Four Quarters: A Retrospective and Analysis of the 2011 Collective Bargaining Process and Agreement in the National Football League*, 19 UCLA ENT. L. REV. 1, 14–16 (2012).

259. *Id.* For another point of comparison, consider the Green Bay Packers, which due to its unique public ownership structure publicly report its financial figures show 2016 fiscal year revenues of approximately \$441.4 million and profits of \$65.4 million. Richard Ryman, *Packers Report Another Year of Record Revenue*, GREEN BAY PRESS-GAZETTE (July 12, 2017), <http://www.greenbaypressgazette.com/story/news/2017/07/12/packers-report-another-year-record-revenue/417355001/> [<https://perma.cc/B5UC-2Q5Y>].

type of controls that might be imposed. Many standards OSHA has imposed require expensive hardware, such as the recent OSHA silica standard, which among many other requirements mandates the installation of local exhaust ventilation on workstations where granite and other materials are cut; a single workstation can cost up to \$30,800 to outfit with this kind of ventilation.²⁶⁰ But it is difficult to imagine that any OSHA-imposed standard would require significant capital outlays by the NFL, at least not when compared to the substantial revenue in this 32-organization industrial sector.²⁶¹ Nevertheless, the NFL is a spectator sport, and the more profound question remains: how much would an OSHA standard affect the game, and what effect would the standard have on fan interest? One could imagine that a game with less risk, perhaps through less physicality, could result in either more or less fan interest, which would then result in more or less revenue to the NFL. Although OSHA routinely estimates through economic modeling the effect of price changes on consumer demand, we are not aware of any instance where OSHA has considered the effects one of its pending regulations might have on an industry's popularity and hence its revenue. Nevertheless, this potential effect could be an important factor in considering the economic feasibility of regulations that might affect the NFL.

Second, consider technological feasibility. As above, without knowing the specifics of a proposed OSHA NFL workplace standard, we cannot assess whether such a standard would be technologically feasible. As a preliminary matter, many changes OSHA might recommend do not implicate technology at all, such as reduced exposure through further restrictions on the amount of contact during practice (which, in fact, already exist in the CBA).²⁶² However, there are additional considerations relevant to technology's role in reducing the risks of playing in the NFL.

Concussions and their long-term sequelae are undoubtedly the largest health and safety concern in the NFL workplace. Not surprisingly then, considerable research attention has been focused on football helmets.²⁶³ Despite this work, there is a clear consensus that no helmet can prevent concussions or

260. PRELIMINARY ECONOMIC ANALYSIS FOR OCCUPATIONAL EXPOSURE TO CRYSTALLINE SILICA, U.S. DEP'T LABOR 894 tbl.A-2 (2013), https://www.osha.gov/silica/Silica_PEA.pdf.

261. It is conceivable that an OSHA standard could cause NFL clubs to expand their rosters and thus increase their labor costs, which are substantial. Nevertheless, we think such standards are particularly unlikely, as OSHA would be more likely to impose the type of standard discussed in Part V.

262. See 2011 NATIONAL FOOTBALL LEAGUE & NATIONAL FOOTBALL LEAGUE PLAYERS ASSOCIATION, COLLECTIVE BARGAINING AGREEMENT, art. 24 § 1 (2011) (limiting padded practices).

263. See 2015 NFL HEALTH & SAFETY REPORT, NATIONAL FOOTBALL LEAGUE 12–17 (2015), <http://static.nfl.com/static/content/public/photo/2015/08/05/0ap3000000506671.pdf> (discussing research projects supported by the NFL, including several concerning helmets).

eliminate the risk of serious brain injuries while playing football.²⁶⁴ Thus, although it is clear that any OSHA standard that sought to address concussions through the regulation of helmets or other equipment would be technologically feasible, it remains unclear whether such requirements would be “reasonably necessary and appropriate,”²⁶⁵ if they have little efficacy, or might even decrease safety by encouraging more reckless play.²⁶⁶

C. OSHA’s Regulatory Methods Applied to the NFL: The General Duty Clause

Section III.B analyzed whether the NFL workplace presents significant risk sufficient for OSHA to promulgate specific standards for the industry. In the absence of any such standards, OSHA currently can only regulate the on-the-field aspects of the NFL via alleged violations of the General Duty Clause. As discussed above,

[t]o establish a violation of the General Duty Clause, OSHA must establish that: (1) an activity or condition in the employer’s workplace presented a hazard to an employee, (2) either the employer or the industry recognized the condition or activity as a hazard, (3) the hazard was likely to cause, or actually caused, death or serious physical harm, and (4) a feasible means to eliminate or materially reduce the hazard existed.²⁶⁷

We examine each of these elements in turn.

First, OSHA could likely establish that there are activities in the NFL workplace that present hazards to NFL players. This element seems obvious. Based on the data discussed above, it is clear that playing professional football is associated with an increased risk of physical injury and illness.

Second, OSHA could likely establish that the NFL and NFL clubs recognize that there are activities in the NFL workplace that present hazards to NFL players. As discussed above, much of the data concerning NFL-player

264. See, e.g., Steven Rowson et al., *Can Helmet Design Reduce the Risk of Concussion in Football?*, 120 J. NEUROSURGERY 919, 921 (2014); Andrew Stuart McIntosh et al., *Sports Helmets Now and in the Future*, 45 BRIT. J. SPORTS MED. 1258, 1262 (2011); Rodolfo Navarro, *Protective Equipment and the Prevention of Concussion—What is the Evidence?*, 10 CURRENT SPORTS MED. REP. 27, 29 (2011).

265. *Supra* note 30.

266. Indeed, as discussed in other work by some of us:

Perhaps counterintuitively, there has been an ongoing debate about whether the best way to improve player health is for players to wear less equipment. Coaches, commentators and others have long lamented that the helmet and shoulder pads are often used as a weapon by would-be tacklers, offering the first and hardest blow to ball carriers. Although the NFL has recently increased the penalties for plays on which a player delivers a forcible blow with the top or crown of the helmet, the helmet arguably still provides players with a level of protection that enables them to play the game with a degree of reckless abandon.

DEUBERT, COHEN & LYNCH, *supra* note 9, at 365.

267. *SeaWorld of Florida, LLC v. Perez*, 748 F.3d 1202, 1207 (D.C. Cir. 2014).

injuries is from the NFL itself.²⁶⁸ Moreover, the NFL has explicitly and repeatedly acknowledged, especially recently, that there are risks associated with playing in the NFL.²⁶⁹

Third, the hazards associated with playing in the NFL are likely to cause—and have caused—serious physical harm.

Having easily established the first three elements of a General Duty Clause violation, the fourth element is much more challenging—is there a feasible means (economically and technologically) to eliminate or materially reduce the hazards associated with playing in the NFL? Breaking down that standard into its constituent elements, it seems clear that there is at least some means by which the NFL technically *could* do so, e.g., by prohibiting tackling and instead ruling a ball carrier down when touched by two hands of an opponent. But is this approach feasible? As we discussed earlier, the majority’s decision in the SeaWorld Case seems to establish that an abatement measure cannot be considered feasible under General Duty Clause enforcement if it would in fact change the essential nature of an entertainment business.²⁷⁰

Indeed, the SeaWorld Case seems to be the first to consider what it means for OSHA to change the essential nature of a business through General Duty Clause enforcement.²⁷¹ There is, however, some precedent in another context that may be relevant to the NFL. In *PGA TOUR, Inc. v. Martin*, the Supreme Court ruled that permitting a golfer who suffered from a degenerative circulatory disorder to ride in a cart during play—as opposed to walking as was required by the PGA TOUR—did not “fundamentally alter the nature” of the game as contemplated by the Americans with Disabilities Act (“ADA”).²⁷² In reaching its

268. See *supra* Subsection III.B.3.

269. The NFL acknowledges that [t]he sport of football presents risks to players. These risks include injury to the head, neck or spine; injury to the muscular or skeletal systems; injury to internal organs; fractures; physical violence; loss and/or damage to sight, teeth or hearing; paralysis; concussions and traumatic brain injury and all of their short – and/or long-term effects including without limitation brain damage, dementia, mood disorder, and/or cognitive impairment; short – and/or long-term disability; loss of income and/or career opportunities; serious injury; and/or death.

NATIONAL FOOTBALL LEAGUE, LEAGUE POLICIES FOR PLAYERS 36 (2012); see also 2015 NFL HEALTH & SAFETY REPORT, *supra* note 263, at 13–18 (2015) (discussing various NFL initiatives designed to better understand and decrease the risks associated with playing in the NFL).

270. See *supra* Section II.A.

271. While SeaWorld phrased the issue as whether the abatement measures changed the “trainer’s job,” the D.C. Circuit seemingly interpreted this to be the issue of whether the abatement measures changed “the essential nature of [SeaWorld’s] *business*.” *SeaWorld of Florida, LLC v. Perez*, 748 F.3d 1202, 1210 (D.C. Cir. 2014) (emphasis added). There is no doubt that OSHA can create standards that prohibit certain tasks done by employees and thus fundamentally change the nature of individual jobs. See 29 C.F.R. 1910.272(g)(1)(iv) (prohibiting “walking down grain” in grain handling facilities).

272. *PGA TOUR, Inc. v. Martin*, 532 U.S. 661, 690 (2001).

determination, the Supreme Court analyzed the rules, history, and nature of golf, as well as the purpose of the PGA TOUR's walking rule.²⁷³ *Martin* also includes a notable dissent from Justice Scalia, in which he argued that courts had no role in determining what aspects or rules were essential to a sport.²⁷⁴ While Circuit Judge Kavanaugh did not cite Justice Scalia's *Martin* dissent in his SeaWorld Case dissent, the line of reasoning is very similar.

Though it construed the ADA and not the OSH Act, we think *Martin* is the best illustration of how the analysis should go: a court would ask whether any remedy mandated in an action brought pursuant to the General Duty Clause changed the essential nature of the game of football any more than allowing Martin to ride in a golf cart changed the fundamental nature of the game of golf.

While we share a measure of Justice Scalia's skepticism that courts can evaluate the essential aspects of a sport, we think that there are workable ways of conducting the analysis. The first mode is to reason by historical analogy: between the NFL's merger with the American Football League (in 1970) and 2016, the NFL made 77 changes to the Playing Rules that were largely focused on better protecting the health of players.²⁷⁵ The changes include restricting "crackback" blocks (1974, 1977, 1979, 2012), restricting and finally eliminating "chop" blocks (1979, 1980, 1981, 1983, 1986, 1992, 1996, 2002, 2016), prohibiting certain types of hits on the quarterback (1989, 1995, 2002, 2006, 2010, 2014), and moving the kickoff line from the 30- to the 35-yard line (2011).²⁷⁶

While many players, fans, and commentators have complained that recent changes designed to limit contact between players have changed the game too much²⁷⁷—i.e., have made the game "soft,"²⁷⁸—most people would likely agree that these changes were not so extreme as to render the game unrecognizable. These rule changes thus provide guideposts as to changes that certainly altered the game without necessarily disrupting its "essential nature." If OSHA were to impose changes of similar magnitude, it would have a solid argument that it had left the essential nature unchanged.

This is not to say that there are not difficult judgment calls required by a historical analogical approach—how would one assess whether a change to

273. *Id.* at 682–90.

274. *Id.* at 699–704.

275. DEUBERT, COHEN & LYNCH, *supra* note 9, at App. I.

276. *Id.* Of note, the NFL's decision to move the kickoff line came at the recommendation of Kevin Guskiewicz, a University of North Carolina researcher and concussion expert. See FAINARU-WADA & FAINARU, *supra* note 227, at 344.

277. See, e.g., Mike Florio, *On Concussions, Players and Fans Can't Have It Both Ways*, NBCSPORTS: PROFOOTBALLTALK (May 6, 2012, 10:15 AM), <http://profootballtalk.nbcsports.com/2012/05/06/on-concussions-players-and-fans-cant-have-it-both-ways/> [http://perma.cc/9KRW-TJGA].

278. Gregg Rosenthal, *Woodley Upset That Football is "Turning Soft"*, NBCSPORTS: PROFOOTBALLTALK (May 25, 2011, 4:32 PM), <http://profootballtalk.nbcsports.com/2011/05/25/woodley-upset-that-football-is-turning-soft/> [http://perma.cc/2722-L2ZX].

passing rules was more or less essential than moving the kickoff yard line five yards?

For this reason, we imagine a court faced with such a problem would also rely on a second mode of analysis that is more sociological. What kind of change is so transformative as to alter the game beyond recognition as understood by a society? Such an approach would look to expert testimony of not only the views of those *inside* the practice—players, referees, coaches, the NFL, and NFLPA, for example—but also those outside the practice who study it—sports historians, sociologists, and potentially fans.

One might initially react that such an approach is unworkable, but in fact we find analogies in other areas of law. The disability-law context in *Martin* is the clearest example. A slightly more remote, though more common, analogy relates to copyright law. We routinely ask juries to determine whether a use of copyrighted material has been transformative enough to constitute fair use. Generally, a transformative work is one that has taken a prior work and adds a “new expression, meaning, or message.”²⁷⁹ We believe the question under OSHA law, teed up by the SeaWorld Case but not yet developed into a coherent body of jurisprudence, could chart a similar course.

To be sure, this kind of analysis would not be clear in every case. Rather, we imagine a spectrum of cases, some of which would be easy to resolve and others being much more difficult: on one end of the spectrum, prohibiting tackling would clearly seem to change the essential nature of football. If one considers the history of the sport, the physical attributes of those who play it, and our nomenclature to distinguish professional football from “touch” or “flag” football, this strikes us as an easy case. Applying the reasoning of the SeaWorld Case, if OSHA were to impose a General Duty Clause remedy that eliminated tackling, that would exceed its regulatory authority.

On the other end of the spectrum, restricting the use of certain blocks seemingly does not change the essential nature of football (as the NFL has already done). Thus, there are likely additional restrictions on blocking that OSHA could impose and that would be within its General Duty Clause authority.

In between, however, there is a large area where OSHA’s authority would be unclear. The kickoff provides a useful example of the complexities in this penumbral area. Data have shown that there are more injuries on the kickoff return than any other type of play.²⁸⁰ Consequently, the NFL has taken steps to reduce the number of kickoff returns. First, in 2011, the NFL moved the kickoff from the kicking team’s 30-yard line to its 35-yard line.²⁸¹ As a result, the team kicking off can now more easily kick the ball into or past the receiving team’s end zone. This prevents the receiving team from attempting a kickoff return and instead

279. Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 579 (1994).

280. FAINARU-WADA & FAINARU, *supra* note 227, at 344.

281. *NFL Moves Kickoffs to 35-Yard Line; Touchbacks Unchanged*, NFL (Mar. 22, 2011, 1:23 PM), <http://www.nfl.com/news/story/09000d5d81ee38c1/article/nfl-moves-kickoffs-to-35yard-line-touchbacks-unchanged>.

automatically gives it the ball at its 20-yard line (a “touchback”). In the hopes of getting the team the ball beyond its 20-yard line, some kickoff returners nevertheless opted to try and return the ball from their own end zone (rather than taking a touchback), resulting in the types of collisions and tackles that can be concerning. To discourage kickoff returners from taking this gamble, in 2016, the NFL moved the touchback yard line to the 25-yard line.²⁸² Thus, now if a kickoff returner wants to return a kickoff that was kicked into his end zone, he is gambling that he can get to the 25-yard line before being tackled (as opposed to only the 20-yard line under the old rule). Nevertheless, data from the 2017 season suggested the rule had backfired—and actually increased the number of kickoff returns.²⁸³

These rule changes raise the question of whether the NFL might eliminate the kickoff altogether, as has been raised in media covering the NFL²⁸⁴ and was in fact done in Pop Warner youth leagues in 2016.²⁸⁵ If the NFL was to eliminate the kickoff, some might believe that the essential nature of the game has been changed. Most notably, kickoff returners and the players who play on kickoffs might think so. Indeed, after Pop Warner eliminated kickoffs, Devin Hester, one of the best kickoff returners in NFL history, stated that he disagreed with the decision.²⁸⁶ Weeks later, Matthew Slater, a Pro Bowl special teams player, explained why he thought removing the kickoff was not consistent with “the history of football.”²⁸⁷ While kickoff returners and special teams players typically also play other positions, there are many who make and maintain their NFL career

282. Michael David Smith, *League Officials Admit Touchback Rule May Have Unintended Consequences*, NBCSPORTS: PROFOOTBALLTALK (Mar. 23, 2016, 11:59 AM), <http://profootballtalk.nbcsports.com/2016/03/23/league-officials-admit-touchback-rule-may-have-unintended-consequences/> [https://perma.cc/ML5T-2XBQ].

283. Teams intentionally kicked the ball short of the end zone, believing they could tackle the kick returner before he reached the 25-yard line. See Jonathan Jones, *Why NFL Playoff Teams Need to Kneel for the Touchback Whenever Possible*, SPORTS ILLUSTRATED (Jan. 5, 2017), <https://www.si.com/nfl/2017/01/06/nfl-playoffs-2017-touchback-rule-change-impact>.

284. Josh Alper, *John Mara: NFL “Could Very Well” Eliminate the Kickoff*, NBCSPORTS: PROFOOTBALLTALK (Apr. 20, 2016, 8:20 AM), <http://profootballtalk.nbcsports.com/2016/04/20/john-mara-nfl-could-very-well-eliminate-the-kickoff/> [https://perma.cc/2X7A-3UQT].

285. Ken Belson, *Pop Warner Bans Kickoffs in Hopes of Protecting Its Youngest Players*, N.Y. TIMES (May 12, 2016), <http://www.nytimes.com/2016/05/13/sports/football/pop-warner-bans-kickoffs-concussions-nfl.html> [https://perma.cc/U52D-GBRK].

286. Michael David Smith, *Devin Hester Worries About the Future of the Kickoff*, NBCSPORTS: PROFOOTBALLTALK (May 14, 2016, 6:30 AM), <http://profootballtalk.nbcsports.com/2016/05/14/devin-hester-worries-about-the-future-of-the-kickoff/> [https://perma.cc/KP5T-K7AP].

287. Mike Florio, *Matthew Slater Fears the Demise of the Kickoff*, NBCSPORTS: PROFOOTBALLTALK (June 2, 2016, 3:52 PM), <http://profootballtalk.nbcsports.com/2016/06/02/matthew-slater-fears-the-demise-of-the-kickoff/> [https://perma.cc/8DZ7-2FJ2].

through the kickoff and eliminating it would put some players out of a job, a fact both Hester and Slater noted.²⁸⁸

The kickoff is a good example of how any attempt to regulate in this area would likely bring on hard-fought litigation challenges, fascinating battles of the experts, and an uncertain outcome.

D. Conflict with Other Federal Law

In Section I.G, we identified specific workplaces where health and safety-related matters are the jurisdiction of federal agencies other than OSHA. Unlike those workplaces, there are no existing federal regulatory schemes that are specific to the NFL. Nevertheless, the NFL is of course subject to all generally applicable federal laws (absent explicit exemption),²⁸⁹ including, most importantly for our purposes here, labor law. Specifically, the NLRA, cited above, obligates employers (e.g., NFL clubs) and unions (e.g., the NFLPA) to collectively bargain “in good faith with respect to wages, hours, and other terms and conditions of employment.”²⁹⁰

While the NLRA does not displace OSHA’s jurisdiction, it does govern the processes through which most NFL workplace issues are currently resolved. Since 1968, the NFL and NFLPA have negotiated ten CBAs. The most recent CBA (executed in 2011) is 301 pages long and governs nearly every aspect of the NFL. Thus, generally speaking, the parties have resolved most issues concerning player health and safety via the collective bargaining process—as opposed to federal regulation such as OSHA.

OSHA can act even where there is a CBA, as it has done throughout its history.²⁹¹ Can does not imply ought, though, and it is possible OSHA is not the most appropriate governmental agency for addressing these issues, as we discuss below.

E. Relationship with State Law

In Section I.H, we discussed the interaction between the federal OSH Act and state law. Specifically, we discussed that the OSH Act permits states to administer their own employment safety programs, if they are “at least as effective” as the federal OSH Act in providing safe worksites and conditions.²⁹² Here, we discuss the latter further, even though state OSHA authority is not the focus of our analysis considering the national nature of the NFL.

288. Smith, *supra* note 286; Florio, *supra* note 287.

289. For example, the Sports Broadcasting Act of 1961 exempted NFL clubs (and clubs in MLB, the NBA, and NHL) from antitrust laws when the clubs engage in the collective sale of television broadcast rights. 15 U.S.C. § 1291 (2012).

290. 29 U.S.C. § 158(d) (2012).

291. Indeed, OSHA regulations generally supersede weaker protections negotiated in a CBA, under the principle that employees should not be able to bargain away rights provided by OSHA. See NICHOLAS A. ASHFORD & CHARLES C. CALDART, TECHNOLOGY, LAW, AND THE WORKING ENVIRONMENT 181 (Revised ed., 1996).

292. 29 U.S.C. § 667(c)(2) (2012).

There is one prominent example of a state OSHA program involving itself in the NFL workplace. During training camp in 2001, Minnesota Vikings offensive lineman Korey Stringer died from heat stroke. Minnesota's OSHA investigated,²⁹³ as both Minnesota's OSH Act and the federal OSH Act require investigations into employee deaths.²⁹⁴ Minnesota OSHA interviewed and evaluated the coaching and training staffs and eventually found no violation.²⁹⁵ Minnesota OSHA found that the Vikings' use of safety precautions to prevent, recognize, and treat heat-related illnesses were extensive.²⁹⁶

Of the states that have created their own OSHA programs, California, recognizing that it has the capability to "address hazards not covered by Federal OSHA,"²⁹⁷ has one unique standard that might apply to the four NFL clubs currently based in the state. California has promulgated standards for repetitive motion injuries ("RMIs"),²⁹⁸ which might arguably apply to the NFL workplace.

To close this Part, it is important to remember that state OSAs can set workplace standards that are more stringent than the federal OSHA standards and that the NFL must still comply. As a result, one state OSHA's regulatory program could cause significant problems for the NFL if it were to approach player health issues aggressively. The NFL would have to comply with the state OSHA's regulations, even if it resulted in disjointed regulations and operations across the country.²⁹⁹

In this Part, we apply the basics of the OSH Act to the NFL to establish the following: (1) OSHA has jurisdiction over the NFL workplace; (2) OSHA likely can establish that there are significant risks of harm from playing in the NFL and that there are feasible methods for abating those risks sufficient for OSHA to

293. See Matthew Heimlich, *Does OSHA Have a Role in Giving Professional Athletes a Safe Work Environment?*, SPORTS L. 101 (May 22, 2013, 9:48 AM) [<https://perma.cc/G8KM-SYFU>].

294. See Tim Yotter, *OSHA Clears Vikings*, VIKINGUPDATE (Nov. 1, 2001), <http://min.scout.com/story/23258-osha-clears-vikings> [<https://perma.cc/BH3Y-57ZN>].

295. See *id.*

296. Timothy Patrick Hayden, *Can Summer Training Camp Practices Land NFL Head Coaches in Hot Water?*, 20 MARQ. SPORTS L. REV. 441, 456 (2010). Interestingly, in 2011, OSHA developed a smartphone app that helped users calculate their worksite heat index and provided descriptions of appropriate protective measures. See *Heat Safety Tool*, U.S. DEP'T LABOR, https://www.osha.gov/SLTC/heatillness/heat_index/heat_app.html (last visited Feb. 25, 2018). The app was well-received by the NFLPA and NFL players. See *OSHA Quick Takes*, U.S. DEP'T LABOR (Sept. 1, 2011), <https://www.osha.gov/as/opa/quicktakes/qt09012011.html#10>.

297. *California State Plan*, U.S. DEP'T LABOR, <https://www.osha.gov/dcspp/osp/stateprogs/california.html> (last visited Feb. 25, 2018).

298. *Id.* For more information on RMIs, see *Ergonomics*, U.S. DEP'T LABOR, <https://www.osha.gov/SLTC/ergonomics/> (last visited Feb. 25, 2018). For more on California's ergonomics standard, see CAL. CODE REGS. tit. 8, § 5110 (2018).

299. See text at note 373 *infra* for further discussion of the influence of state regulatory initiatives on national industries.

set standards relevant to the NFL; (3) determining whether OSHA could find that the NFL has violated the General Duty Clause is challenging, in light of the necessary discussion concerning whether any proposed abatement measures would affect the fundamental nature of football; (4) while there are other federal statutes relevant to the NFL workplace, none of them displace OSHA's authority; and (5) while state law can play, and occasionally has played, a role in regulating the NFL workplace, it would likely be less effective than if the federal OSHA were to take action.

In Part IV we explain why OSHA might be reluctant to regulate the NFL, despite its authority to do so.

IV. FROM POWER TO POLITICS: OSHA'S RELUCTANCE TO REGULATE THE NFL

The preceding Parts establish that OSHA, were it so inclined, likely has the power to treat the NFL as a workplace and regulate on-the-field behavior to protect the health and safety of NFL players. But in this Part, we examine the political and other realities that we believe make OSHA reluctant to act in this way. There are three principal reasons why we believe OSHA is and will remain reluctant to engage in this context.

First, OSHA has significant resource constraints and competing priorities. The Agency had 32 regulatory actions listed on its Spring 2016 Regulatory Agenda,³⁰⁰ but OSHA has only finalized three health standards and seven safety standards since 2000.³⁰¹ Thus, OSHA's current agenda may already represent several decades of work for this relatively small agency.³⁰² Moreover, OSHA may consider regulating a spectator sport involving about 2,000–3,000 workers who are comparably well-compensated and represented by a powerful union as less important, both in terms of the number of employees at risk and the public perception of urgency, as compared to other items it is struggling to move through its regulatory agenda.

Second, OSHA is likely concerned about the response from Congress should it try to regulate the NFL. As evidenced by Judge Kavanaugh's dissent in the *SeaWorld* Case, potential regulation of the NFL—a popular private enterprise—by a government agency raises political concerns. OSHA is a relatively small federal agency and would thus likely be concerned about Congress attempting to further curtail its funding or activities as a result of OSHA taking

300. See *Spring 2016 Unified Agenda*, U.S. DEP'T LABOR, <https://www.osha.gov/laws-regs/unifiedagenda/spring-2016-unified-agenda> (last visited Apr. 12, 2018).

301. AFL-CIO, *DEATH ON THE JOB: THE TOLL OF NEGLECT* 106–08 (26th ed. Apr. 2017), <https://aflcio.org/sites/default/files/2017-04/2017Death-on-the-Job.pdf>.

302. For FY 2016, OSHA's budget was \$552.8 million and it had 2,173 full-time equivalent ("FTE") workers. *Id.* at 111. By comparison, the U.S. Environmental Protection Agency ("EPA") had a budget of \$8.14 billion and 14,799 FTE. U.S. ENVTL. PROTECTION AGENCY, <https://www.epa.gov/planandbudget/budget> (last updated Aug. 29, 2017).

politically unpopular actions.³⁰³ For example, since 1976, OSHA's annual budget has contained a rider prohibiting it from deploying inspectors to farms with ten or fewer employees, even if there is a complaint or accident.³⁰⁴ Furthermore, efforts to regulate the NFL may frustrate OSHA's relatively few supporters in Congress who are impatient with its slow progress on issues they consider more pressing.

OSHA fears of congressional backlash are not without predicates. In 2000, OSHA adopted a new ergonomics standard to reduce musculoskeletal disorders developed by workers whose jobs involve repetitive motions, force, awkward postures, contact stress, and vibration.³⁰⁵ In 2001, Congress passed a joint resolution pursuant to the Congressional Review Act ("CRA") to repeal the new ergonomics rule.³⁰⁶ The joint resolution does not permit OSHA to issue a new ergonomics rule that is substantially similar to the one that was repealed, although there is much debate about what *substantially similar* means.³⁰⁷ As a result, it is unclear to what extent OSHA can ever attempt to regulate ergonomic injuries in the workplace.³⁰⁸

Another good example is the controversy that ensued over a 1999 OSHA Letter of Interpretation to a credit-services company in Houston, answering the employer's questions by stating that when employers send workers home to perform their daily duties there, OSHA expects the employer to consider whether there are reasonably foreseeable hazards at the workers' homes.³⁰⁹ When the National Association of Manufacturers brought the letter to Congressional attention, a furor erupted and the Assistant Secretary of Labor had to appear in front of a Senate committee to pledge that OSHA would not inspect any private homes or home offices or hold employers liable for hazards in homes. This ceded

303. See, e.g., Sara Goodman, *Conservatives Raise Questions About OSHA Pick*, E&E DAILY (Sept. 24, 2009), https://www.eenews.net/special_reports/transition/stories/82598 [<https://perma.cc/PZ3E-296C>] (discussing how concerns were raised about nominee David Michaels's previous academic writings on the possible role of OSHA in promoting gun control in the workplace); see CURTIS W. COPELAND, CONG. RES. SERV., RL34354, CONGRESSIONAL INFLUENCE ON RULEMAKING AND REGULATION THROUGH APPROPRIATIONS RESTRICTIONS (Aug. 5, 2008).

304. See Peggy Kirk Hall, *OSHA Issues New Guidance on the Small Farm Exemption*, FARM OFFICE, OHIO STATE UNIV. (Aug. 1, 2014), <https://farmoffice.osu.edu/blog-tags/osha-authority> [<https://perma.cc/L8LM-UHKF>].

305. Anna Elento-Sneed et al., *OSHA's New Ergonomic Standard*, 5 No. 7 Pac. Emp. L. Letter 5, 5 (2001).

306. Adam M. Finkel & Jason W. Sullivan, *A Cost-Benefit Interpretation of the "Substantially Similar" Hurdle in the Congressional Review Act: Can OSHA Ever Utter the E-Word (Ergonomics) Again?*, 63 ADMIN. L. REV. 707, 726–27 (2011).

307. See *id.* at 723, 730–33.

308. Julie A. Parks, *Lessons in Politics: Initial Use of the Congressional Review Act*, 55 ADMIN. L. REV. 187, 200 (2003).

309. Letter from Richard E. Fairfax, Dir., OSHA Directorate of Compliance Programs, to T. Trahan, CSC Credit Servs. (Nov. 15, 1999), https://www.osha.gov/as/opa/foia/hot_4.html.

OSHA's authority to inspect truly hazardous home environments,³¹⁰ such as when employers in electronics manufacture hire workers to do "piece work" out of their homes and require them to solder with lead in environments that may not be adequately ventilated.³¹¹

Both examples strongly suggest that when OSHA "touches a nerve," it risks doing itself—and its mission—even more harm than if it had remained silent. OSHA officials may worry that by venturing close to the third-rail issue of football, the agency might come away with even less ability to help other workers in the entertainment sector or even in completely unrelated areas.

All that said, the political winds on professional football are changing and its future is hard to predict. As discussed above, Congress has recently held hearings concerning concussions, and the NFL would surely like to avoid having to participate in future hearings.³¹² Would a future Congress likely view an OSHA foray into football as a welcome initiative in line with its own agenda, or as interloping by an overzealous agency? As the adage goes, "Congress is a they, not an it,"³¹³ and individual House and Senate members are likely to diverge in reactions to such a move. Overall, though, we suspect that left to its own devices, OSHA is very unlikely to use its regulatory authority to regulate football. The results of our FOIA requests instead show an agency that has sought to disclaim or hedge on its jurisdiction over this area rather than charge ahead.³¹⁴

These first two concerns could be alleviated if Congress were to affirmatively empower OSHA with the necessary resources and approvals needed to regulate the NFL workplace. Nevertheless, a final concern of OSHA's would persist: OSHA is likely reluctant to regulate the NFL due to a lack of expertise.³¹⁵ OSHA seldom undertakes regulatory action without several permanent staff on hand who have specific expertise in the technical issues involved. It is our understanding, informed in particular by the experience of one of us who served as OSHA's Director of Health Standards Programs (Finkel), that none of its current staff has the expertise in sports or sports medicine that would be necessary to

310. See OSHA's Assistant Secretary Clarifies Agency Policy Concerning Home Inspections: Hearing Before the Subcomm. on Emp't, Safety, and Training of the S. Comm. on Health, Educ., Labor & Pensions, 106th Cong. (2000) (statement of Charles Jeffress, Assistant Secretary, OSHA).

311. Miranda Ewell & K. Oan-Ha, *Why Piecework Won't Go Away: The Practice Helped Fuel Growth and Solelectron and Others Imitated It*, SAN JOSE MERCURY NEWS, June 28, 1999, at 1A.

312. A 2016 inquiry by Congressional staffers resulted in a report critical of the NFL's research relationship with the National Institutes of Health. DEMOCRATIC STAFF OF H. COMM. ON ENERGY & COMMERCE, 114TH CONG., REP. ON THE NATIONAL FOOTBALL LEAGUE'S ATTEMPT TO INFLUENCE FUNDING DECISIONS AT THE NATIONAL INSTITUTES OF HEALTH (May 2016).

313. Kenneth A. Shepsle, *Congress is a "They," Not an "It": Legislative Intent as Oxymoron*, 12 INT'L R. L. & ECON. 239 (1992).

314. See *supra* Section III.A.

315. See Rodney K. Smith, *Solving the Concussion Problem and Saving Professional Football*, 35 T. JEFFERSON L. REV. 127, 171–72 (2013).

effectively regulate in this area. While OSHA could always hire experts in these areas, it currently lacks some of the expertise needed to regulate the NFL.

In sum, contrary to OSHA's apparent conclusions we saw in our FOIA request materials, as discussed in Section III.A, OSHA *does* have the authority to regulate the NFL as a workplace. Such regulation could substantially impact the health and safety of NFL players. Nevertheless, the current constellation of politics, a poorly resourced agency, its lack of current expertise, and its backlog of expressed priorities for other industries it wishes to consider regulating, together make it very unlikely that, absent congressional prodding, OSHA will take up the regulation of the NFL as a workplace any time soon.

V. BEYOND TRADITIONAL OSHA REGULATION: A SPECTRUM OF GOVERNANCE OPTIONS

Modern regulatory agencies, encouraged by the regulated community and by many scholars, have a large and growing set of tools to help fulfill their public missions.³¹⁶ These tools are often dichotomized either as traditional command-and-control regulation or as any of various “soft law” governance options.³¹⁷ We see this line not as a sharp one, however, so here we present ideas for governmental intervention in the NFL workplace as part of a natural continuum of options.

We noted above that mandatory OSHA controls on the conduct or rules of football are unlikely, although the obstacles are largely political rather than legal or scientific. Many less intrusive or ambitious options are thus more likely to bear fruit. But each of these has its own hurdles to overcome and is possibly less effective in reducing the incidence of football-related impairment of health than outright regulation might be. In this Part, we set forth four broad categories of possible OSHA interventions to reduce the hazards of playing in the NFL. The options are listed in the order we believe reflects their likelihood of fruition, beginning with the most feasible. Each of the four options—information and guidance, public–private partnership, General Duty Clause enforcement, and standard setting—has pros and cons irrespective of its political feasibility.

At the outset, many of these options require the NFL or NFL clubs to voluntarily engage with OSHA concerning NFL player health and safety. We consider this an unlikely occurrence that mitigates against at least those governance options below that envision voluntary participation. As a general matter, based on prior experience, it seems likely that the NFL and NFLPA would prefer to negotiate and resolve issues concerning the NFL workplace between themselves, both to avoid public scrutiny and potential litigation.

316. See, e.g., Cary Coglianese & Jennifer Nash, *Motivating Without Mandates? The Role of Voluntary Programs in Environmental Governance*, in DECISION MAKING IN ENVIRONMENTAL LAW (Michael Faure et al. eds., 2016); see also INNOVATIVE GOVERNANCE MODELS FOR EMERGING TECHNOLOGIES (Gary E. Marchant et al. eds., 2013).

317. Jon Birger Skjaerseth, Olav Schram Stokke & Jorgen Wettestad, *Soft Law, Hard Law, and Effective Implementation of International Environmental Norms*, 6 GLOBAL ENVTL. POL. 104, 104 (2006).

Indeed, there was a time that a governmental entity had oversight over the NFL workplace, which helps demonstrate the unlikelihood of voluntarily engaging OSHA. Between 1993 and 2011, Judge David Doty of the U.S. District Court for the District of Minnesota had oversight of the NFL–NFLPA CBA as a result of litigation.³¹⁸ In 2008, the NFL unsuccessfully moved for Judge Doty to recuse himself from a particular case because of an alleged bias.³¹⁹ Then, when the 2011 CBA was agreed upon, again as part of the settlement of litigation, the court did not retain jurisdiction over any part of the new CBA.³²⁰ While this example concerned judicial oversight rather than partnership with an executive agency, this history suggests that—at least at this point in time—the NFL would presumably be unlikely to voluntarily engage another governmental entity such as OSHA to oversee its affairs.

On the other hand, it is possible that the NFL could see value in affirmatively engaging OSHA. By proactively engaging OSHA, the NFL could remove the specter of uncertainty concerning OSHA regulation, assist OSHA in crafting regulatory policies more favorable to or conscientious of the NFL, and enhance the NFL’s legal defenses when someone challenges the NFL’s efforts concerning player health and safety.

A. Information and Guidance (Dissemination)

Empowering workers with more of the information necessary to make choices in light of the probability and severity of harm—and of the costs of mitigating or adapting to risk—can often improve outcomes without directly restraining the risk-imposing activities themselves.³²¹ Alternatively or in addition, regulatory agencies can direct information to the regulated entities, providing advice on how to reduce risks without imposing mandatory controls. With respect to occupational health and safety in the NFL, OSHA (on its own or with the participation of one or more other agencies) could “nudge” or inform in several ways:

- OSHA, on its own or in conjunction with NIOSH, could develop a targeted bulletin identifying risks associated with the NFL workplace. The bulletin could cover a single occupational hazard in the NFL, such as concussions,³²² or serve as a more comprehensive guide to identifying various injury and illness risks in football and offering feasible steps NFL clubs and players could take to avoid or mitigate them. OSHA has produced nearly 400 bulletins on various

318. See Deubert, Wong & Howe, *supra* note 258, at 67–70.

319. *White v. Nat’l Football League*, 585 F.3d 1129, 1133 (8th Cir. 2009).

320. Deubert, Wong & Howe, *supra* note 258, at 32–36.

321. See RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* (2008); see also Tom Tietenberg, *Disclosure Strategies for Pollution Control*, 11 ENVTL. & RESOURCE ECON. 587–602 (1998).

322. In fact, the NFLPA, in partnership with the American Academy of Neurology, provides players with a pamphlet concerning the risks of concussions. See DEUBERT, COHEN & LYNCH, *supra* note 9, at 225.

topics over the years.³²³ With respect to the NFL, OSHA or NIOSH could, for example, collate, evaluate, and summarize evidence on the causes and risk factors for particular musculoskeletal injuries or CTE, or suggest work practices that might reduce these risks.³²⁴ Indeed, OSHA has already disseminated information relevant to the NFL workplace.³²⁵

- NIOSH could continue its research into injury and illness in the NFL, as discussed earlier in Section III.B. In addition, it could perform a Health Hazard Evaluation (“HHE”) of an NFL workplace. In an HHE, NIOSH “conducts studies of workplaces in response [to employer or employee requests]. . . to learn if workers are exposed to hazardous materials or harmful conditions.”³²⁶ Since 1970, NIOSH has conducted more than 3,500 HHEs, and the findings have often resulted in peer-reviewed articles documenting the risk factors and the effectiveness of engineering controls or medical surveillance.³²⁷
- OSHA, similar to NIOSH’s HHEs, could advise NFL clubs through its “On-Site Consultation Program.”³²⁸ In partnership with OSHA, “[c]onsultants from state agencies or universities work with employers to identify workplace hazards, provide advice on compliance with OSHA standards, and assist in establishing injury and illness prevention programs.”³²⁹ The program’s services and

323. For a webpage providing links to nearly 270 such bulletins OSHA has produced in the past 10 years, see *OSHA Publications By Type*, U.S. DEP’T LABOR, <https://www.osha.gov/pls/publications/publication.AthruZ?pType=Types> (last visited Feb. 25, 2018). For a list of 130 additional bulletins OSHA issued in the 1980–2005 period, see *Safety and Health Information Bulletins*, U.S. DEP’T LABOR, <https://www.osha.gov/pls/publications/publication.athruz?pType=Types&pID=10352> (last visited Feb. 24, 2018).

324. See, e.g., Erik E. Swartz et al., *Early Results of a Helmetless-Tackling Intervention to Decrease Head Impacts in Football Players*, 50 J. ATHLETIC TRAINING 1219, 1221 (2015) (reporting on brief training drills that apparently reduced the instinct to “spear” or otherwise put the head at risk while tackling during game play).

325. See *supra* note 296.

326. *NIOSH Health Hazard Evaluation Program*, U.S. DEP’T LABOR, https://www.osha.gov/dcsdp/compliance_assistance/hhe_program.html (last visited Feb. 25, 2018).

327. See, e.g., Tania Carreón et al., *Bladder Cancer Incidence Among Workers Exposed to o-Toluidine, Aniline, and Nitrobenzene at a Rubber Chemical Manufacturing Plant*, 71 OCCUPATIONAL & ENVTL MED. 175–82 (2013). This study arose following a 1989 NIOSH HHE at the subject establishment.

328. For general information about this program, see *On-Site Consultation*, U.S. DEP’T LABOR, <https://www.osha.gov/dcsdp/smallbusiness/consult.html> and *What Is the Consultation Program?*, U.S. DEP’T LABOR, https://www.osha.gov/Publications/consultation_kit/Prog_Ins.pdf for a guide to employers considering requesting a consultation visit.

329. *On-Site Consultation*, U.S. DEP’T LABOR, <https://www.osha.gov/dcsdp/smallbusiness/consult.html> (last visited on Feb. 25, 2018).

findings are confidential, i.e., the consultants do not report any findings to OSHA and thus no citations or other enforcement action can follow from an employer's request for assistance.³³⁰ However, the program is only available to employers who request it,³³¹ an unlikely event in the NFL workplace.

- Lastly, OSHA could issue a guidance document spelling out what it believes constitutes an NFL club's general duty to maintain a safe and healthful workplace. OSHA has published roughly 50 "guidance documents" that seek to offer methods to comply with OSHA standards or describe the General Duty obligation.³³² Nevertheless, in recent years political pressure has reduced the use of agency guidance documents, as some have expressed concern about "using the guidance process to engage in rule-making."³³³

B. Recognition Program, Alliance, or "Enforceable Partnership" (Cooperation)

OSHA has a long history of seeking cooperative relationships with single establishments, individual corporations with multiple worksites, trade associations representing portions of an industry sector, or entire sectors.³³⁴ In addition to being less adversarial and bureaucratic than centralized regulation, public-private partnerships can enable parties to take beneficial steps that go beyond requirements either could legally or politically impose on the other. A consensual arrangement between OSHA and the NFL and NFLPA might accelerate progress they are already making, or could spur discussions of new ways to make the NFL a safer workplace without unduly affecting the sport or its operations.

We present four possible options for OSHA to engage in a cooperative arrangement with the NFL and NFLPA, in decreasing order of likelihood:

- OSHA and the NFL or NFLPA could form an Alliance. OSHA's Alliance Program works with employers and employees to promote "worker safety and health to prevent workplace fatalities, injuries, and illnesses."³³⁵ The Alliance Program does not expect any particular improvement in the ally's safety and health record, but Alliance members are expected to actively share expertise with OSHA and provide a forum for employers and workers to

330. *Id.*

331. *See id.*

332. *See Guidance Documents*, U.S. DEP'T LABOR, <https://www.osha.gov/pls/publications/publication.athruz?pType=Types&pID=3> (last visited Feb. 25, 2018).

333. *See Final Bulletin for Agency Good Guidance Practices*, 72 Fed. Reg. 3432 (Jan. 25, 2007); *see also* Paul Monies, *Transcript: Scott Pruitt Addresses EPA Employees*, NEWSOK: POWER PLAY ENERGY BLOG (Feb. 21, 2017, 3:39 PM), <http://newsok.com/article/5538883>.

334. *See* Orly Lobel, *Interlocking Regulatory and Industrial Relations: The Governance of Worker Safety*, 57 ADMIN. L. REV. 1071, 1108–15 (2005).

335. *See Alliance: An OSHA Cooperative Program*, U.S. DEP'T LABOR, <https://www.osha.gov/dcspl/alliances/index.html> (last visited Feb. 25, 2018).

cooperatively resolve safety and health issues.³³⁶ Currently, OSHA has 29 Alliances, mostly with trade associations.³³⁷

- OSHA could seek to enroll NFL clubs in its “Voluntary Protection Program” (“VPP”). Through the VPP, “management, labor, and OSHA work cooperatively and proactively to prevent fatalities, injuries, and illnesses through a system focused on: hazard prevention and control; worksite analysis; training; and management commitment and worker involvement.”³³⁸ Although enrollment in the VPP requires a successful application and a rigorous on-site audit, membership does not require continuous improvement; rather, it recognizes current excellence and the benefits to society of having “a corps of ambassadors enthusiastically spreading the message of safety and health system management.”³³⁹ Employers accepted into the program benefit further by becoming exempt from targeted OSHA inspections, although OSHA will still inspect in response to an employee complaint or a fatal accident.³⁴⁰ The program, begun in 1982, has recognized more than 2,200 worksites for “exemplary achievement in the prevention and control of occupational safety and health hazards.”³⁴¹ However, individual clubs may be unlikely to seek out such recognition at risk of embarrassing other clubs that have not sought or cannot obtain such recognition.
- The NFL—or more likely the NFLPA—could invite OSHA or NIOSH to review the CBA and other health and safety policies and protocols. To the extent any CBA provision or other player health policy or protocol could be considered in violation of existing OSHA standards or employer responsibilities under the General Duty Clause, the OSH Act and OSHA regulations control.³⁴² However, any

336. See *The OSHA Alliance Program*, U.S. DEP’T LABOR, <https://www.osha.gov/dcspp/alliances/whatis.html> (last visited Feb. 25, 2018).

337. A list of active OSHA alliances is available at *OSHA National Alliances*, U.S. DEP’T LABOR, https://www.osha.gov/dcspp/alliances/national_alliances.html (last visited Feb. 25, 2018).

338. See *Voluntary Protection Programs*, U.S. DEP’T LABOR, <https://www.osha.gov/dcspp/vpp/> (last visited Feb. 25, 2018).

339. See *All About VPP*, U.S. DEP’T LABOR, https://www.osha.gov/dcspp/vpp/all_about_vpp.html (last visited Apr. 11, 2018).

340. *Voluntary Protection Program Creates Preferred Exemption, Could be Permanent*, SRP ENVTL. (June 22, 2016), www.srpenvironmental.com/voluntary-protection-program-creates-preferred-exemption-could-be-permanent/.

341. For a current list of all VPP sites, see *Current Federal and State-Plan Cites*, U.S. DEP’T LABOR (Nov. 30, 2017), <https://www.osha.gov/dcspp/vpp/sitebystate.html>.

342. In the context of Cal-OSHA and a CBA, one federal court stated that “[b]ased upon the plain language of the statute and the legislative purpose underlying the workplace safety regulations, the Court finds that the state has shown an intent not to allow the Health and Safety regulations to be altered or removed by private contract.” *Lee v. Ardagh Glass, Inc.*, 14-cv-0759, 2015 WL 251858, at *9 (E.D. Cal. Jan. 20, 2015).

public-private discussions that went beyond clarifying the propriety of existing policies might be fraught.³⁴³

- OSHA could enter into an “enforceable partnership” with the NFL and NFLPA, which is different in important respects from the three possibilities discussed above. The three cooperative avenues described above are each quite far conceptually from traditional regulation, in that OSHA does not expect the employers involved to make much, if any, improvement in their health and safety conditions or systems (rather, these arrangements are more about recognizing current excellence and spreading the word). An enforceable partnership requires more. In the late 1990s, several different industry groups approached OSHA and suggested developing binding promises to OSHA concerning worker health.³⁴⁴ The employers may have been interested in such an arrangement because they viewed the negotiated conditions as preferable either to unilateral regulation or to continued non-regulation with its attendant uncertainties. These initiatives created arrangements wherein the industry group (along with, where feasible, the labor union(s) in that sector) develops a set of controls and other risk-reducing actions and agrees to adhere to these self-generated obligations as a recognized cornerstone of its general duty to provide a safe workplace.³⁴⁵ As a result, OSHA would have the legal foundation for bringing General Duty Clause citations when participants failed to implement feasible solutions they had agreed were feasible, to hazards they had recognized formally as serious.

The enforceable partnership most germane to the NFL situation is the Health and Safety Partnership Program (“HSPP”), which was designed to reduce worker exposures to fiberglass insulation, a respiratory irritant and animal carcinogen.³⁴⁶ The roughly 13 companies who together produced more than 90% of the fiberglass insulation in the United States, through their trade association, the North American Insulation Manufacturers Association (“NAIMA”), approached OSHA circa 1996. They inquired if there was any set of worker protections the manufacturers could commit to that might substitute for, and perhaps even outperform, a possible future OSHA standard.³⁴⁷ NAIMA also brought to the

343. See *supra* Part IV.

344. Finkel, the lead author of this article, was OSHA’s Director of Health Standards Programs at the time and was instrumental in the creation of the enforceable partnerships, including the use of the term.

345. *Id.*

346. See *Toxicological Profile for Synthetic Vitreous Fibers*, AGENCY TOXIC SUBSTANCES & DISEASE REGISTRY, U.S. DEP’T HEALTH & HUM. SERVS. 332 (Sept. 2004) <https://www.atsdr.cdc.gov/ToxProfiles/tp161.pdf>.

347. “The result [the HSPP] is by far the most comprehensive voluntary program that OSHA has ever entered into with industry. It should be the model for other industries and for OSHA for years to come.” Letter from L. Mark Wine (Kirkland & Ellis, Washington, DC) to Assistant Secretary of Labor Charles N. Jeffress, June 11, 1999 (on file

discussions the two trade associations representing the small companies that install fiberglass in commercial and residential buildings. In addition to setting a lower exposure limit for their own operations, the NAIMA companies agreed to help their customers meet this lower level via a combination of free assistance—providing training videos and brochures; offering dust masks and fit testing for them; and establishing a small cadre of industrial hygienists who would visit installation sites to take air samples and show contractors how to use fiberglass with less generation of respirable particles.³⁴⁸

There are several features of the NFL workplace that make an enforceable partnership potentially appropriate: (1) there is a well-defined and circumscribed set of actors (32 clubs and one union)—hence, a single agreement would eliminate any concern about free-riders, defectors, or workers' concerns not being adequately represented; (2) the science and technology, especially regarding diagnosing, preventing, and managing head trauma, is changing rapidly, so a consensual agreement could be updated far more quickly than could a regulation; (3) the employers are presumably well-motivated to avoid a protracted public hearing about the possible dangers of this occupation; and (4) the NFL and its clubs already have a wide variety of health and safety-related policies and protocols that provide a starting point for discussion.

In contrast, there are three important factors that mitigate against an enforceable partnership: (1) the original enforceable partnerships were never followed by any substantive OSHA enforcement,³⁴⁹ due to Labor Department concerns that the partnerships were a form of back-door rulemaking that contravened the procedural requirements of the Administrative Procedure Act;³⁵⁰ (2) the lack of a credible threat of traditional rulemaking, as OSHA is politically unlikely to exercise its standard-setting authority over the NFL workplace; and (3) the NFL and NFLPA are reluctant to involve third parties in their collective bargaining relationship.

with authors). The cornerstone of the HSPP agreement was the mutual recognition that the appropriate PEL for fiberglass should be one fiber per cubic centimeter (f/cc); this is the same PEL that OSHA was considering at the time via rulemaking, and is much more protective than the PEL otherwise enforceable under the existing OSHA “nuisance dust” standard (5 mg/m³, which amounts to roughly 150 f/cc).

348. For selected achievements of the HSPP, which lapsed in 2007, see *NAIMA'S Health and Safety Partnership Program*, NAIMA (Dec. 2012), <http://insulationinstitute.org/wp-content/uploads/2016/02/N030.pdf>. See also Gary Marchant & Angus Crane, *The Development and Challenges of a Voluntary Occupational Exposure Database*, 53 J. OCCUPATIONAL & ENVTL. MED. 52 (2011).

349. Although the data suggest that fiberglass exposures dropped during the lifetime of the HSPP, it can only be fairly described as a useful voluntary agreement with an available, but unavailed-of, enforcement component. See Marchant & Crane, *supra* note 348.

350. 5 U.S.C. § 500 *et seq.* (2012).

C. General Duty Citations (Enforcement)

OSHA has promulgated few, if any, specific safety or health standards that apply to hazards routinely affecting NFL players.³⁵¹ So in the absence of specific standards, the only way for OSHA to impel improvements in injury prevention, repetitive-motion (ergonomic) disorders, or consequences of repeated head trauma would be to issue one or more citations under the General Duty Clause. There are two basic mechanisms by which OSHA might test its General Duty Clause authority over the NFL or one or more of its clubs:

- The most common method by which a potential General Duty Clause violation is investigated is in response to a complaint. Any NFL player or the NFLPA could file a formal complaint asking OSHA to investigate a club for any alleged violation of the General Duty Clause (or, of course, an OSHA standard).³⁵² A complaint requires the completion of a standard form, which can be completed online.³⁵³ Formal complaints *require* OSHA to do an on-site visit, as opposed to “informal” complaints, which allow the employer to dispute the existence of the problem (or explain how it will be abated) by phone or e-mail.³⁵⁴ Importantly, the OSH Act contains whistleblower and anti-retaliation provisions that seek to prevent the employer from taking adverse employment action against a complainant.³⁵⁵ While players are normally very reticent to file any type of grievance or complaint against a club or the NFL for fear of how it might affect their career,³⁵⁶ an anonymous or union complaint to OSHA could force OSHA to examine the NFL workplace more carefully. Indeed, a hypothetical first-ever OSHA inspection to assess whether the clubs are not providing “safe and healthful places of employment” with respect to repetitive head trauma would be a watershed event regardless of the outcome: any citations upheld by the OSHRC and the courts would ripple throughout the NFL, while a finding of no violations would deter future complaints.

351. See *supra* notes 116–24.

352. As long as the complaint is signed by an active employee or an employee representative (union official), it must be treated as formal. See *OSHA Field Operations Manual*, U.S. DEP’T LABOR, Ch. 9, § I(A) (Oct. 1, 2015), https://www.osha.gov/OshDoc/Directive_pdf/CPL_02-00-159.pdf. The complainant has the right to request that his or her identity be withheld from the employer.

353. See *OSHA Online Complaint Form*, U.S. DEP’T LABOR, <https://www.osha.gov/pls/osha7/eComplaintForm.html> (last visited Apr. 11, 2018).

354. There is a bit of ambiguity here, though. Why is it that the OSH Act itself says that a formal complaint must relate to a violation “of a standard” and yet OSHA’s Field Manual adds the General Duty Clause language? However, we have verified through interviews that the agency indeed will (and routinely does) conduct on-site inspections for formal complaints alleging one or more General Duty Clause violations only.

355. *OSHA Field Operations Manual*, *supra* note 352, at ch. 9, § II.

356. DEUBERT, COHEN & LYNCH, *supra* note 9, at 121, 238–39, 263.

- A more ambitious option would be for OSHA to establish a special emphasis program (“SEP”) under which it could inspect some or all NFL workplaces for General Duty Clause violations as well as violations of specific standards.³⁵⁷ OSHA has broad authority to designate specific industry sectors, specific hazards, or the intersection thereof as meriting “special” interest. Thus, it can conduct a series of programmed inspections (randomized visits within a list of establishments generated by objective and “neutral” criteria OSHA would create),³⁵⁸ as opposed to inspections in response to a complaint or fatality, simply by publishing its intention to do so.³⁵⁹ OSHA currently has around ten SEPs that apply nationwide,³⁶⁰ and an additional 100 or so “local emphasis programs” confined to one of ten federal regions.³⁶¹ Although SEPs generally target hazards with corresponding OSHA standards, OSHA occasionally establishes SEPs wholly or in part to bring General Duty citations.³⁶²

If OSHA did require one club to implement controls to reduce a recognized hazard, it is likely that the NFL would come together to create uniform rules and regulations for all clubs. Still, the notion that OSHA would seek to interpret the General Duty Clause to require visible changes in NFL game play or health-and-safety procedures that would reduce injury or repetitive head trauma is politically and legally fraught.³⁶³ As we discussed in recounting the SeaWorld Case, OSHA’s ability to use the General Duty Clause to change the essential nature of a sports or entertainment endeavor is severely limited; the court there upheld the remedy requiring SeaWorld to remove its trainers from swimming with orcas as part of the public show, but that was in large part because SeaWorld had

357. See Barrett Pryce, *Understanding OSHA’s Special Emphasis Program*, SAFETY & HEALTH MAG. (Feb. 4, 2015), <http://www.safetyandhealthmagazine.com/articles/11803-understanding-oshas-special-emphasis-programs> [https://perma.cc/JKB4-RR5N].

358. *Marshall v. Barlow’s Inc.*, 436 U.S. 307, 321 (1978) (“To obtain a warrant, the inspector need only show that ‘a specific business has been chosen for an OSHA search on the basis of a general administrative plan for the enforcement of the Act derived from neutral sources.’”).

359. See *OSHA Field Operations Manual*, *supra* note 352, at ch. 2, § VI.D.

360. *OSHA’s National & Special Emphasis Program Index*, U.S. DEP’T LABOR, <https://www.osha.gov/dep/neps/nep-programs.html> (last visited Feb. 28, 2018).

361. *Local Emphasis Programs*, U.S. DEP’T LABOR, <https://www.osha.gov/dep/leps/leps.html> (last visited Feb. 28, 2018).

362. See the SEP for isocyanate exposure, *OSHA Instruction*, U.S. DEP’T LABOR (June 20, 2013), https://www.osha.gov/OshDoc/Directive_pdf/CPL_03-00-017.pdf, which covers a variety of toxic substances, some with Permissible Exposure Limits applicable and others with no enforceable limits set. Appendix F of that SEP provides a sample citation showing how the General Duty Clause could be cited for an exposure above a level recognized as unsafe.

363. See *supra* Part IV.

adopted a remedy that showed (albeit temporarily) that its entertainment value was not compromised by doing so.

Because OSHA's authority to change the essential nature of a business or job task, even when the industry's product is entertaining in nature, is likely much greater when it promulgates a specific standard than when it invokes the General Duty Clause,³⁶⁴ we end this Part by discussing the various ways in which OSHA could seek to regulate the NFL using its traditional standard-setting authority.

D. Standard Setting (Regulation)

In this Section, we explain six ways in which an OSHA standard could emerge—either one that was aimed at multiple hazards and covering only professional football, or one covering a single hazard relating to football and other occupations—before describing the elements that such a hypothetical regulation might contain.

First, the most cooperative process under which OSHA could develop a new regulation would be via negotiated rulemaking.³⁶⁵ In this scenario, the NFL and NFLPA could approach OSHA and propose a negotiated rulemaking committee, perhaps including independent scientists and physicians as well as labor and management representatives, to develop a proposed standard. OSHA has long supported negotiated rulemaking³⁶⁶ and after several successful processes in the 1990s, recently completed a negotiated standard governing the safe use of

364. Judge Kavanaugh, the dissenting judge in the SeaWorld Case, seemed to signal that his concerns over OSHA trying to “change the essential nature” of an entertainment product applied to General Duty enforcement rather than to the promulgation of standards. Judge Kavanaugh stated that

[u]nder the Act, the Department may promulgate specific occupational safety and health standards ‘reasonably necessary or appropriate to provide safe or healthful employment and places of employment.’ 29 U.S.C. § 652(8); *see id.* § 655(b). . . . But the Department of Labor, acting with a fair degree of prudence and wisdom, has not traditionally tried to stretch *its general authority under the Act* to regulate participants taking part in the normal activities of sports events or entertainment shows.

SeaWorld of Florida, LLC v. Perez, 748 F.3d 1202, 1218 (D.C. Cir. 2014) (Kavanaugh, J., dissenting) (emphasis added). Elsewhere in his dissent, Judge Kavanaugh cited the *Pelron* case, opining that “*Pelron* means that some activities, though dangerous, are among the ‘normal activities’ intrinsic to the industry and therefore cannot be proscribed or penalized under the General Duty Clause.” *Id.* at 1219 (emphasis added); *see also* Sec’y of Labor v. Pelron Corp., 12 BNA OSHC 1833 (No. 82-388, 1986).

365. Negotiated rulemaking is encouraged under the 1990 Negotiated Rulemaking Act and involves the formation of a balanced committee of stakeholders chartered under the Federal Advisory Committee Act, who (assuming they reach consensus) develop a Notice of Proposed Rulemaking that then generally goes through the normal APA process of notice and comment before final promulgation. *See* Cary Coglianese, *Assessing Consensus: The Promise and Performance of Negotiated Rulemaking*, 46 DUKE L.J. 1255 (1997).

366. *See Hearing Before the House Judiciary Subcommittee on Commercial and Administrative Law*, 104th Cong. (June 27, 1996) (statement of Joseph A. Dear, Assistant Secretary of Labor), https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=84&p_table=TESTIMONIES.

cranes and derricks in construction.³⁶⁷ However, negotiated rulemaking processes are not guaranteed to work. The committee might fail to reach consensus or might reluctantly agree on a version of a proposed standard that OSHA is unwilling to sponsor. Additionally, the committee might agree on a set of provisions that are adopted and promulgated, but ultimately do not serve their intended purpose.³⁶⁸

Second, an OSHA standard could begin with a petition from an interested party or parties demanding that OSHA act. Nevertheless, OSHA action in response to a petition is unlikely. Since the early 1980s, OSHA has granted none of the many petitions it has received for a permanent standard or an emergency temporary standard (“ETS”), although in some cases it did not issue a formal denial and after many years eventually proceeded to begin work on the corresponding standard.³⁶⁹

Third, someone—perhaps an NFL player or the NFLPA—could file a lawsuit seeking to force OSHA to act. However, the only instance where a court has intervened to support a petitioner for OSHA rulemaking occurred after OSHA had previously promised swift action to a lower court and then had failed to make progress over the next four years. In 2002, the Third Circuit ordered OSHA to promulgate a chromium standard, stating that

action Congress has ordered for the protection of public health all too easily becomes hostage to bureaucratic recalcitrance, factional infighting, and special interest politics. *At some point, we must lean forward from the bench to let an agency know, in no uncertain terms, that enough is enough* We conclude that now is such a time.³⁷⁰

Clearly, OSHA has made no promises of any kind with respect to regulating football player health and safety, so a successful petition for agency action seems unlikely at this juncture.

Fourth, because 26 states are authorized by OSHA to conduct their own occupational safety and health programs, one or more state OSHA programs could promulgate their own regulations governing football or hazards therein, especially if prodded to do so by an advocacy group. California has by far the most experience promulgating state-specific standards that transcend the federal OSHA

367. See *Cranes and Derricks in Construction*, U.S. DEP’T LABOR, <https://www.osha.gov/cranes-derricks/index.html> (last visited Feb. 28, 2018).

368. See Cary Coglianese, *Satisfaction is Not the Same as Policy Success*, REGULATORY REV. (Dec. 25, 2014), <https://www.theregreview.org/2014/12/25/coglianese-satisfaction-is-not-success/> [<https://perma.cc/96PQ-2LST>] (discussing the EPA’s negotiated rulemaking on reformulated gasoline blends).

369. Personal communication from Frank Mirer, CUNY School of Public Health, Sept. 2017. This includes a September 1, 2011 petition from Public Citizen for OSHA to issue an ETS for heat stress, which is one of the hazards of concern in football (June 7, 2012 letter from OSHA denying this petition on file with authors).

370. Pub. Citizen Health Research Grp. v. Chao, 314 F.3d 143, 145 (3d Cir. 2002) (quoting Pub. Citizen Health Research Grp. v. Brock, 823 F.3d 626, 627 (D.C. Cir. 1987)).

rules, regulating both in areas where federal OSHA has not yet ventured³⁷¹ and setting some stricter toxic-substance exposure limits than the federal limits.³⁷² We emphasize that even one state taking the lead could have national ramifications. In auto manufacturing, for example, where producers *could* continue to make “California cars” and “rest of the country cars” in response to tougher emissions standards in that state, manufacturers have tended to make one version of each model that complies with the tighter standard.³⁷³ In professional sports, failing to forestall a state standard could make that the de facto national standard, given the fundamental need for uniformity across clubs, the fact that clubs would have to comply for every away game in California, and that the four (three, when the Raiders move to Nevada) California clubs would have to comply for all home games. Such a fractured scheme could make federal, uniform regulation preferable to the NFL, such that the NFL might actually advocate *for* federal OSHA regulation.

Fifth, Congress could require OSHA to create a standard. This has happened in two different ways in the past. In 2000, Congress passed the Needlestick Safety and Prevention Act³⁷⁴ 14 years after the American Federation of State, County, and Municipal Employees union first petitioned OSHA to regulate sharps in healthcare settings. This law required OSHA to bypass the procedural requirements of the OSH Act and issue within six months a final rule whose regulatory text was written verbatim within the 2000 statute.³⁷⁵ A more recent example involves Congress compelling OSHA regulation of multiple hazards to a single identified workforce. In 2012, Congress passed the Federal Aviation Administration (“FAA”) Modernization and Reform Act, which required the FAA to work with OSHA to identify OSHA rules that were *not* preempted with regard to flight crews.³⁷⁶ Since 1975, FAA had been arguing that its suite of regulations “fully occupies and exhausts the field of aircraft crew member

371. See FACT SHEET, CAL. DEP’T INDUS. RELATIONS, https://www.dir.ca.gov/Fact_Sheet.pdf. For example, the state requires establishments to have written injury and illness-prevention programs, including programs to deal with heat stress, and requires employers who have repetitive-motion injuries in their workforce to control ergonomic hazards. See CAL. CODE REGULATIONS § 6760 (“Injury and Illness Prevention Program”), § 3395 (“Heat Illness Prevention”), and § 5110 (“Repetitive Motion Injuries”) (2016).

372. See *OSHA Annotated Table Z-1*, U.S. DEP’T LABOR, <https://www.osha.gov/dsg/annotated-pels/tablez-1.html> (last visited Feb. 28, 2018), for an annotated list of OSHA PELs versus those enforced by California—there are at least 30 instances where the latter limits are stricter than the former, and an additional 20 or more where California has created a PEL where OSHA has not.

373. See Don MacKenzie, *Why California Is the Linchpin of Fuel Economy Regulation*, UNIV. WASH. (Mar. 9, 2017), <https://faculty.washington.edu/dwhm/2017/03/09/why-california-is-the-linchpin-of-fuel-economy-regulation/> [https://perma.cc/H24G-DZL2].

374. Needlestick Safety and Prevention Act, Pub. L. No. 106-430, 114 Stat. 1901 (2000).

375. See *id.*

376. FAA Modernization and Reform Act of 2012, Pub. L. No. 112-095, § 829 (2012) (“Clarification of Memorandum of Understanding with OSHA”).

occupational safety and health,” and hence OSHA was preempted from enforcing any of its standards in aircraft.³⁷⁷ After Congress acted, and following a series of interagency meetings and a public notice-and-comment period, the two agencies agreed in 2014 that OSHA could enforce three of its standards—governing noise, hazard communication, and blood-borne pathogens—as they apply to cabin crews (flight attendants and maintenance workers), though not to the pilots themselves.³⁷⁸

Sixth, OSHA could promulgate either a “horizontal” standard covering, for example, repetitive head trauma in various industries, or a “vertical” standard affecting various hazards found only in the NFL (to the extent there are any). This is the way most OSHA rules come into being. The last major OSHA initiative to rethink its regulatory agenda en masse came in 1996, when its Priority Planning Process enlisted a wide variety of lay and expert stakeholders to develop 18 problem areas for priority regulatory or non-regulatory (“soft law”) action. So, OSHA could add a football-related initiative to its agenda or could conduct a new open priority-setting process into which stakeholders might bring up a football or a repetitive-head-trauma standard that would merit inclusion in the new action list.

A vertical standard seems unlikely, because it singles out a powerful group of business owners and because many of the injuries affecting NFL workers (e.g., fractures, sprains, and strains) are inextricably linked to the nature of the game and difficult to reduce without changing the game so fundamentally as to make it unrecognizable. A horizontal OSHA standard concerning repetitive head trauma seems more likely, due to the fact that it has been statistically associated with CTE, because (putting aside the presence or absence of particular brain pathology) NFL play is associated with an increased incidence of adverse neurological outcomes,³⁷⁹ and because repetitive head trauma is a recognized problem in several other occupational groups covered by OSHA, including

377. See Letter from Thomas Galassi, Director of Enforcement Programs, U.S. Dep’t Labor, to Regional Administrators, U.S. Dep’t Labor (Apr. 1, 2014), https://www.osha.gov/dep/letters/04012014_AircraftCabinCrewmembers.html.

378. MEMORANDUM OF UNDERSTANDING BETWEEN THE FEDERAL AVIATION ADMINISTRATION, U.S. DEPARTMENT OF TRANSPORTATION, AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, U.S. DEP’T LABOR (Aug. 26, 2014), https://www.faa.gov/about/initiatives/ashp/media/FAA_OSHA_MOU_2014.pdf. Note that OSHA emphasizes that its standards that do not relate to “working conditions” themselves are *not* preempted under the OSH Act, and hence apply to all airline employees (pilots as well as others), and they have always applied regardless of any FAA action. These standards include requirements for recordkeeping, employee access to exposure and medical records, and the various anti-retaliation (whistleblower protection) provisions of the Act. So, the FAA experience suggests that with or without express direction from Congress, OSHA could enforce these latter three standards in the NFL at any time, and could also choose to distinguish between various subcategories of football workers (perhaps even by on-field position) as it has done here in agreeing to different jurisdictions for pilots versus cabin crews.

379. See Lehman et al., *supra* note 199.

commercial logging, long-haul truck driving, and in those states where OSHA covers local public employees, policing and firefighting.³⁸⁰

An OSHA standard governing repetitive head trauma would likely take one or more of three forms. First, OSHA could seek a standard that would not require any particular controls, only monitoring of exposures and/or symptoms. This regulatory design is unusual for OSHA, but there is at least one health standard³⁸¹ that requires substances to be handled in closed systems, but otherwise emphasizes exposure monitoring and medical surveillance rather than specific controls.

Second, OSHA could propose a management-based rule that resembles industry self-regulation. Such a standard would require the NFL to design its own site-specific control plan to react to and reduce repetitive head trauma and simply adhere to it.³⁸²

Third, given that repetitive head trauma is believed to lead to disease because of multiple or continuous exposures, the most logical regulatory design for OSHA to consider would be a typical performance-based health standard of the kind it has been promulgating since the 1970s. Although repetitive head trauma is not a chemical or a hazardous substance, OSHA has previously regulated at least two harmful physical agents—noise and non-ionizing radiation—using the logic that applies to toxic chemicals.³⁸³ Because the risks of toxic-substance exposure follow dose-response relationships (in which the probability of harm rises as concentration or cumulative dose rises), the heart of a typical OSHA health standard is one or more limits on the permissible concentration to which any employee can be exposed. In the NFL context, *concentration* is analogous to the number of impacts that transmit G-forces above some threshold,³⁸⁴ or the cumulative G-force of all impacts, although the technology does not yet exist to measure these parameters reliably or to set evidence-based limits for them.

Other key sections of typical OSHA health standards (with their NFL analogies in parentheses) include the following: (1) initial and periodic exposure monitoring (gauging the amount of exposure to repetitive head trauma among a *representative* employee in each “job classification”—here, position on the field); (2) medical surveillance (some requirements for periodic testing as well as

380. See Holman, R.G., A. Olszewski & R.V. Maier, *The Epidemiology of Logging Injuries in the Northwest*, 27 J. TRAUMA 1044 (1987); see also Walter Carr et al., *Relation of Repeated Low-Level Blast Exposure with Symptomology Similar to Concussion*, 30 J. HEAD TRAUMA REHABILITATION 47 (2015).

381. 29 C.F.R. §1910.1003 (1974) (governing carcinogens).

382. See Cary Coglianese & David Lazer, *Management-Based Regulation: Prescribing Private Management to Achieve Public Goals*, 37 L. & SOC'Y REV. 691 (2003). (concluding that management-based rules can be the most useful design when the firms being regulated are particularly heterogeneous (not the case with the NFL), or when government's capacity to assess (and hence regulate) specific performance is particularly low (which probably is the case here)).

383. 29 CFR 1910.95 (2017); 29 CFR 1910.91 (2017).

384. See Montenegro et al., *supra* note 221.

episodic testing following a severe impact, perhaps involving biomarkers as they are refined);³⁸⁵ (3) return-to-work protocols (the NFL's Concussion Protocol governs returning to play); (4) prohibitions against "employee rotation";³⁸⁶ and (5) elements of a required training program (here, perhaps encouraging the kind of drills that have shown possible benefits).³⁸⁷ We emphasize again that, to our knowledge, no court decision has constrained OSHA's authority to change the essential nature of any task, occupation, or business if it does so through a standard-setting process that otherwise meets all requirements of the APA and other relevant statutes—and we also note that several of the typical elements of an OSHA health standard discussed here would not affect on-field play at all (e.g., requirements for exposure monitoring) and hence would not implicate any concerns about the nature of the entertainment product.

TABLE 5: Summary of Requirements for OSHA to Regulate and Enforce

	Health Standards ("toxic materials or harmful physical agents")	Safety Standards	General Duty Clause Enforcement
General Requirements	<ul style="list-style-type: none"> • Hazard presents a significant risk of material impairment to the health or functional capacity of the employees (individual risk) • Standard will eliminate or reduce the harm • Standard is technologically feasible • Standard is economically feasible 	<ul style="list-style-type: none"> • Significant incidence of the acute injury in industry sectors to be regulated (population risk) • Benefits of standard bear a reasonable relationship to its costs 	<ul style="list-style-type: none"> • Recognized hazard • Hazard likely to cause serious harm or death • Technologically feasible remedy exists • Economically feasible remedy exists
Additional Requirements for Entertainment/ Sports	None	None	Cannot "change the essential nature" of the sport or entertainment

385. See, e.g., R. Siman et al., *Serum SNTF Increases in Concussed Professional Ice Hockey Players and Relates to the Severity of Postconcussion Symptoms*, 32 J. NEUROTRAUMA 1294 (2015).

386. Typically, OSHA forbids employers from spreading toxic-substance exposures among more workers by rotating multiple employees through areas where chemical concentrations are high (the concern here is that if risk is underestimated, more disease may be caused by exposing more workers to the same total amount of material). However, in the football context, this precept would probably be reversed, since limiting the cumulative G-forces any single player encounters would likely be encouraged where possible.

387. See Swartz et al., *supra* note 324.

CONCLUSION

OSHA clearly has the authority to regulate the NFL. Nevertheless, there is little to no precedent or guidance for OSHA to insert itself into the on-the-field aspects of professional sports.

In particular, if the NFLPA or an NFL player tried to force OSHA's involvement by alleging a violation of the General Duty Clause, it would be a challenging claim to support. It is not completely clear what changes, if any, OSHA could recommend that are "feasible," i.e., that could eliminate or materially reduce the hazards associated with playing in the NFL but that do not change the essential nature of the game. Unlike manufacturing operations, where OSHA regulations can increase the price of a product but rarely work to change its essential nature, in entertainment, "the product is the production,"³⁸⁸ and so it may not be possible for a safer game of football to be "feasible" under a General Duty Clause remedy. However, the SeaWorld Case does open the door for OSHA to require permanent remedies that the entertainer itself has tried and found not to interfere with customer interest in the "product," so the NFL might find itself in the position of having found a particular remedy not to be to its liking, but still feasible under the law.

We expect that player health issues will continue to be addressed via CBA negotiations, with or without any involvement from OSHA. The NFL and NFLPA are both highly sophisticated parties with the football-specific knowledge and resources necessary to meaningfully address player health issues. Nonetheless, while a CBA is an appropriate place for new player health policies to be described, we do not believe that player health should be a subject of adversarial collective bargaining.³⁸⁹ To maximize player health, it is important that the NFL view the issue as an independent obligation of its own—rather than an issue to be forced upon it. Similarly, the NFLPA should not delay or obstruct player health issues as a bargaining chip to advance other collective-bargaining issues.

There are a host of political and practical reasons rendering it very unlikely that OSHA will attempt to regulate the NFL, either by traditional standard setting or by asserting in a specific enforcement case that a General Duty Clause remedy exists and thereby setting a precedent for the rest of the NFL. However, there are a wide variety of ways for OSHA to intervene or involve itself without regulating, as discussed at length in Part V above. Adding a public institution like OSHA to the existing labor-management discussions concerning health and safety may be the best natural evolution of the issue. Recognizing its considerable authority to regulate private workplaces, something as simple as a letter from OSHA to the NFL inquiring about the risks of playing in the NFL and any relevant policies might cause the NFL to be more proactive (or conciliatory) in addressing player health issues. The NFL almost certainly does not want OSHA regulating the NFL—and OSHA almost certainly does not want to regulate the NFL—but that does not mean that OSHA cannot nudge the NFL in a direction which might better

388. SeaWorld of Florida, LLC v. Perez, 748 F.3d 1202, 1220 n.4 (D.C. 2014).

389. For more on this issue, see DEUBERT, COHEN & LYNCH, *supra* note 9, at 231.

protect NFL players. OSHA, consistent with its mandate to assure safe and healthful working conditions for employees, should consider such action.

Many in the public seem to believe that football must become safer to thrive, and hope that it will. Regulations or “soft law” approaches have sometimes worked well even in complicated, uncertain, and fraught issues. Moreover, consensus processes occupy most of the middle ground between complete abdication by government and anything dictatorial, and so make eminent sense here: the NFL and NFLPA understand the “product” better than anyone, and NFL physicians understand the diagnosis and treatment of neurological sequelae of traumatic brain injury, but OSHA also has expertise to bring to the table. OSHA understands evidence from a public health perspective, and it is *the* institution empowered by Congress and the courts to help balance the competing goals of worker protection versus cost and liberty in an open setting. So, we place the onus on OSHA in this Article: it should be more willing to step up to this challenge, and less conflicted about offering to participate in an issue where it has expertise complementary to that of the NFL and NFLPA, and thus a unique opportunity to help bring about constructive change.