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ARTICLE

EVALUATING NFL PLAYER HEALTH AND PERFORMANCE: LEGAL AND ETHICAL ISSUES

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This Article follows the path of a hypothetical college football player with aspirations to play in the National Football League, explaining from a legal and

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Cohen, Deubert, and Lynch received salary support from the Football Players Health Study at Harvard University (FPHS), a transformative research initiative with the goal of improving the health of professional football players. *About*, FOOTBALL PLAYERS HEALTH STUDY HARV. U., <https://footballplayershealth.harvard.edu/about/> [<https://perma.cc/UN5R-D82L>]. Roberts has also received payment as a consultant for the FPHS. The Football Players Health Study was created pursuant to an agreement between Harvard University and the National Football League Players Association

ethical perspective the health and performance evaluations he will likely face throughout his career. Some of these evaluations are commonplace and familiar, while others are more futuristic—and potentially of unproven value. How much information about themselves should aspiring and current professional players be expected to provide in the employment context? What are the current legal standards for employers collecting and acting on an individual's health- and performance-related information? Drawing on disability law, privacy law, and the law governing genetic testing, this Article seeks to answer those questions, as well as to provide recommendations to better protect the health and privacy of professional football players.

The upshot of our analysis is that it appears that some of the existing evaluations of players, both at the NFL Scouting Combine (Combine) and once drafted and playing for a club, seem to violate existing federal employment discrimination laws. Specifically, (1) the medical examinations at the Combine potentially violate the Americans with Disabilities Act's (ADA) prohibitions on pre-employment medical exams; (2) post-offer medical examinations that are made public potentially violate the ADA's confidentiality provisions; (3) post-offer medical examinations that reveal a disability and result in discrimination—e.g., the rescission of a contract offer—potentially violate the ADA provided the player can still perform the essential job functions; (4) Combine medical examinations that include a request for a player's family medical history potentially violate the Genetic Information Nondiscrimination Act (GINA); and (5) the preseason physical's requirement that a player disclose his family medical history potentially violates GINA.

(NFLPA) and is supported by funds set aside for research by the National Football League (NFL)–NFLPA collective bargaining agreement. *Id.* The content is solely the responsibility of the authors and does not necessarily represent the official views of the NFLPA or Harvard University. For more information on the background of the Football Players Health Study, see generally CHRISTOPHER R. DEUBERT, I. GLENN COHEN & HOLLY FERNANDEZ LYNCH, PETRIE–FLOM CTR. FOR HEALTH LAW POLICY, BIOTECHNOLOGY, AND BIOETHICS, PROTECTING AND PROMOTING THE HEALTH OF NFL PLAYERS: LEGAL AND ETHICAL ANALYSIS AND RECOMMENDATIONS (2016). Of particular note, from August 2010 to May 2014, Deubert was an associate at the law firm of Peter R. Ginsberg Law, LLC, formerly known as Ginsberg & Burgos, PLLC. During the course of his practice at that firm, Deubert was involved in several legal matters in which the NFL was an opposing party, including *Williams v. The National Football League*, discussed in note 153. Additionally, Cohen has consulted in the drug and medical device industry in the past. While, to the best of his knowledge, no company he has worked with is involved with any of the products discussed in this Article, he is aware of one company he has consulted for which has partnered with one of the companies mentioned in this Article on products unrelated to this Article.

The NFLPA reviewed this Article prior to its publication, but did not have the right to control the content and in fact did not provide any comments. The NFL declined our invitation to review this Article. Finally, National Football Scouting, Inc., the entity that operates the NFL Scouting Combine, did not officially respond to our invitation to review this Article. When we offered it the opportunity to review, it indicated that it thought the NFL would review on its behalf, and when we followed up to inform it that the NFL had declined to review, it did not respond.

Thank you to Kristin Madison, Kimani Paul-Emile, Mark Rothstein and Michael Stein for very helpful comments on drafts of this Article. We also thank Andrea Memovic, Emily Lawson, Elaine Fiala, and Justin Leahey for truly outstanding research assistance.

We believe all employers—including the NFL and its clubs—should comply fully with the current law. To that end, our recommendations center around four “C”s: compliance, clarity, circumvention, and changes to existing statutory schemes as applied to the NFL (and perhaps other professional sports).

INTRODUCTION	230
I. BACKGROUND ON THE NFL AND EVALUATIVE TECHNOLOGIES.....	236
A. <i>Interested Parties</i>	236
B. <i>Current and Prospective Technologies</i>	240
1. Medical Examinations and Athletic Drills	240
a. <i>Medical Examinations</i>	241
b. <i>Drills</i>	243
2. Nongenetic Technologies	245
3. Genetic Tests	250
II. WHAT LAWS REGULATE THE USE OF HEALTH AND PERFORMANCE	
EVALUATIONS BY EMPLOYERS?	254
A. <i>Americans with Disabilities Act</i>	255
1. Medical Exams and Disability-Related Inquiries.....	257
a. <i>Claims</i>	258
i. Pre-Employment	259
ii. Post-Offer (Employee Entrance Examination).....	260
iii. During Employment	261
b. <i>Specific NFL Evaluative Technologies</i>	262
i. Medical Examinations and Athletic Drills.....	262
ii. Nongenetic Technologies.....	265
iii. Genetic Tests	266
c. <i>Possible Responses and Defenses</i>	266
2. Discrimination.....	270
a. <i>Claims</i>	271
i. Disability.....	271
ii. Qualified	274
b. <i>Specific NFL Evaluative Technologies</i>	277
i. Medical Examinations and Athletic Drills.....	277
ii. Nongenetic Technologies.....	278
iii. Genetic Tests	279
c. <i>Possible Responses and Defenses</i>	279
3. ADA Summary.....	283
B. <i>Genetic Information Nondiscrimination Act</i>	285
1. Privacy	288
a. <i>Claims</i>	288
b. <i>Specific NFL Evaluative Technologies</i>	290

i.	Medical Examinations and Athletic Drills.....	290
ii.	Nongenetic Technologies.....	292
iii.	Genetic Tests	292
c.	<i>Possible Responses and Defenses</i>	293
2.	Discrimination.....	295
a.	<i>Specific NFL Evaluative Technologies</i>	296
i.	Medical Examinations and Athletic Drills.....	297
ii.	Nongenetic Technologies.....	297
iii.	Genetic Tests	297
b.	<i>Possible Responses and Defenses</i>	297
3.	GINA Summary.....	299
III.	GOING FORWARD	300
A.	<i>Compliance</i>	301
B.	<i>Clarity</i>	302
1.	Job-Relatedness and Qualified Individual	302
2.	Independence of National Football Scouting.....	305
3.	Scope of Medical Examinations and Inquiries (ADA).....	306
4.	Scope of Family Medical History (GINA).....	307
C.	<i>Circumvention</i>	308
D.	<i>Changes</i>	309
1.	General Professional Football (Sports) Exemption.....	310
2.	Exception to Medical Examination Provisions (ADA).....	310
3.	Exception for Family Medical History (GINA).....	311
4.	Need for a Direct Threat Defense (GINA)	311
	CONCLUSION.....	313

INTRODUCTION

Meet James. He is a twenty-two-year-old male who stands at 6'1" and weighs approximately 203 pounds.¹ James has had a very successful college career as a wide receiver in the Pac-12 and now hopes to join the approximately 2200 men who play professionally for the National Football

¹ James, a composite of many existing players, is an "average" National Football League (NFL) player. On any given NFL club, the vast majority of the players are in their twenties while approximately twenty percent are in their thirties. CHRISTOPHER R. DEUBERT, I. GLENN COHEN & HOLLY FERNANDEZ LYNCH, PETRIE-FLOM CTR. FOR HEALTH LAW POLICY, BIOTECHNOLOGY, AND BIOETHICS, PROTECTING AND PROMOTING THE HEALTH OF NFL PLAYERS: LEGAL AND ETHICAL ANALYSIS AND RECOMMENDATIONS 60 (2016). Online Appendix A contains a list of heights and weights by position. Jessica L. Roberts, I. Glenn Cohen, Christopher R. Deubert & Holly Fernandez Lynch, *Evaluating NFL Player Health and Performance: Legal and Ethical Issues*: Online app. A (2017), <https://www.pennlawreview.com/print/165-U-Pa-L-Rev-Appendix-A>.

League (NFL) each regular season.² But before he can realize his dream, James must face a series of health- and performance-based evaluations, designed to test whether he can withstand the rigors of playing professional football. Should James succeed as a professional athlete, any number of individuals will have a great interest in his health and fitness, from those who run the NFL clubs to the eighty-five million fans that will turn on their televisions every week to watch him play.³ But how much information about his health and his abilities should James be willing to share and, perhaps more importantly, with whom?

Before and during his NFL career, James will be asked to submit to any number of evaluations. Should James agree to an electrocardiogram (EKG) to assess the electrical activity of his heart⁴ and to put him (and his club) on notice if he is at risk of cardiac arrest as the result of overexertion? What about a running drill that, while not directly assessing the activity of James's heart, will nonetheless demonstrate his cardiovascular capacity? What if an NFL club asked James to swallow a pill that would send wireless signals through his body to sensors that translate those signals into data about James's heart rate, respiration, and skin temperature to share with an athletic trainer? How about a genetic test that assesses cardiac risk? Some of these examples may sound like science fiction but such technologies are currently being deployed by NFL clubs, and trends in this direction are only likely to increase. What about the decidedly low-tech method of just asking James about the history of cardiovascular disease in his family? Should James submit to all of these evaluations? Some of them? None of them? And if he refuses, what are his legal rights?

No one would presumably ever tolerate this degree of invasive inquiry into his or her health status and physical ability when applying for a standard office job. But those jobs do not require full-body collisions with other hulking athletes on a weekly basis. Nor do they promise the potential of multimillion dollar salaries. To be sure, prospective and current NFL players are physically exceptional human beings. Just compare James's physique to the average American male between the ages of twenty and twenty-nine, who is 5'9" and weighs 183.9 pounds.⁵ Because of their extraordinary physiques and abilities, much of what we know about health within the "normal" population may not translate to NFL athletes. Further, the

² This figure is derived from official NFL–NFLPA playtime statistics on file with the authors.

³ MARK FAINARU-WADA & STEVE FAINARU, *LEAGUE OF DENIAL: THE NFL, CONCUSSIONS, AND THE BATTLE FOR TRUTH* 4-5 (2013).

⁴ *Electrocardiogram*, WEBMD, <http://www.webmd.com/heart-disease/electrocardiogram#1> [<https://perma.cc/HAU6-8624>].

⁵ CHERYL D. FRYAR & CYNTHIA L. OGDEN, *CTRS. FOR DISEASE CONTROL & PREVENTION, SER. 11, NO. 252, ANTHROPOMETRIC REFERENCE DATA FOR CHILDREN & ADULTS: UNITED STATES, 2007–2010*, at 10 tbl.6, 16 tbl.12 (2012).

average person does not subject himself to the kinds of physical challenges regularly encountered by NFL players.

NFL football is big business. The NFL began play in 1920⁶ and since that time has been the premier professional football league in the world and one of the most lucrative of all the sports leagues. The NFL generates about \$12 billion in revenue annually⁷ and is the most popular sport in America by a variety of measures.⁸ Thirty-five percent of Americans consider NFL football their favorite sport, a number that continues to increase.⁹ On average, approximately 68,000 people attend every NFL game.¹⁰ Moreover, NFL games are the most watched television programming. More than twenty million people watch the primetime broadcasts, nearly triple the ratings of the major television networks.¹¹ In 2015, Forbes estimated the average NFL club to be worth \$1.97 billion.¹² The average salary of an NFL player is approximately \$2 million per year¹³ but varies widely based on skill and experience. The National Football League Players Association (NFLPA) estimates that the average player's career is about three and a half years long, while the NFL asserts that it is nearly six years.¹⁴ All of these features are dramatically different as compared to the employment context of the average office worker, or even to those in more physically demanding jobs.

⁶ *NFL Founded in Canton*, PRO FOOTBALL HALL FAME, <http://www.profootballhof.com/news/nfl-founded-in-canton/> [<https://perma.cc/L4MB-U74H>].

⁷ See Daniel Kaplan, *NFL Projecting Revenue Increase of \$1B Over 2014*, STREET & SMITH'S SPORTSBUSINESS J. (Mar. 9, 2015), <http://www.sportsbusinessdaily.com/Journal/Issues/2015/03/09/Leagues-and-Governing-Bodies/NFL-revenue.aspx> [<https://perma.cc/BW76-MUAJ>] (stating that the NFL's revenue in 2015 was over \$12 billion).

⁸ See, e.g., Regina Corso, *As American As Mom, Apple Pie, and Football?*, HARRIS POLL (Jan. 16, 2014), http://www.theharrispoll.com/sports/As_American_as_Mom_Apple_Pie_and_Football_.html [<http://perma.cc/4VAW-NQME>] (explaining that 35% of Americans say that football is their favorite sport while just 14% prefer baseball, the second most popular sport).

⁹ *Id.*

¹⁰ *NFL Sees Small Regular-Season Attendance Decline; Titans, Rams Down Sharply at Home*, STREET & SMITH'S SPORTSBUSINESS DAILY (Jan. 5, 2016), <http://www.sportsbusinessdaily.com/Daily/Issues/2016/01/05/Research-and-Ratings/NFL-gate.aspx> [<https://perma.cc/FYT3-PXG4>].

¹¹ Press Release, TV by the Numbers, NFL 2013 TV Recap: 205 Million Fans Tuned In; 34 of 35 Most Watched Shows This Fall (Jan. 8, 2014), <http://tvbythenumbers.zap2it.com/2014/01/08/nfl-2013-tv-recap-205-million-fans-tuned-in-34-of-35-most-watched-shows-this-fall/227726/> [<https://perma.cc/5XAH-3FET>].

¹² Mike Ozanian, *The Most Valuable Teams in the NFL*, FORBES (Sept. 14, 2015, 9:51 AM), <http://www.forbes.com/sites/mikeozanian/2015/09/14/the-most-valuable-teams-in-the-nfl> [<http://perma.cc/9F9F-XVXH>].

¹³ Jim Baumbach, *Life After Football*, NEWSDAY (Jan. 22, 2015), <http://projects.newsday.com/football/life-football/> [<https://perma.cc/VY97-EYMJ>].

¹⁴ See *What Is Average NFL Player's Career Length? Longer than You Might Think*, Commissioner Goodell Says, NFL COMM. (Apr. 18, 2011), http://nflabor.wordpress.com/2011/04/18/what-is-average-nfl-player%E2%80%99s-career-length-longer-than-you-might-think-commissioner-goodell-says [<http://perma.cc/YG3W-D3S8>] (explaining that NFL Commissioner Roger Goodell attributes the difference in the NFL's estimates to the fact that other estimates include every player who ever signed an NFL contract while the NFL only includes players who made an NFL regular season roster).

Given the revenue and prestige of the sport, and the clear consumer interest, the NFL and its clubs have strong incentives to scout, draft, and retain the highest performing players. As a result, they want to obtain as much information as they can about a player's current health, athletic abilities, and risks of future injury or disease to facilitate as informed a decision as possible. Moreover, with that kind of fame and money on the line, prospective and current NFL players face substantial pressure to do what they need to do to play professional football, which inevitably includes submitting to numerous health and performance evaluations, even if they would prefer to avoid them, all things being equal.

At present, the NFL and the clubs already collect a significant amount of information about aspiring and current players through medical exams (including physicals) and athletic drills and training. While this existing data is important, it represents only the tip of the iceberg regarding the information NFL clubs would *like* to have in making decisions related to hiring, firing, trading, and playing.

Not surprisingly then, companies are creating all kinds of new technologies designed to assess health and physical performance.¹⁵ The ingestible pill described above is not science fiction but is based on an actual FDA-approved innovation.¹⁶ Companies are also designing ever-shrinking wearable technologies to measure speed, agility, and strength,¹⁷ as well as genetic tests,¹⁸ which could be used to assess risk or enhance performance. These new evaluative technologies could give stakeholders access to even more data. Consequently, the technologies could also pose a potential concern for players who may fear that the results of those evaluations could cost them their careers. All of this raises a fundamental question: How does the current law apply to these approaches when deployed in employment contexts? This Article, the first to address these issues, seeks to provide an answer.

Focusing on the employment relationship between NFL players, the clubs, and the league, we explore the applicability of two key federal employment discrimination statutes: the Americans with Disabilities Act (ADA) and the Genetic Information Nondiscrimination Act (GINA). Both the ADA and GINA contain provisions limiting an employer's access to and use of current or prospective employees' health-related information.

¹⁵ See *infra* subsection I.B.2.

¹⁶ Jessica L. Roberts, I. Glenn Cohen, Christopher R. Deubert & Holly Fernandez Lynch, *Evaluating NFL Player Health and Performance: Legal and Ethical Issues*: Online app. B (2017) Section F, <https://www.pennlawreview.com/print/165-U-Pa-L-Rev-Appendix-B> [hereinafter Online Appendix B].

¹⁷ See *infra* subsection I.B.2.

¹⁸ See *infra* subsection I.B.3.

The ADA, which Congress passed in 1990 and amended in 2008,¹⁹ protects people with disabilities against discrimination across several spheres, including employment, government services, and public accommodations.²⁰ While it may seem counterintuitive to apply a disability rights law to an elite athlete who is in peak physical condition like James, the ADA's employment provisions nonetheless cover professional sports,²¹ and a professional athlete may meet the legal definition of a person with a disability. Most notably, the law restricts employers' ability to seek health-related information about their prospective and current employees through either medical exams or disability-related inquiries.²² Moreover, the ADA also prohibits employers from discriminating on the basis of disability, unless that discrimination implicates the employee's ability to safely perform the job in question.²³

GINA²⁴ provides additional protection, outlawing discrimination on the basis of genetic information in health insurance and in employment.²⁵ Congress passed GINA in 2008 to assuage people's concerns about genetic privacy and genetic discrimination. Genetic information, as defined by the law, includes a person's genetic test results, the genetic test results of his family members, and his family medical history.²⁶ Like the ADA, GINA imposes constraints on both an employer's ability to obtain, as well as to act on, the covered information.²⁷ However, unlike the ADA, GINA does not include health- or safety-related exceptions for discrimination.²⁸ Consequently, an employer cannot make decisions based on lawfully obtained genetic information, even if the outcome of that choice would be in the interest of job performance or safety.

Given the wide coverage of both the ADA and GINA, we conclude that the NFL and the clubs may already be violating these laws with their current practices. Additionally, as new technologies develop, those entities will be

¹⁹ Americans with Disabilities Act of 1990, Pub. L. No. 101-336, 104 Stat. 327 (codified as amended at 42 U.S.C. §§ 12101–12213 (2012)).

²⁰ *Americans with Disabilities Act*, U.S. DEP'T LAB., <https://www.dol.gov/general/topic/disability/ada> [<https://perma.cc/Q2UJ-W4SH>].

²¹ Title I of the ADA applies to employers, employment agencies, labor organizations, and joint labor-management committees. 42 U.S.C. § 12111(2) (2012). The statute, in relevant part, defines an employer as "a person engaged in an industry affecting commerce who has 15 or more employees for each working day in each of 20 or more calendar weeks in the current or preceding calendar year, and any agent of such person." *Id.* § 12111(5)(A). The statute provides no explicit exception for professional sports.

²² *Id.* § 12112(d)(1)–(2), (4); see also *infra* notes 172–75 and accompanying text.

²³ See *infra* notes 290–300 and accompanying text.

²⁴ Genetic Information Nondiscrimination Act of 2008, Pub. L. No. 110-233, 122 Stat. 881 (codified in scattered sections of 26, 29, and 42 U.S.C.).

²⁵ GENETIC INFO. NONDISCRIMINATION ACT, <http://ginahelp.org> [<https://perma.cc/2RYT-CB5T>].

²⁶ 42 U.S.C. § 2000ff(4)(A).

²⁷ See *infra* note 313 and accompanying text.

²⁸ GINA does, however, include several exceptions for the acquisition of genetic information, including for wellness programs. See *infra* notes 372–83 and accompanying text.

further tempted to seek and act on even more information about current and prospective players. Some of the new innovations blur the line between evaluations of health and evaluations of performance, pushing the boundaries of which evaluations are medical or genetic—and are thus covered by the ADA or GINA—and which evaluations merely assess athletic ability or potential—and are not. Based on our analysis of the ADA and GINA, we argue that the existing legal safeguards, both as written and as applied, could benefit from additional clarification, as well as certain changes.

First, we assert that the NFL and its clubs should ensure that they are complying with the current law. We are concerned that a number of potential legal violations may be occurring with respect to (1) medical examinations at the NFL Scouting Combine (Combine) (an annual event each February in which approximately 300 of the best college football players are invited to undergo medical examinations, intelligence tests, interviews, and multiple football and other athletic drills and tests in the hopes of demonstrating their prowess and landing a spot in the NFL²⁹); (2) post-offer medical examinations that are made public; (3) post-offer medical examinations that reveal a disability and that result in an adverse employment action; (4) Combine medical examinations that include a request for a player's family medical history; and (5) the preseason physical's disclosure requirements. Second, we suggest areas where the ambiguous state of the present legal regulation demands additional clarity. Third, we identify areas of possible legal circumvention and argue against them. Finally, we outline potential changes to the law. To that end, we suggest potential reforms to better strike the balance between the players' autonomy and privacy and the interests of the NFL and its clubs in avoiding liability, in having the most competitive players, and in protecting players from injury.

This Article is the first in-depth analysis of the law and ethics of health and performance evaluations in the NFL (or any professional sports league). It proceeds in three parts. Part I provides the necessary background for understanding the possible impact of various traditional and cutting edge evaluative technologies on NFL players. It begins by identifying the relevant parties and stakeholders and their relationships. Part I then proceeds to describe both existing and prospective technologies that are either already being used by—or of potential interest to—the NFL and its clubs.³⁰ Building off this foundation, Part II explores the existing law governing the acquisition and use of health, medical, and performance evaluations by the NFL, its clubs, and National Football Scouting—focusing on the ADA and GINA—and applies those laws to the practices and technologies outlined in Part I. Finally, Part III turns to recommendations for the future. We conclude with

²⁹ *Home*, NFL SCOUTING COMBINE, <http://www.nflcombine.net> [<http://perma.cc/7ZSS-YBSP>].

³⁰ For more on these technologies, see Online Appendix B, *supra* note 16.

our four “C”s: compliance, clarification, circumvention, and changes. While our focus is on the NFL, our analysis and recommendations have clear implications for other professional sports leagues, and potentially also for other workplaces that will rely on evaluating technologies.

I. BACKGROUND ON THE NFL AND EVALUATIVE TECHNOLOGIES

Much like its exceptional players, the NFL is not a typical employer. Individuals like James who aspire to play professional football will find themselves interacting with several separate but related legal entities, including the NFLPA, the NFL, the clubs themselves (as well as their medical and training staffs), the entities that organize the Combine, and the private companies seeking to develop and market technologies to these stakeholders. Because of the complexity of these relationships, understanding them is essential to our analysis. To that end, Part I presents the factual and technological background necessary to assess the legal and ethical implications of the use of health- and performance-related evaluations by the NFL and its clubs. It begins by describing the relationships between the various relevant parties before turning to the practices and technologies currently available for measuring NFL players’ health and performance.

A. *Interested Parties*

The use or potential use of both traditional and cutting edge evaluative technologies in the NFL has major implications for a variety of stakeholders, including most importantly (1) the players and their union, the NFLPA; (2) the NFL and its clubs; (3) the club doctors and athletic trainers; and (4) the private companies responsible for developing the new evaluative technologies. Below we provide background information about these stakeholders to help understand the legal and ethical issues raised by both old and new health and fitness evaluations.

Each season, approximately 2200 players play in the NFL.³¹ As explained in their Collective Bargaining Agreement (CBA), players are the employees of their respective clubs.³² Their union is the NFLPA. Pursuant to the National Labor Relations Act (NLRA), the NFLPA is “the exclusive representative[] of all the employees in [the bargaining] unit for the purposes of collective bargaining in respect to rates of pay, wages, hours of

³¹ This figure is derived from official NFL–NFLPA playtime statistics (on file with authors).

³² Collective Bargaining Agreement, NFL/NFLPA (Aug. 4, 2011), pmb. xiv [hereinafter Collective Bargaining Agreement].

employment, or other conditions of employment.”³³ The bargaining unit consists of

1. All professional football players employed by a member club of the National Football League;
2. All professional football players who have been previously employed by a member club of the National Football League who are seeking employment with an NFL Club;
3. All rookie players once they are selected in the current year’s NFL College Draft; and
4. All undrafted rookie players once they commence negotiation with an NFL Club concerning employment as a player.³⁴

The NLRA requires NFL clubs, acting collectively as the NFL, to bargain collectively with the NFLPA concerning the “wages, hours, and other terms and conditions of employment” for NFL players.³⁵

From a legal perspective, the NFL is an unincorporated association of thirty-two member clubs.³⁶ Each club is a separate and distinct legal entity,³⁷ with its own legal obligations. However, the NFL also serves as a centralized body for the clubs, including facilitating shared policy and decisionmaking.³⁸

The CBA obligates NFL clubs to retain, or hire as consultants, doctors with a variety of specialties, including but not limited to orthopedics, cardiovascular disease, and neurology.³⁹ Club doctors perform a variety of duties, including

- (1) providing healthcare to the players; (2) helping players determine when they are ready to return to play; (3) helping clubs determine when players are ready to return to play; (4) examining players the club is considering employing, *e.g.*, at the NFL Combine or as part of free agency; and, (5) helping to clubs determine whether a player’s contract should be terminated

³³ 29 U.S.C. § 159(a) (2012).

³⁴ Collective Bargaining Agreement, *supra* note 32, pmb1.

³⁵ 29 U.S.C. § 158(d).

³⁶ *Am. Needle, Inc. v. Nat’l Football League*, 560 U.S. 183, 187 (2010).

³⁷ *Cf. Brady v. Nat’l Football League*, 640 F.3d 785, 787 (8th Cir. 2011) (*per curiam*) (providing an example of a case in which each of the thirty-two teams and the NFL were named codefendants).

³⁸ *See* Const. and Bylaws of the National Football League art. II, § 2.1(A) (stating that the purpose of the NFL is “[t]o promote and foster the primary business of League members, each member being an owner of a professional football club located in the United States”).

³⁹ Collective Bargaining Agreement, *supra* note 32, art. 39, § 1(a)–(b). Of the thirty-two NFL clubs, only two directly employ any of their club doctors while the other thirty clubs enter into independent contractor arrangements with the doctors. Telephone Interview with Larry Ferazani, Vice President, Labor Litig. & Policy, Nat’l Football League (Oct. 6, 2014).

because of the player's physical condition, *e.g.*, whether an injury will prevent the player from playing.⁴⁰

Each NFL club also employs approximately four athletic trainers, including a head athletic trainer and three assistants.⁴¹ Club doctors principally rely on the athletic trainers to monitor and handle the players' health during the week.⁴²

National Football Scouting is also relevant when applying the ADA and GINA to the NFL. National Football Scouting is an organization that provides scouting services to NFL clubs and that is owned and managed as a joint endeavor by twenty of the NFL's thirty-two clubs.⁴³ National Football Scouting also owns and controls National Invitational Camp, the legal entity that is the Combine.⁴⁴ National Football Scouting, through National Invitational Camp, runs the Combine.⁴⁵ As will be demonstrated below, we are not concerned with the application of the ADA and GINA to National Football Scouting directly, but instead with the application of the ADA and GINA to the NFL and NFL clubs as a result of their relationship with National Football Scouting.⁴⁶

NFL club executives, coaches, scouts, doctors and athletic trainers attend the Combine to evaluate the players for the upcoming NFL Draft.⁴⁷ According to Jeff Foster, the President of National Football Scouting, *all thirty-two NFL clubs* consider the medical exams (and not the athletic drills) to be the most important part of the Combine.⁴⁸ Since 1987, doctors with IU Health, a healthcare system affiliated with Indiana University School of Medicine, perform x-rays, MRIs and other exams at each year's Combine.⁴⁹ The IU Health doctors

40 DEUBERT, COHEN & LYNCH, *supra* note 1, at 95; *see also* Collective Bargaining Agreement, *supra* note 32, app. A, para. 8 ("If Player fails to establish or maintain his excellent physical condition to the satisfaction of the Club physician . . . then Club may terminate this contract.").

41 Athletic trainers—unlike most club doctors—are full-time employees of the club and are with the club and the players at almost all times. DEUBERT, COHEN & LYNCH, *supra* note 1, at 160.

42 *See Frequently Asked Questions*, NFL PHYSICIANS SOC'Y, <http://nflps.org/faqs/how-do-nflps-physicians-collaborate-with-team-trainers-to-ensure-optimum-health-for-players/> [<http://perma.cc/CPZ5-JKTE>] ("There is a constant source of dialogue between the athletic trainers and the team physicians in all aspects of the player's care.").

43 Bill Bradley, *Too Much Overlap Caused NFL to Create Annual Scouting Combine*, NFL (Feb. 17, 2014, 2:27 PM), <http://www.nfl.com/news/story/oap2000000326212/printable/too-much-overlap-caused-nfl-to-create-annual-scouting-combine> [<https://perma.cc/Y3FH-X6ZQ>].

44 Jeff Foster Talks About Challenges of Hosting NFL Scouting Combine, NFL (Feb. 19, 2014, 1:27 PM), <http://www.nfl.com/news/story/oap2000000326405/article/jeff-foster-talks-about-challenges-of-hosting-nfl-scouting-combine> [<http://perma.cc/WT22-JGAU>].

45 *Id.*

46 *See infra* subsection III.B.2.

47 Home, NFL SCOUTING COMBINE, <http://www.nflcombine.net/> [<http://perma.cc/7ZSS-YBSP>].

48 Albert Breer, *NFL Scouting Combine's Evolution Raises Questions About Future*, NFL (July 22, 2014, 12:05 PM), <http://www.nfl.com/combine/story/oap1000000139993/article/nfl-scouting-combin-es-evolution-raises-questions-about-future> [<https://perma.cc/DN9G-DMTR>].

49 *See id.* ("350 MRIs were conducted on 330 players in a four-day period, with IU Health—a Combine partner for 28 years . . ."); Jeff Foster Talks About Challenges of Hosting NFL Scouting

perform examinations on behalf of the Combine, which then provides the results to NFL clubs.⁵⁰ After the IU Health examinations, club doctors also evaluate the participants.⁵¹ The medical examinations at the Combine generally include x-rays, MRIs, echocardiograms, EKGs, and blood analysis.⁵² Participants must also take a drug test.⁵³ Dr. Richard Kovacs, a cardiologist with IU Health, describes the medical exams as “the choke point [because] . . . [n]o one goes to [the Combine] until they go through us.”⁵⁴ These details about the structure of the Combine and the specific individuals who do the examining will prove important for the legal analysis in Part II.

The NFL exercises considerable control over the Combine, including helping to make decisions about the drills players perform, selling public tickets, and broadcasting the event on television.⁵⁵ Thus, as we argue below, National Football Scouting may be understood for ADA and GINA purposes as an arm of at least some clubs and of the NFL itself.⁵⁶ At a minimum, it provides the NFL and the clubs with the very types of information that the ADA and GINA seek to regulate.

Lastly, many private technology companies both in the U.S. and abroad are creating biological and other health-related products principally geared toward a sports application, making those companies important stakeholders in the conversation about evaluating NFL player health and performance.⁵⁷ Biometric companies are working on technologies, with some focusing specifically on genetic tests. For example, several companies are putting cutting-edge technology into wearable devices that generate a variety of biological data. As these technologies get smaller and smaller, robust data

Combine, *supra* note 44 (describing how IU doctors “handle all of the testing, imaging and reporting of the standard and special battery of tests that we do on each athlete”); *see also About IU Health*, IND. U. HEALTH, <http://iuhealth.org/about-iu-health/> [<http://perma.cc/92B5-SQJJ>].

⁵⁰ Bradley, *supra* note 43.

⁵¹ DEUBERT, COHEN & LYNCH, *supra* note 1, at 113.

⁵² Jordan Raanan, *What's the NFL Combine All About? Giants' Justin Pugh Breaks It Down*, NJ.COM (Feb. 21, 2014, 8:17 AM), http://www.nj.com/giants/index.ssf/2014/02/what_s_the_nfl_combine_all_about_giants_justin_pugh_breaks_it_down.html [<https://perma.cc/9V5K-V5WX>].

⁵³ *See* Kimberly Jones, *Randy Gregory: 'I Blame Myself' for Failed NFL Combine Drug Test*, NFL (Mar. 26, 2015, 7:06 PM), <http://www.nfl.com/news/story/oap300000481581/article/randy-gregory-i-blame-myself-for-failed-nfl-combine-drug-test> [<https://perma.cc/8UX9-G5MQ>] (discussing player's failed drug test at the Combine); Ralph Vacchiano, *N.Y. Giants Cornerback Jayron Hosley Gets Four-Game Suspension for Violating NFL's Drug Policy*, NY DAILY NEWS (June 5, 2014 12:17 AM), <http://www.nydailynews.com/sports/football/giants/hosley-latest-giant-suspended-failed-drug-test-article-1.181719> [<https://perma.cc/C6S T-R9G8>] (same).

⁵⁴ Dana Hunsinger Benbow, *The Real Reason for the NFL Scouting Combine*, INDYSTAR, (Feb. 25, 2016, 9:06 AM) (internal quotation marks omitted), <http://www.indystar.com/story/sports/nfl/2016/02/20/real-reason-nfl-scouting-combine/80251866/> [<https://perma.cc/4WU7-ZKVM>].

⁵⁵ DEUBERT, COHEN & LYNCH, *supra* note 1, at 112.

⁵⁶ *See infra* text accompanying notes 154–56.

⁵⁷ *See infra* subsections I.B.2–3.

generation and collection will increase over time. These companies are responding to market demands, incorporating technologies that can help athletes (professional and amateur) improve their performance and also those that can help athletes be healthier and safer. Given that these demands are principal concerns of the NFL and many other powerful sports leagues, there are powerful economic incentives for the continued creation and expansion of new evaluative technologies.

B. *Current and Prospective Technologies*

Having identified the relevant stakeholders, here we turn to the kinds of evaluative technologies that are either currently being used or could potentially be used to assess the health and performance of current and aspiring NFL players. Although related, health and performance are not completely synonymous. For example, while detecting a cardiac abnormality speaks to a potential player's health, he might still be capable of performing at a high level in the present, just with a greater degree of future risk. Thus, when appropriate, we attempt to differentiate measures of health from measures of performance, but we do so cautiously and with the knowledge that these categories frequently overlap. For this reason, we employ the broader rubric of "evaluative" technology, which we intend to include assessments of medical conditions, performance, potential, and risk.

NFL players are subject to a wide variety of assessments of their health, physical condition, and abilities. These evaluations range from athletic drills and traditional medical examinations to cutting-edge wearable technologies and genetic tests. The following sections discuss each of these different types of tests and technologies and their application to professional athletes as groundwork for analyzing the legal implications.⁵⁸

1. Medical Examinations and Athletic Drills

The first category of evaluations is medical examinations and athletic drills. Athletic drills, as used here, refer to skills and performance-based evaluations that are not principally diagnostic. In other words, while medical examinations assess health and wellness, athletic drills are primarily intended to assess skill and performance. This distinction can of course be muddy. For example, both types of assessments could meet a particular legal definition of a medical exam, which we explain in Part II.⁵⁹

⁵⁸ Online Appendix B catalogues such technologies in much more exhaustive detail.

⁵⁹ See *infra* subsection II.A.1.a.

a. *Medical Examinations*

As discussed above, players undergo a wide battery of medical examinations during the Combine.⁶⁰ Some have labeled the Combine's medical examinations dehumanizing. One former NFL player, Aaron Collins, described the Combine as follows:

During the physical exams, they pull on every bone in your body, and evaluate everything and X-ray everything. You are like a slab of beef . . . It's a meat market. There is not much dignity in it. They are evaluating potential. They check your legs, and pull on you. They check your knees and your ankles, pulling every joint. If you ever had surgery, they X-ray that part of your body a thousand times. They X-ray everybody's chest, their heart, their this, their that. You take a stress test. You walk on a treadmill. You do everything. At the Combine, every player gets totally evaluated by every team doctor. They stand around you, they slap you on the table, and they evaluate you. This may be one of the first times that you realize that you are no longer Aaron Collins, person—you are Aaron Collins, commodity. It's a job.⁶¹

NFL hopefuls who attend the Combine all sign broad authorizations for the release, disclosure, and use of their otherwise private medical and mental health information.⁶² In addition, these documents give permission to release and to disclose the entirety of a player's physical and mental health records (with the exception of psychotherapy notes) and direct a wide range of entities—including both physicians and mental health care professionals, as well as athletic trainers and amateur and professional sports organizations—to provide and to discuss that information with National Football Scouting, the NFL, the clubs and their affiliates, and certain third parties under contract with the NFL.⁶³ The authorizations are in effect for two years following signing, and a player maintains a limited right to revoke the authorization for information that has not yet been released.⁶⁴

⁶⁰ See *supra* note 52 and accompanying text.

⁶¹ Aaron Collins with Geoffrey Scott, *Mental and Emotional Preparation: A Realistic View of Talent, Perseverance, and Turning Defeat into Victory*, in FOOTBALL: RISING TO THE CHALLENGE: THE TRANSITION FROM COLLEGE TO PRO 137, 140 (Geoffrey R. Scott ed., 2005).

⁶² Participants in the Combine are asked to sign two documents: (1) an authorization for the use and disclosure of records and information and (2) an authorization for release and disclosure of medical and mental health records. These are reproduced in Online Appendix C. Jessica L. Roberts, I. Glenn Cohen, Christopher R. Deubert & Holly Fernandez Lynch, *Evaluating NFL Player Health and Performance: Legal and Ethical Issues*: Online app. C (2017), <https://www.pennlawreview.com/print/165-U-Pa-L-Rev-Appendix-C> [hereinafter Online Appendix C]. While execution of these waivers is ostensibly voluntary, it is not believed that any players refuse to sign them. DEUBERT, COHEN & LYNCH, *supra* note 1, at 99 n.k.

⁶³ Online Appendix C, *supra* note 62.

⁶⁴ *Id.* at 4, 7-8.

The medical exams continue after the player has been drafted and joined a club. Every player undergoes a standard minimum preseason physical—conducted by the club doctors—that covers a general medical examination, an orthopedic examination, flexibility testing, an EKG, an echocardiogram, blood testing, baseline neuropsychological testing, urinalysis, vision testing, hearing testing, a dental examination, a chest X-ray, and an X-ray of all previously injured areas.⁶⁵ During the season, players often undergo a variety of medical exams if they have been injured or potentially injured. Additionally, the CBA requires players to submit to physicals at their club's request.⁶⁶ And finally, players receive a physical at the conclusion of the season, also conducted by the club doctor.⁶⁷

The results of the medical examinations described above can have a real impact on a player's career. Take, for example, the case of Star Lotulelei who, during the 2013 Combine, dropped from being one of the top projected draft picks to number fourteen after an irregular echocardiogram.⁶⁸ While a subsequent MRI showed no evidence of a heart abnormality,⁶⁹ the damage was already done. That result arguably cost Lotulelei millions of dollars, as he was drafted lower than expected.⁷⁰ Similarly, in the 2016 NFL Draft, Notre Dame linebacker Jaylon Smith, UCLA linebacker Myles Jack, and Alabama linebacker Reggie Ragland all went from projected first-round draft picks to second-round draft picks because of suspected medical issues: Smith and Jack had knee injuries, while Ragland was diagnosed with an enlarged aorta during pre-draft medical exams.⁷¹

⁶⁵ Collective Bargaining Agreement, *supra* note 32, art. 39, § 6; *id.* app. K.

⁶⁶ *Id.* app. A, para. 8.

⁶⁷ See, e.g., Michael Phillips, *Sour End to Skins' Bitter Season*, RICHMOND TIMES-DISPATCH, Dec. 29, 2014, at C1 (explaining that each player on the Washington Football Club was required to report for end-of-season physicals following the final game of the season); Joe Reedy, *Offseason Questions to Focus on Assistants – Coordinators Zimmer, Gruden Already Are Attracting Interest*, DAYTON DAILY NEWS, Jan. 9, 2012, at C1 (same).

⁶⁸ See David Newton, *Teams that Passed on Lotulelei Will Regret It*, ESPN (Sept. 28, 2013), http://www.espn.com/blog/carolina-panthers/post/_id/804/teams-that-passed-on-lotulelei-will-regret-it [<https://perma.cc/29QF-Z77U>] (“Lotulelei was considered the top-rated player in the draft by many before an echocardiogram administered by the NFL scouting combine”); Gregg Rosenthal, *Star Lotulelei Drafted at No. 14 by Carolina Panthers*, NFL: AROUND THE NFL (Apr. 25, 2013, 10:06 PM), <http://www.nfl.com/news/story/oap1000000163626/article/star-lotulelei-drafted-at-no-14-by-carolina-panthers> [<http://perma.cc/9KLM-SY3F>] (“The top [defensive lineman] on a lot of boards fell to [the Carolina Panthers] at No. 14.”).

⁶⁹ Kevin Patra, *Top Prospect Star Lotulelei Gets Positive News on Heart*, NFL: AROUND THE NFL (Apr. 2, 2013, 5:38 AM), <http://www.nfl.com/news/story/oap1000000156468/article/top-prospect-star-lotulelei-gets-positive-news-on-heart> [<http://perma.cc/8RXF-VPJG>].

⁷⁰ See 2013 NFL Draft First-Round Picks' Signing Status, NFL (July 30, 2013, 9:15 AM), <http://www.nfl.com/draft/story/oap1000000168476/article/2013-nfl-draft-first-round-picks-signing-status> [<https://perma.cc/GBG4-QW6B>] (showing that first-year players' salaries correspond with their draft order).

⁷¹ See Michael David Smith, *Jaylon Smith Will Receive Insurance Payment, Myles Jack Won't*, NBC SPORTS: PROFOOTBALL TALK (Apr. 29, 2016, 10:33 PM), <http://profootballtalk.nbcsports.com/2016/04/29/jaylon-smith-will-receive-insurance-payment-myles-jack-wont/> [<https://perma.cc/P29E-ECHZ>].

b. *Drills*

In addition to the medical examinations, the players participate in multiple athletic drills at the Combine, including the forty-yard dash, bench press, vertical jump, broad jump, three-cone drill, twenty-yard shuttle, and sixty-yard shuttle.⁷² While these drills demonstrate a player's speed, agility, and athleticism, they can also serve a medical purpose by exposing physical limitations the player might have due to past or current injuries. Clubs certainly have an interest in testing players with injury histories at the Combine to see if they have fully healed from a particular injury or surgery and to judge whether the player will ever be able to be in the same condition he was prior to the injury.

Like the medical exams, this kind of testing does not end at the Combine. Players are often subjected to more of the same athletic drills leading up to the NFL Draft in private meetings and workouts with clubs.⁷³ Athletic drills are also a central part of the player's employment once he is with an NFL club. Training camps and practices consist of all kinds of athletic drills and football-related activities. While football is the primary focus of these drills, they can also have a medical component. The drills will constantly demonstrate the player's current physical health and ability, including whether he has any injuries or has not fully recovered from previous injuries.

The evaluations might be even more intensive if the player is not yet a member of the club. Typically every Tuesday during the regular season (which is the players' normal rest day following a Sunday game), clubs will hold tryouts for unemployed players that play positions where either the club

(explaining that Jaylon Smith and Myles Jack, "the two best linebackers in college football . . . suffered serious knee injuries that caused them to drop in the draft"). Compare Josh Alper, *Report: Reggie Ragland Flagged for Enlarged Aorta*, NBC SPORTS: PROFOOTBALLTALK (Apr. 28, 2016, 1:50 PM), <http://profootballtalk.nbcsports.com/2016/04/28/report-reggie-ragland-flagged-for-enlarged-aorta/> [<https://perma.cc/G4QB-3XNP>] ("Alabama linebacker Reggie Ragland pops up in the first round of most mock drafts, but a medical issue may cause some teams to think twice about picking him."), with Michael David Smith, *Bills Trade Up for Reggie Ragland*, NBC SPORTS: PROFOOTBALLTALK (Apr. 29, 2016, 7:59 PM), <http://profootballtalk.nbcsports.com/2016/04/29/bills-trade-up-for-reggie-ragland/> [<https://perma.cc/E7K7-NZ7S>] ("Alabama linebacker Reggie Ragland fell further in the draft than most expected.").

⁷² 2016 *Combine Tracker*, NFL, <http://www.nfl.com/combine/tracker> [<http://perma.cc/3CXM-WHQM>] (hover mouse over the icons under "Monday Results" to see the names of the drills).

⁷³ See, e.g., John McClain, *Scouting Combine Presents Deep Pool at Key Positions for Texans*, HOUS. CHRON. (Feb. 22, 2015, 10:10 PM), <http://www.houstonchronicle.com/sports/texans/article/Scouting-combine-presents-deep-pool-at-key-6095721.php> [<https://perma.cc/BY2Q-G42R>] (explaining that NFL clubs begin to hold private workouts following the Combine in advance of the draft); Jim Thomas, *Rams Sign 15 Rookie Free Agents*, ST. LOUIS POST-DISPATCH (May 13, 2014), http://www.stltoday.com/sports/football/professional/rams-sign-rookie-free-agents/article_8a74b47f-f095-518b-8975-a688eb5b2c82.html [<https://perma.cc/9CCR-E684>] (discussing a private pre-draft workout held by the St. Louis Rams).

has recently suffered an injury or where the club is looking to upgrade.⁷⁴ The tryouts typically consist of a variety of football drills, sometimes against other prospective players. While these assessments are focused on the player's skill level, like the other athletic drills, they also reveal a player's physical condition, including recovery from prior injuries. As part of the tryout, the club also generally subjects the player to a basic physical and, assuming that goes well, signs the player to a contract.⁷⁵

Although the Tuesday tryouts are generally for the players fighting to get back into the NFL, star players are also occasionally subjected to similar evaluations. Beginning in March of every year, unrestricted free agents⁷⁶ are able to offer their services to any and all clubs but first must pass a physical. If the player does not pass the physical, any contract offer will be revoked and the player is once again a free agent, but now with the black mark of a failed physical as reported by the media.⁷⁷

In sum, both before they are hired to play NFL football and throughout their playing careers, players are constantly subjected to medical examinations and athletic drills. These are high stakes events, with careers and significant sums of money on the line each time. These examinations and drills—particularly those conducted at the pre-employment stage—are not primarily aimed at *protecting* player health, but instead are done with the *business purpose* of evaluating a player's ability to perform successfully on the field and enable the club to win. In other words, while they may have some benefit to the

⁷⁴ See Mike Florio, *Falcons Bring in 10 for Workouts on Tuesday*, NBC SPORTS: PRO FOOTBALL TALK (Oct. 1, 2014, 9:36 AM), <http://profootballtalk.nbcsports.com/2014/10/01/falcons-bring-in-10-for-workouts-on-tuesday/> [<http://perma.cc/Z93P-5BPL>] (“The tradition known as Tryout Tuesday went double digits in Atlanta this week, with 10 players coming to town for a kicking of the tires.”); Mike Florio, *Giants Try Out 15 on Tuesday*, NBC SPORTS: PRO FOOTBALL TALK (Oct. 21, 2014, 7:16 PM), <http://profootballtalk.nbcsports.com/2014/10/21/giants-try-out-15-on-tuesday/> [<http://perma.cc/36M9-3USB>] (describing “Tryout Tuesday”).

⁷⁵ Turn to “Tryout Tuesdays” for Success with “Street Free Agents,” FOOTBALL EDUCATOR, <http://www.thefootballeducator.com/turn-to-tryout-tuesdays-for-success-in-free-agency> [<https://perma.cc/X8VA-V3YR>].

⁷⁶ An unrestricted free agent is “any player with four or more Accrued Seasons . . . at the expiration of his Player Contract.” He is “completely free to negotiate and sign a Player Contract with any Club, and any Club shall be completely free to negotiate and sign a Player Contract with such player, without penalty or restriction.” Collective Bargaining Agreement, *supra* note 32, art. 9, § 1(a).

⁷⁷ See Art Stapleton, *Super Bowl: O'Brien Schofield Getting Second Chance*, NORTH JERSEY.COM (Jan. 31, 2015, 1:21 AM), <http://www.northjersey.com/sports/football/super-bowl/getting-a-second-chance-1.1262114> [<https://perma.cc/JS2N-G2CB>] (explaining how the New York Giants revoked O'Brien Schofield's \$8 million contract offer after he failed his physical and how Schofield eventually ended up signing a \$730,000 contract with the Seattle Seahawks); see also *Saffold Re-Signs with Rams After Failing Raiders' Physical*, COLUM. DAILY TRIB. (Mar. 13, 2014), http://www.columbiatribune.com/sports/saffold-re-signs-with-rams-after-failing-raiders-physical/article_8064eefo-aadd-11e3-b2c5-0017a4362370.html [<https://perma.cc/FZ9N-4792>] (describing how Rodger Saffold signed a contract of around \$30 million with the St. Louis Rams after a failed physical cost him his \$42.5 million contract with the Oakland Raiders).

players, the primary interest of the NFL and its clubs in the medical evaluations and athletic drills is to obtain as much information as possible about a player's current and future ability to help the club. For example, before offering a long-term contract to a player, a club would want to examine the player's injury history to evaluate the likelihood of future injury.

2. Nongenetic Technologies

Medical examinations and athletic drills are traditional forms of health surveillance by NFL clubs. In the last several years many technology companies have been creating new products to measure player health.⁷⁸ We focus our analysis here on products that NFL clubs are already using or are likely to use in the future, including at the Combine.⁷⁹ While no categorization is perfect, the products these companies produce generally fall into eight categories: (1) player tracking, (2) heart rate, (3) sleep, (4) readiness, (5) body temperature, (6) force, (7) hydration, and (8) head impact sensors. Clubs may use these technologies for evaluating and improving performance, as well as for preventing or minimizing injury. For example, in 2015, the Philadelphia Eagles held their star running back out of practice because his hydration level was too low.⁸⁰

In what follows, we provide summaries of four examples of technologies we believe are the most relevant to the legal and ethical issues discussed in this Article, though many others are detailed in Online Appendix B: (1) Catapult Sports (Catapult) / Zebra Technologies (Zebra); (2) Fatigue Science; (3) BioForce HRV; and (4) X2 Biosystems.

First, tracking technologies are of interest to the NFL. Catapult is an Australian company that provides matchbook-sized GPS devices, known as the OptimEye system, that can be worn on a player's uniform.⁸¹ The devices contain sensors capable of measuring and collecting data about the player's performance, including agility, force, and acceleration.⁸² The data is transmitted by radio to

⁷⁸ Online Appendix B includes detailed information about thirteen companies that have developed such technologies for use in professional or elite-level sports and their effects on players.

⁷⁹ See Tom Pelissero, *NFL Ponders Changes to Tests Given at Annual Scouting Combine*, USA TODAY (Feb. 22, 2016, 12:13 AM), <http://www.usatoday.com/story/sports/nfl/2016/02/21/scouting-combine-changes/80700052/> [<https://perma.cc/V6QC-BQYU>] (describing the steps the NFL is taking to integrate new technology into the Combine).

⁸⁰ See Josh Alper, *Chip Kelly: DeMarco Murray Was Held Out of Practice Because of Hydration Issue*, NBC SPORTS: PRO FOOTBALL TALK (Aug. 4, 2015, 1:15 PM), <http://profootballtalk.nbcsports.com/2015/08/04/chip-kelly-demarco-murray-held-out-of-practice-because-of-hydration-issue/> [<http://perma.cc/ZWZ3-B48R>] (explaining the team's decision and highlighting the coach's comment that "[i]t's not just for [Murray], we treat every player on a daily basis" (alteration in original) (internal quotation marks omitted)).

⁸¹ Jen Cohen Crompton, *Philadelphia Eagles Tap into Tech for Training*, DIGITALIST MAG. (July 25, 2013), <http://www.digitalistmag.com/industries/sports-and-entertainment/2013/07/25/philadelphia-eagles-tap-into-tech-for-training-0305701> [<https://perma.cc/VLZ8-ZVKP>].

⁸² *Id.*

cloud-based software for analysis.⁸³ Similarly, San Diego-based Zebra produces a wearable Real Time Locating System (RTLS) sensor for a player's shoulder pads.⁸⁴ Zebra's technology collects data such as position, speed, and distance that are registered and compiled into a database.⁸⁵ Unlike Catapult's devices, the Zebra technology does not measure force, so it does not help players avoid injury.⁸⁶

As of November 2016, seventeen NFL clubs use Catapult's devices.⁸⁷ Clubs are principally focused on using the technology to prevent injuries.⁸⁸ The device enables the club to identify which players have exerted high amounts of force and, as a result, have them participate less or at a lower intensity in future practices.⁸⁹ It also enables the club to design practices that are more efficient and less strenuous for the players, as well as create practice regimens that suit the needs of each position.⁹⁰ Some players will suffer because of the technology: it will identify which players are moving slower and less forcefully than others, which could cause a club to terminate those players' contracts.⁹¹

By contrast, Zebra is "The Official On-Field Player Tracking Provider" of the NFL.⁹² In July 2014, the NFL announced that it would install Zebra's technology in seventeen stadiums during the 2014 NFL season.⁹³ Specifically, the NFL installed the technology in the fifteen stadiums that hosted Thursday Night Football games that season.⁹⁴ In a 2015 *New York Times* article, an official with the company that distributes Zebra's data described the technology as "the future of sports" given the amount of data that is currently available.⁹⁵ Coaches and trainers certainly seem interested in putting that newly available information to

⁸³ *Id.*

⁸⁴ Press Release, NFL Commc'ns, National Football League and Zebra Technologies to Provide 'Next Gen Stats' for the 2014 Season (July 31, 2014), <https://web.archive.org/web/20150926132155/http://nflcommunications.com/2014/07/31/national-football-league-and-zebra-technologies-to-provide-next-gen-stats-for-the-2014-season> [http://perma.cc/6LUV-SE8T].

⁸⁵ *Id.*

⁸⁶ *See id.* (noting that the technology "capture[s] precise location measurements").

⁸⁷ *See Our Clients*, CATAPULT USA, <http://catapultsports.com/united-states/clients> [https://perma.cc/F5EJ-6BLM] (listing Catapult's current NFL club clients); *see also* Catapult Sports, *Buffalo Bills Player Monitoring Goes High Tech*, YOUTUBE (July 24, 2013), <https://www.youtube.com/watch?v=kjfti4Um14I&feature=youtube> (providing an example of an NFL club using Catapult technology during a practice).

⁸⁸ *Id.*

⁸⁹ *Id.*

⁹⁰ *Id.*

⁹¹ *See supra* note 40 and accompanying text.

⁹² *Zebra Sports Solutions*, ZEBRA, <https://www.zebra.com/us/en/solutions/location-solutions/zebra-sport-solution.html> [https://perma.cc/F3CA-RRAC] (internal quotation marks omitted).

⁹³ NFL Commc'ns, *supra* note 84.

⁹⁴ *Id.*

⁹⁵ Ken Belson, *In a Data-Driven N.F.L., the Pings May Soon Outstrip the X's and O's*, N.Y. TIMES (Aug. 22, 2015), <http://www.nytimes.com/2015/08/23/sports/football/in-a-data-driven-nfl-the-pings-may-soon-outstrip-the-xs-and-os.html> [https://perma.cc/Y4BL-5WT7] (internal quotation marks omitted).

use. The Seahawks' director of player health and performance, Sam Ramsden, explained that Zebra's technology could help him assess whether his players are injured or tired based on their speed and other factors.⁹⁶ Ramsden noted, "I look at it more as segue to have a conversation with the player The data is basically saying, 'Looks like you weren't cutting as hard today—is there something going on?'"⁹⁷ Thus, technologies like those produced by Catapult and Zebra can empower players by giving them more information, which could in turn enhance performance or prevent injury. However, that same data could result in their being benched, traded, or terminated.

Second, Fatigue Science is a Canadian company that offers a wrist-worn device called a Readiband that is worn while sleeping to collect data about an athlete's sleep, including quality, quantity, and timing.⁹⁸ The Readiband captures actigraphy data by taking sixteen 3D measurements of the tiny movements in the wearer's wrist per second and uses the acquired data to determine when a person is sleeping.⁹⁹ The data is then analyzed using a web-based application.¹⁰⁰ The Seattle Seahawks and the New York Giants currently use the Readiband, and news reports indicate that other NFL clubs may be using similar technology.¹⁰¹

Fatigue Science's technology could both benefit and harm players. The importance of sleep from a medical and scientific viewpoint is well-established.¹⁰²

⁹⁶ *Id.*

⁹⁷ *Id.* (internal quotation marks omitted).

⁹⁸ See *Team Platform*, FATIGUE SCI., <http://fatiguescience.com/team-platform/> [<https://perma.cc/N9j2-K5PF>].

⁹⁹ See C.A. RUSSELL ET AL., ARCHINOETICS, LLC, VALIDATION OF THE FATIGUE SCIENCE READIBAND™ ACTIGRAPH AND ASSOCIATED SLEEP/WAKE CLASSIFICATION ALGORITHMS 7 (undated), https://fatigue-science.squarespace.com/s/Readiband_Validation.pdf [<https://perma.cc/R8W8-GBHC>] (describing how actigraphy can be used to monitor sleep).

¹⁰⁰ *Team Platform*, *supra* note 98 (discussing coaches' access to data from the Readiband via coaching dashboards).

¹⁰¹ See Tania Ganguli, *Texans Treat Their New Sports Science Department as a Closely Guarded Secret*, ESPN (June 23, 2016), http://www.espn.com/blog/nflnation/post/_/id/206348/texans-treat-their-new-sports-science-department-as-a-closely-guarded-secret [<https://perma.cc/F8RK-VLCG>] (noting that the Houston Texans collect information about their players' sleeping habits); *New York Times Cover Story: Seattle Seahawks Rely on Fatigue Science for Performance Edge*, FATIGUE SCI.: BLOG (Oct. 3, 2016), <http://www.fatiguescience.com/blog/new-york-times-cover-story-seattle-seahawks-rely-on-fatigue-science-for-performance-edge> [<https://perma.cc/R5QX-YHQT>] (noting that the Seattle Seahawks use the Readiband technology); Aditi Pai, *Fatigue Science's Wearable Helps Workers, Pro Athletes Track Sleep*, MOBIHEALTHNEWS (July 6, 2015), <http://www.mobihealthnews.com/45047/fatigue-sciences-wearable-helps-workers-pro-athletes-track-sleep> [<https://perma.cc/L9Y6-YJEG>] (claiming that the New York Giants use the Readiband). *But see* Enrico Campitelli, *Chip Kelly No Longer Tracking Eagles' Sleep with Wearables*, CSN PHILLY (Nov. 20, 2015, 10:45 AM), <http://www.csnphilly.com/the700level/chip-kelly-no-longer-tracking-eagles-sleep-wearables> [<https://perma.cc/Q2NR-XWXX>] (noting that Eagles players no longer track their sleep with wearable technology).

¹⁰² See Cheri D. Mah et al., *The Effects of Sleep Extension on the Athletic Performance of Collegiate Basketball Players*, 34 SLEEP 943, 943 (2011) ("Several studies have also demonstrated the negative impact of sleep restriction on physical performance").

Studies link better sleep with improved athletic performance.¹⁰³ Unfortunately, a 2003 study found that 34% of offensive linemen (the biggest players on each club) suffered from sleep apnea.¹⁰⁴ Yet one possible downside is that clubs may learn that a player is failing to get good sleep because of off-the-field behaviors, such as staying out late. Such data might also lead the club to reconsider the player's short-term or long-term employment.

Third, BioForce HRV (BioForce), a Washington-based company founded by the Seahawks' former strength and conditioning coach,¹⁰⁵ offers an online and smartphone application that collects data to measure heart rate variability (HRV).¹⁰⁶ BioForce claims that HRV is a measure of an athlete's "readiness and fatigue."¹⁰⁷ The software is designed to work with other heart rate monitors.¹⁰⁸

BioForce's technology, which it claims is used by NFL clubs,¹⁰⁹ could help both players and their clubs. Heart rate can be a useful measure of an athlete's exertion levels. By knowing his heart rate, the player (or his coach) can either increase or decrease the intensity of the workout as appropriate. Moreover, as with Fatigue Science's Readiband, the player may learn of a medical condition that he should take steps to address. However, the club might learn medical information about the player, such as an irregular heartbeat, that could cause the club to reconsider the player's employment in the short or long term.

Fourth, X2 Biosystems (X2), another Washington-based company, offers two types of sensors designed to measure the force of hits sustained by players and to transmit that data wirelessly to a mobile device.¹¹⁰ The first sensor is embedded into the player's mouthguard, and the second is worn as a patch

103 See *id.* at 946 (describing how several members of the Stanford University men's basketball team demonstrated an improvement in performance after sleep extension over five to seven weeks); Roger S. Smith et al., *The Impact of Circadian Misalignment on Athletic Performance in Professional Football Players*, 36 SLEEP 1999, 2000 (2013) ("Sleep deprivation can impair performance in athletes and can increase the risks of accidents and morbidity/mortality in the general public.").

104 See L. ELAINE HALCHIN, CONG. RESEARCH SERV., RL34439, FORMER NFL PLAYERS: DISABILITIES, BENEFITS, AND RELATED ISSUES 14 (2008).

105 See *HRV Explained Part 3: How to Measure HRV*, HRVTRAINING (Jan. 20, 2012), <https://hrvtraining.com/2012/01/20/hrv-explained-part-3-how-to-measure-hrv/> [<https://perma.cc/PV5R-867R>] (noting that Bioforce HRV was designed by "former NFL strength coach . . . Joel Jamieson"); *Joel Jamieson*, MMA TRAINING, <http://www.mmatraining.com/joel-jamieson/> [<https://perma.cc/AJU9-TAKE>] (explaining that Joel Jamieson worked for the Seattle Seahawks).

106 BIOFORCE HRV, <http://www.bioforcehrv.com/> [<http://perma.cc/H9WX-DM42>].

107 *Id.*

108 See Winslow Jenkins, *Product Review: BioForce HRV*, BREAKING MUSCLE, <http://breakingmuscle.com/equipment/product-review-bioforce-hrv> [<https://perma.cc/5DWP-PE7X>] ("You may also purchase a Polar heart rate monitor from the BioForce website or use any variety of heart rate strap that you already own.").

109 See Pro Trainer Certification, BIOFORCE HRV, <http://www.bioforcehrv.com/pro-trainer-course> [<http://perma.cc/8BDL-X6QN>] (identifying "top teams in the NFL" as BioForce HRV clients).

110 Katie Linendoll, *Could X2's Skin Patch Detect Concussions?*, ESPN (Jan. 7, 2013), http://espn.go.com/blog/playbook/tech/post/_/id/3547/could-x2s-skin-patch-detect-concussions [<https://perma.cc/U8TJ-ETVK>].

behind the player's ear.¹¹¹ X2 also offers software that can gather data to help diagnose concussions.¹¹²

Since the 2013 season, the NFL has required all clubs to use X2's software to evaluate possible concussions.¹¹³ If these products are accurate, they may protect the health of players. However, players and the NFLPA have expressed resistance to the sensors.¹¹⁴ Specifically, players are concerned that the data might not be reliable and will result in players being removed from games unnecessarily.¹¹⁵ Additionally, players are concerned that clubs will use the data to avoid employing players with a history of concussions.¹¹⁶

The NFLPA is aware of these shifts in technology. NFLPA Vice President of Business and Legal Affairs, Sean Sansiveri, has expressed an interest in monetizing new technologies, noting that the NFLPA's licensing arm has followed emerging technologies, such as wearable technologies, with great interest.¹¹⁷ Not surprisingly, the CBA specifically addresses wearable technologies:

The NFL may require all NFL players to wear during games and practices equipment that contains sensors or other nonobtrusive tracking devices for purposes of collecting information regarding the performance of NFL games, including players' performances and movements, as well as medical and other player safety-related data. Sensors shall not be placed on helmets without the NFLPA's consent. Before using sensors for health or medical purposes, the NFL shall obtain the NFLPA's consent.¹¹⁸

As mentioned, the line between a technology being used for "performance" purposes, as opposed to "health or medical" purposes is not clear.¹¹⁹ Relatedly, the

¹¹¹ *Id.*

¹¹² See *X2 Head-Trax Head Impact Management Solution*, X2 BIOSYSTEMS, http://x2biosystems.com/x2_integrated_concussion/ [<https://perma.cc/F7HX-8DRM>] (describing X2's Head-Trax head impact management solution and X2's Integrated Concussion Evaluation (ICE) app).

¹¹³ NFL COMM'NS DEP'T, NAT'L FOOTBALL LEAGUE, *NFL KICKOFF 2016: INFORMATION GUIDE 44* (2016), <https://nflcommunications.com/Documents/2016%20Kickoff%20Guide%20update.pdf> [<https://perma.cc/7VAG-Y3WF>].

¹¹⁴ Steve Fainaru, *No Helmet Sensors for NFL in '15*, ESPN (Feb. 20, 2015), http://www.espn.com/espn/otl/story/_/id/12348395/nfl-teams-use-concussion-sensors-helmets-2015 [<https://perma.cc/XH5F-26NE>].

¹¹⁵ *Id.*

¹¹⁶ See, e.g., *id.* ("[F]ormer Steeler Hines Ward [said] that . . . sensors would open up a 'Pandora's box' by providing data that could be used to remove players from games or even in contract negotiations.").

¹¹⁷ Liz Mullen, *Plugged in: Sean Sansiveri, NFLPA*, STREET & SMITH'S SPORTSBUSINESS J. (Mar. 30, 2015), <http://www.sportsbusinessdaily.com/Journal/Issues/2015/03/30/People-and-Pop-Culture/Plugged-In.aspx> [<https://perma.cc/BR82-KFTR>].

¹¹⁸ Collective Bargaining Agreement, *supra* note 32, art. 51, § 13(c).

¹¹⁹ See *supra* Section I.B.

NFLPA has recently filed a grievance over the use of sleep monitors, alleging that clubs must obtain NFLPA approval before employing such devices.¹²⁰ Next, we turn to genetic tests, another area of technology that presents both opportunities and concerns for NFL players.

3. Genetic Tests

It is undeniable that genes have a major influence in the biological processes required for athletic success, including but not limited to muscle and cartilage formation, metabolism, and blood oxygenation.¹²¹ Thus, genetic testing may detect both genetic advantages and barriers to successful athletic performance.¹²² The genetic technologies available at present can be divided into two major categories: (1) those associated with performance and (2) those associated with risk of injury.

Of course, genetic potential does not ensure athletic success, or vice versa—it is well known that genotype does not always express itself in phenotype—and the science to test relevant genotypes for sports is still in its infancy. Thus, currently available testing can merely help to predict who will be more successful on the playing field.¹²³ A 2013 article summed up the state of research: “[F]ew genes are consistently associated with elite athletic performance, and none are linked strongly enough to warrant their use in predicting athletic success.”¹²⁴ A 2013 *British Journal of Sports Medicine* article went even further: “Current genetic testing has zero predictive power on talent identification and should not be used by athletes, coaches or parents.”¹²⁵ Whatever their prognostic accuracy or lack thereof, such technologies continue to attract the attention of sports stakeholders who will try almost anything to find an edge.

Several companies have already begun to commercialize the potential connection between genetics and athleticism. A 2011 study in the *Journal of*

¹²⁰ Michael David Smith, *As Teams Monitor Players' Sleeping Habits, NFLPA Cries Foul*, NBC SPORTS: PROFOOTBALLTALK (Oct. 22, 2015, 4:28 PM), <http://profootballtalk.nbcsports.com/2015/10/22/as-teams-monitor-players-sleeping-habits-nflpa-cries-foul/> [<https://perma.cc/R4Z9-EL4E>].

¹²¹ See Mario Kambouris et al., *Predictive Genomics DNA Profiling for Athletic Performance*, 6 RECENT PATENTS ON DNA & GENE SEQUENCES 229, 229 (2012).

¹²² *Id.*

¹²³ See Reeves Wiedeman, *Searching for the Perfect Athlete*, NEW YORKER: SPORTING SCENE (July 31, 2013), <http://www.newyorker.com/the-sporting-scene/searching-for-the-perfect-athlete> [<https://perma.cc/L2JJ-ZWMU>] (“[P]rofessional teams, which rise and fall on their ability to judge which athletes are worth spending time and money on, are starting to take genetics seriously.”).

¹²⁴ Lisa M. Guth & Stephen M. Roth, *Genetic Influence on Athletic Performance*, 25 CURRENT OPINION IN PEDIATRICS 653, 653 (2013).

¹²⁵ Yannis Pitsiladis et al., *Genomics of Elite Sporting Performance: What Little We Know and Necessary Advances*, 47 BR. J. SPORTS MED., Apr. 2013, at 1, 5.

Personalized Medicine found that thirteen companies were providing sports-related DNA tests or analyses to consumers.¹²⁶ The tests were given names such as “Sports DNA Test,” “Sports X Factor Standard Panel,” “Athletic Gene Test,” “Sports Gene Test,” and “Athletics Profile Test” and ranged in price from \$79 to about \$1100.¹²⁷

Things changed in November 2013 when the FDA ordered one of the leading companies offering sports-specific DNA tests, 23andMe, to stop advertising its health-related genetic tests without FDA authorization.¹²⁸ At that time, the FDA had not developed any rules for direct-to-consumer (DTC) genetic testing.¹²⁹ Thus, the FDA was concerned about whether the tests were clinically validated and how consumers would interpret their results. Shortly thereafter, 23andMe ceased offering the DTC health-related genetic tests.¹³⁰

However, in February 2015, the FDA approved 23andMe’s DTC test for Bloom Syndrome—a rare genetic condition—leading to speculation that the Agency might approve other DTC genetic tests related to health.¹³¹ Indeed, by the end of the year, the FDA had permitted 23andMe to offer carrier tests for thirty-five other conditions.¹³²

While the future of DTC genetic testing in United States remains uncertain, several foreign companies have continued to offer sports-specific genetic tests.¹³³ In 2005, an Australian professional rugby club tested eighteen

¹²⁶ Jennifer K. Wagner & Charmaine D. Royal, *Field of Genes: An Investigation of Sports-Related Genetic Testing*, 2 J. PERSONALIZED MED. 119, 122 tbl.1 (2012) (identifying 23andMe, Inc.; Advanced Health Care Inc.; American International Biotechnology Services; Asper Bio Tech; Athleticcode, Inc.; Atlas Sports Genetics, LLC; Cosmetics DNA; CyGene Direct; DNA4U; Family Tree DNA; Genetic Technologies Limited; My Gene; and Warrior Roots as direct-to-consumer genetic testing companies).

¹²⁷ *Id.* at 123-24 tbl. 2 (internal quotation marks omitted).

¹²⁸ George J. Annas & Sherman Elias, *23andMe and the FDA*, 370 N. ENG. J. MED. 985, 985 (2014).

¹²⁹ *Id.* Since then, the FDA has proposed draft guidance that, if adopted, would apply to direct-to-consumer tests. Framework for Regulatory Oversight of Laboratory Developed Tests; Draft Guidance for Industry, Food and Drug Administration Staff, and Clinical Laboratories; Availability, 79 Fed. Reg. 59776 (proposed Oct. 3, 2014).

¹³⁰ Annas & Elias, *supra* note 128.

¹³¹ Matthew Herper, *What 23andMe’s FDA Approval Means for the Future of Genomics*, FORBES (Feb. 20, 2015, 1:10 PM), <http://www.forbes.com/sites/matthewherper/2015/02/20/what-23andmes-fda-approval-means-for-the-future-of-genomics/> [https://perma.cc/65VH-EC6H].

¹³² Alice Park, *Genetic Testing Company 23andMe Returns to Market*, TIME (Oct. 21, 2015), <http://time.com/4080583/23andme-dna-genetic-testing/> [https://perma.cc/AEY7-E4WH].

¹³³ See, e.g., DNAFit <http://www.dnafit.com/> [https://perma.cc/XD58-WD54] (offering a “fitness and nutrition” test by DNAFit, a British company); *Genetic Test of Athletic Abilities*, SPORTS GENE <http://sportsgene.ee/genetic-test-of-athletic-abilities> [http://perma.cc/43T3-6FAY] (offering a “genetic test of athletic abilities” from SportsGene, LLC, an Estonian company); *Nutrigenomics*, DNALIFE, <http://www.dnalife.healthcare/nutrigenomics/> [https://perma.cc/6LU3-GQLB] (offering a “DNA Sport” test from dnalife, a Mauritian company); *Sports Gene Test*, ASPER BIOTECH, <http://www.asperbio.com/sports-gene-test/asper-wellness/athletic-performance-test> [https://perma.cc/QB5C-JCQ2] (offering the “Athletic performance” test from Asper Biotech, an Estonian company).

of its twenty-four players for eleven exercise-related genes.¹³⁴ In 2011, an unidentified Premier League (one of the world's leading professional soccer leagues) club was reported to have tested its athletes for genes related to injury risk.¹³⁵ In March 2014, the British company DNAFit announced that it was conducting genetic testing of two Premier League soccer clubs and one "leading" European club, although the names of the clubs remained confidential.¹³⁶ DNAFit's testing would reportedly "disclose the players' balance of speed and endurance genes, whether they have injury-prone genes, and the best nutrition to fit their DNA."¹³⁷ DNAFit has also provided genetic testing to British track athlete Jenny Meadows.¹³⁸ Finally, in 2015, Uzbekistan's Academy of Sciences began testing children for fifty genes to measure their athletic potential.¹³⁹

At present, genetic testing in elite or professional American sports has been more limited than abroad. For example, Major League Baseball (MLB), following prior incidents of fraud, now uses DNA testing in rare cases—and only with the player's permission—to prove the identity and age of certain Latin American prospects.¹⁴⁰ The National Collegiate Athletic Association (NCAA) currently requires that all Division I student-athletes be tested for the sickle cell gene trait or sign a waiver exempting the school and the NCAA from liability should he or she be harmed as a result of the trait.¹⁴¹ Sickle cell trait can cause problems for athletes during periods of intense exercise, and while a student-athlete will not be disqualified because of a positive test, he or she will be made aware of the possible complications and taught how to best avoid such complications.¹⁴² NFL clubs test for sickle cell as part of the standard preseason physical if the player has not previously been tested.¹⁴³

¹³⁴ Carina Dennis, *Rugby Team Converts to Give Gene Tests a Try*, 434 NATURE 260, 260 (2005).

¹³⁵ Nick Collins, *Premier League Team Reads Players' DNA*, TELEGRAPH (Oct. 16, 2011, 12:00 PM), <http://www.telegraph.co.uk/news/science/science-news/8829894/Premier-League-team-reads-players-DNA.html> [<https://perma.cc/8EE4-9VEQ>].

¹³⁶ Martyn Ziegler, *Two Premier League Teams Commission Genetic Profiles of Their Players*, INDEPENDENT (Mar. 17, 2014), <http://www.independent.co.uk/sport/football/news-and-comment/two-premier-league-teams-commission-genetic-profiles-of-their-players-9196470.html> [<https://perma.cc/DD64-E653>].

¹³⁷ *Id.*

¹³⁸ *Id.*

¹³⁹ Ron Synovitz & Zamira Eshanova, *Uzbekistan Is Using Genetic Testing to Find Future Olympians*, ATLANTIC (Feb. 6, 2014), <http://www.theatlantic.com/international/archive/2014/02/uzbekistan-is-using-genetic-testing-to-find-future-olympians/283001/> [<https://perma.cc/M399-7429>].

¹⁴⁰ Michael S. Schmidt & Alan Schwarz, *Baseball's Use of DNA Raises Questions*, N.Y. TIMES (July 21, 2009), <http://www.nytimes.com/2009/07/22/sports/baseball/22dna.html> [<https://perma.cc/MC9H-8WL3>].

¹⁴¹ *Sickle Cell Trait*, NCAA, <http://www.ncaa.org/health-and-safety/medical-conditions/sickle-cell-trait> [<https://perma.cc/AG28-YCXJ>].

¹⁴² *Id.*; see also DAVID EPSTEIN, *THE SPORTS GENE* 177-78 (2013) (explaining that athletes who carry the sickle cell trait gene are "genetically disadvantaged for long-distance sports").

¹⁴³ Collective Bargaining Agreement, *supra* note 32, app. K.

Genetic testing for certain conditions has been most controversial in the National Basketball Association (NBA), particularly regarding heart abnormalities. The Chicago Bulls refused to re-sign Eddy Curry based on the possibility that he had hypertrophic cardiomyopathy (HCM), a heart ailment responsible for the death of NBA star Reggie Lewis in 1993.¹⁴⁴ Similarly, following a positive HCM test, the New York Knicks declared Cuttino Mobley unfit to play, leading him to retire. Mobley sued the Knicks for allegedly violating state antidiscrimination laws.¹⁴⁵ After a federal court denied the Knicks' motion to dismiss an amended complaint in March 2013,¹⁴⁶ the parties settled the case on undisclosed terms in August 2013.¹⁴⁷ Similarly, in 2014, NBA prospect Isaiah Austin withdrew from the draft and gave up his NBA dreams when a pre-draft physical revealed that he suffered from Marfan syndrome, a rare genetic disorder that can weaken the heart and cause it to rupture during strenuous activity.¹⁴⁸

Despite these public controversies, interest in genetic testing in sports remains extremely high. In 2012, ESPN, in collaboration with 23andMe, tested the DNA of 100 former and current NFL offensive linemen.¹⁴⁹ The results did not indicate that the players had a higher number of genes thought to be associated with athletic performance than the general population.¹⁵⁰ However, researchers have claimed that there are more than 200 genes associated with physical performance and that at least twenty of them might be tied to elite athletic performance.¹⁵¹ The purpose of this discussion is not to identify the genes that are (or might be) tied to athletic performance, but rather to point out that the possibility of linking genetics with athletic performance remains an area of interest for players and companies.

¹⁴⁴ See Andrew E. Rice, *Eddy Curry and the Case for Genetic Privacy in Professional Sports*, 6 VA. SPORTS & ENT. L.J. 1, 2-3 (2006) (noting that the Chicago Bulls would not re-sign Curry until he received a genetic test to rule out HCM); see also EPSTEIN, *supra* note 142, at 242-51 (discussing the problems that HCM poses for athletes and listing examples of professional athletes with HCM).

¹⁴⁵ See *Mobley v. Madison Square Garden LP*, No. 11-8290, 2012 WL 2339270, at *2 (S.D.N.Y. June 14, 2012) (alleging that the Knicks forced him to retire so that insurance would pay the remainder of his contract and to avoid having to pay the NBA's luxury tax, which is imposed on teams that maintain a payroll of more than a certain threshold).

¹⁴⁶ *Mobley v. Madison Square Garden LP*, No. 11-8290, slip op. at 2 (S.D.N.Y. Mar. 15, 2013).

¹⁴⁷ See *Stipulation of Discontinuance with Prejudice, Mobley v. Madison Square Garden LP*, No. 11-8290 (S.D.N.Y. dismissed Aug. 9, 2013) (agreeing to dismiss the case unconditionally with prejudice).

¹⁴⁸ See *Baylor Center Out of N.B.A. Draft*, N.Y. TIMES (June 23, 2014), <http://www.nytimes.com/2014/06/24/sports/basketball/baylor-center-out-of-nba-draft.html> [<https://perma.cc/7GUD-GDSK>].

¹⁴⁹ See Shaun Assael, *Cheating Is So 1999*, ESPN (July 10, 2012), <http://sports.espn.go.com/espn/magazine/archives/news/story?page=magazine-20101019-article30> [<http://perma.cc/HQ36-6DRJ>] (describing the study as the "largest-ever genetic examination of professional American athletes").

¹⁵⁰ See *id.* ("Our theory that NFL linemen might be genetic outliers was fl at-out [sic] wrong. Every way that 23andMe looked at it, the pros were just like the [average] Joes.")

¹⁵¹ Pitsiladis et al., *supra* note 125, at 1.

* * *

Analyzing how the NFL and its clubs evaluate player health and ability requires background on the various stakeholders in the NFL, as well as the types of evaluative technologies that are currently available. Having laid this groundwork, in Part II, we turn to the ways in which existing federal employment discrimination protections might regulate the ability of the NFL and its clubs to evaluate their current and aspiring players.

II. WHAT LAWS REGULATE THE USE OF HEALTH AND PERFORMANCE EVALUATIONS BY EMPLOYERS?

As explained above, NFL players are employees of their clubs.¹⁵² As employers, the clubs must comply with relevant state and federal employment laws. Additionally, at least 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 drug testing statute, though the decision is controversial.¹⁵³ Thus, it is possible that courts may treat the NFL as an employer under certain circumstances as well. However, whether the league has an employment relationship with the players is an issue that courts likely decide on a case-by-case basis.

Furthermore, National Football Scouting, which runs the Combine, may also have to abide by certain employment-related laws. As noted in Part I, two-thirds of the NFL's clubs jointly own and manage National Football Scouting.¹⁵⁴ Thus, the Combine appears to be under substantial NFL control, and all of the league's clubs significantly benefit from the medical exams conducted.¹⁵⁵ While National Football Scouting is technically a separate corporate entity, it too might have to comply with employment discrimination legislation to the extent that it operates as an extension of the NFL and its clubs.¹⁵⁶ In any event, the clubs use information obtained from the Combine to

¹⁵² Collective Bargaining Agreement, *supra* note 32, pmb1.

¹⁵³ See *Williams v. The Nat'l Football League*, No. 27-CV-08-29778, slip op. at 16 (Dist. Ct. Minn. May 6, 2010) (finding that, for purposes of Minnesota's Drug and Alcohol Testing in the Workplace Act (DATWA), an employment relationship exists between the players and the NFL). This case was appealed in 2011, and the appellate court agreed with the lower court's conclusion on the issue, explaining, "The district court's findings in this regard are not clearly erroneous, and we agree that the NFL is an employer, and appellants its employees, within the meaning of DATWA." *Williams v. The Nat'l Football League*, 794 N.W.2d 391, 396 (Minn. Ct. App. 2011). *But see* *Brown v. Nat'l Football League*, 219 F. Supp. 2d 372, 383 (S.D.N.Y. 2002) (explaining that plaintiff, a former NFL player, was an employee of his specific club—and not the league—for the purpose of determining whether the mandatory arbitration provision of the Collective Bargaining Agreement applied).

¹⁵⁴ See *supra* notes 43–45 and accompanying text.

¹⁵⁵ See *supra* note 49 and accompanying text.

¹⁵⁶ See *Wilson v. MVM, Inc.*, 475 F.3d 166, 172–73 (3d Cir. 2007) (outlining multiple tests courts use to determine whether an employer that contracts with another employer exercises sufficient

make hiring decisions. Thus, regardless of National Football Scouting's potential status as an arm of the clubs or the NFL, the clubs and the NFL cannot use the Combine as a mechanism to violate employment discrimination laws.

This Part outlines the existing law that applies to inquiring about, obtaining, and acting on information about employee health, with a particular focus on NFL players and the evaluative technologies described in Part I. Specifically, this Part explores the protections and the applicability of the employment portions of the ADA and GINA, which govern the ability of employers to collect and to consider applicants' and employees' health-related and genetic information. Given the players' employment relationship with the clubs, as well as possibly with the NFL itself, these laws would apply when those entities evaluate players as described in Part I. While many individual states have their own legislation governing disability and genetic-information discrimination in employment, we focus on the federal protections for simplicity.

A. *Americans with Disabilities Act*

The first relevant federal employment discrimination provision is Title I of the ADA. With respect to NFL players, the most significant protections relate to discrimination and to medical examinations and inquiries. Importantly, the ADA also prevents employers and unions from engaging in collective bargaining that discriminates against individuals protected by the ADA.¹⁵⁷

Title I prohibits covered entities from discriminating against qualified individuals on the basis of disability.¹⁵⁸ Significantly, the ADA does not cover all employment-related relationships. Covered entities only include employment

control over the latter's employees so as to qualify as their employer as well). For example, in deciding whether the Rehabilitation Act, a law governing federal employees with disabilities, should apply to the employees of private security firms that contract with the federal government, some courts have applied the "joint employment test," asking whether "one employer while contracting in good faith with an otherwise independent company, has retained for itself sufficient control of the terms and conditions of employment of the employees who are employed by the other employer." *Id.* at 173 (internal quotation marks omitted) (quoting *NLRB v. Browning-Ferris Indus. of Pa., Inc.*, 691 F.2d 1117, 1123 (3d Cir. 1982)). Others use a multifactor balancing test to determine if the federal agency controls the "means and manner" of the employee's performance. *Id.* (internal quotation marks omitted) (quoting *Cnty. for Creative Non-Violence v. Reid*, 490 U.S. 730, 751 (1989)).

¹⁵⁷ See Condon A. McGlothlen & Gary N. Savine, *Eckles v. Consolidated Rail Corp.: Reconciling the ADA with Collective Bargaining Agreements: Is This the Correct Approach?*, 46 DEPAUL L. REV. 1043, 1044 (1997) (claiming that the ADA "obviously prohibits an employer and union from entering into a collective bargaining agreement which, for instance, restricts the hiring of persons with AIDS" or members of other protected classes).

¹⁵⁸ See 42 U.S.C. § 12112(a) (2012) ("No covered entity shall discriminate against a qualified individual on the basis of disability in regard to job application procedures, the hiring, advancement, or discharge of employees, employee compensation, job training, and other terms, conditions, and privileges of employment.").

agencies, labor organizations, joint labor-management committees,¹⁵⁹ and employers with fifteen or more employees.¹⁶⁰ While establishing that the defendant is a covered entity is usually rather straightforward, demonstrating that the plaintiff has eligibility to sue can be more complex.

While some ADA provisions apply to all individuals regardless of disability status, in other cases, a plaintiff must first show that he has a “disability” as defined by the statute¹⁶¹ and second, that he meets the legal definition of a “qualified individual.”¹⁶² The ADA defines disability as “(A) a physical or mental impairment that substantially limits one or more major life activities of such individual; (B) a record of such an impairment; or (C) being regarded as having such an impairment.”¹⁶³ An individual is qualified if he can perform the essential job functions with or without reasonable accommodation.¹⁶⁴ We discuss both the disability and qualified requirements at greater length later in this Part.¹⁶⁵

To sue for a violation of Title I, a plaintiff must have filed a complaint with the Equal Employment Opportunity Commission (EEOC) or the relevant state employment agency.¹⁶⁶ A plaintiff can proceed to court only after exhausting these administrative remedies.¹⁶⁷ Because the ADA largely relies on individual claimants filing complaints for enforcement, an employer can theoretically discriminate without consequence, as long as none of its applicants or employees take action. This reality is particularly salient in the hyper-competitive environment of the NFL and other professional sports, where players are likely to be extremely hesitant to do anything that would jeopardize their already slim chances of success. Hence, the ADA’s private enforcement mechanism, which requires self-selection, might explain why so few professional athletes have filed cases despite the presence of widespread potential violations.

¹⁵⁹ *Id.* § 12111(2).

¹⁶⁰ *Id.*; *id.* § 12111(5)(A)–(B).

¹⁶¹ *Id.* § 12102(1).

¹⁶² *Id.* § 12111(8).

¹⁶³ *Id.* § 12102(1).

¹⁶⁴ *Id.* § 12111(8).

¹⁶⁵ See *infra* subsections II.A.2.a.i–ii.

¹⁶⁶ THE BUREAU OF NAT’L AFFAIRS, INC., FAIR EMPLOYMENT PRACTICES MANUAL § 431:5 (2016). The ADA adopts the same pre-lawsuit procedures as Title VII of the Civil Rights Act with respect to its employment discrimination provisions. See *Filing a Lawsuit in Federal Court*, U.S. EQUAL EMP. OPPORTUNITY COMMISSION, https://www.eeoc.gov/federal/fed_employees/lawsuit.cfm [<https://perma.cc/63VE-CH6N>] (explaining that the “law requires that you first try to settle your discrimination complaint by going through the administrative complaint process” and noting that the same applies for Title VII claims).

¹⁶⁷ 2 AMERICANS WITH DISABILITIES: PRACTICE AND COMPLIANCE MANUAL § 7:336 (rev. 2011).

To be clear, employees—including NFL players—cannot prospectively waive their legal rights under the ADA¹⁶⁸ or GINA.¹⁶⁹ For example, while the CBA and the players' contracts contain clauses requiring arbitration of employment-related disputes,¹⁷⁰ the EEOC will accept and process charges regardless of whether the complainant is bound by an arbitration clause. Indeed the EEOC “may pursue injunctive relief and seek any other relief not available in the arbitral forum even on behalf of a party that signed a pre-dispute arbitration agreement.”¹⁷¹

We now turn to the types of claims available under Title I: (1) claims for unlawful disability-related inquiries and medical examinations and (2) claims for discrimination on the basis of actual, past, or perceived disability.

1. Medical Exams and Disability-Related Inquiries

The statute includes a section specifically governing “medical examinations and inquiries.”¹⁷² It prohibits employers from asking questions or ordering a medical examination to determine whether an applicant or an employee is a person with a disability.¹⁷³ Importantly, Title I's medical examination provisions

¹⁶⁸ See EEOC, EEOC ENFORCEMENT GUIDANCE 915.002 (Apr. 10, 1997), <https://www.eeoc.gov/policy/docs/waiver.html> [<https://perma.cc/J2NX-33KW>] (noting that the ADA allows individuals to waive personal claims that have already arisen but does not permit individuals to waive their rights under the statute in advance). In other words, an employer cannot ask an employee to give the employer the right to act in a discriminatory way.

¹⁶⁹ See *infra* note 324.

¹⁷⁰ Collective Bargaining Agreement, *supra* note 32, art. 43; *id.* app. A, para. 19. The law distinguishes between arbitrating and waiving claims. While antidiscrimination claims cannot be waived, agreements to arbitrate antidiscrimination claims are generally enforceable unless the statute specifically states otherwise. Compare 14 Penn Plaza LLC v. Pyett, 556 U.S. 247, 274 (2009) (“We hold that a collective-bargaining agreement that clearly and unmistakably requires union members to arbitrate ADEA claims is enforceable as a matter of federal law.”), with *id.* at 265 (“The decision to resolve ADA claims by way of arbitration instead of litigation does not waive the statutory right to be free from workplace age discrimination.”). However, because no provision of the Collective Bargaining Agreement explicitly requires the arbitration of GINA claims, it is unlikely that players would be required to arbitrate them. Jennifer K. Wagner, *Sidelining GINA: The Impact of Personal Genomics and Collective Bargaining in Professional Sports*, 12 VA. SPORTS & ENT. L. J. 81, 114-15 (2012). Moreover, even if the Collective Bargaining Agreement did lawfully require the arbitration of GINA claims, such a requirement would only apply to current players and not players participating at the NFL Combine, as they are not yet part of the bargaining unit covered by the Collective Bargaining Agreement. See Collective Bargaining Agreement, *supra* note 32, pmb1. (defining the bargaining unit as players currently and previously employed by an NFL club, rookie players who have already been selected in the NFL draft, and undrafted rookie players who have commenced contract negotiations with an NFL club).

¹⁷¹ 2 JOHN F. BUCKLEY IV & MICHAEL R. LINDSAY, DEFENSE OF EQUAL EMPLOYMENT CLAIMS § 19:3 (2d ed. Supp. 2013).

¹⁷² See 42 U.S.C. § 12112(d)(1) (2012) (“The prohibition against discrimination as referred to in subsection (a) of this section shall include medical examinations and inquiries.”).

¹⁷³ *Id.* § 12112(d)(2), (4). The statute does, however, allow employers to require a medical exam or make an inquiry when doing so is “shown to be job-related and consistent with business necessity.” *Id.* § 12112(d)(4).

apply with equal force to applicants and employees both with and without disabilities.¹⁷⁴ As a result, an individual does *not* have to establish a statutorily defined disability or show that he is a qualified individual when suing for an improper exam or inquiry.¹⁷⁵

At the end of this Part, Table 1 summarizes the ADA provisions concerning medical examinations and disability-related inquiries.

a. *Claims*

While the statute and its accompanying regulations do not contain a clear definition of a disability-related inquiry or medical examination, the EEOC has offered some guidance. According to the EEOC, a disability-related inquiry is a “question (or series of questions) that is likely to elicit information about a disability.”¹⁷⁶ Disability-related inquiries include asking about information that would clearly be of interest to NFL clubs, such as whether an individual takes medication or if he has ever been disabled.¹⁷⁷ Likewise, the EEOC guidance defines a “medical examination” as a “procedure or test that seeks information about an individual’s physical or mental impairments or health.”¹⁷⁸

The EEOC lists seven criteria for determining whether a particular evaluation constitutes a medical exam:

- (1) whether the test is administered by a health care professional;
- (2) whether the test is interpreted by a health care professional;
- (3) whether the test is designed to reveal an impairment or physical or mental health;
- (4) whether the test is invasive;
- (5) whether the test measures an employee’s performance of a task or measures his/her physiological responses to performing the task ; [sic]
- (6) whether the test normally is given in a medical setting; and,
- (7) whether medical equipment is used.¹⁷⁹

¹⁷⁴ See Michelle A. Travis, *Lashing Back at the ADA Backlash: How the Americans with Disabilities Act Benefits Americans Without Disabilities*, 76 TENN. L. REV. 311, 337 (2009) (highlighting that the pre-offer medical examination provisions of the ADA refer to all “job applicant[s],” rather than just to qualified individuals with a disability, as found in other ADA sections” (quoting 42 U.S.C. § 1211(d)(2)(A))).

¹⁷⁵ See LEX K. LARSON, EMPLOYMENT DISCRIMINATION § 154.07(4)(a) (2d ed. 2011) (“Questions have arisen as to who has standing to enforce the ADA provisions governing the employer’s access to and the use of medical information. The few circuits addressing these questions have determined that to have standing under these provisions, a plaintiff need not establish that he or she is a qualified individual with a disability.” (citations omitted)). Larson specifically cites the Eighth, Ninth, Tenth, and Eleventh Circuits, and several district courts, as examples of courts without any such requirement. *Id.*

¹⁷⁶ EEOC, EEOC ENFORCEMENT GUIDANCE 915.002 (July 27, 2000), <https://www.eeoc.gov/policy/docs/guidance-inquiries.html> [<https://perma.cc/6SXM-Y9BC>] (emphasis omitted).

¹⁷⁷ *Id.*

¹⁷⁸ *Id.* (emphasis omitted).

¹⁷⁹ *Id.*

Examples include a wide range of familiar medical screenings and procedures like vision tests, blood pressure and cholesterol evaluations, range-of-motion tests designed to measure strength and motor function, psychological tests, and diagnostic procedures like MRIs and CAT scans.¹⁸⁰

Because the ADA covers both physical and mental disabilities, its medical inquiry and examination provisions apply with equal force to assessments of psychological health.¹⁸¹ The ADA, therefore, covers a wide range of evaluations, including many examinations and inquiries that are currently part of the Combine, as well as the NFL physicals described in Part I.¹⁸² Moreover, as mentioned, collective bargaining agreements cannot prospectively waive substantive antidiscrimination rights.¹⁸³

To summarize, to the extent that the CBA—or the common practices of the NFL, the clubs, and National Football Scouting—require players or prospective players to submit to medical examinations or answer questions that might reveal an impairment, those entities could be in violation of the ADA. Whether or not those evaluations are lawful will depend at least in part on the timing of the examination or inquiry because the law has different legal standards for similar practices: (1) pre-employment, (2) post-offer, and (3) during employment.

i. Pre-Employment

Title I forbids pre-employment medical exams or inquiries regarding whether an applicant is “an individual with a disability or as to the nature or severity of such disability.”¹⁸⁴ However, the law explicitly allows “preemployment inquiries [but not medical exams] into the ability of an applicant to perform job-related functions.”¹⁸⁵ For example, an employer might explain the physical rigors of the job to the prospective employee and then ask the applicant whether he or she could perform those functions, with or without reasonable accommodation. In addition to inquiring about specific job-related functions, an employer could also make a general inquiry regarding whether the individual has a physical or mental impairment that would prevent him or her from performing essential job

¹⁸⁰ *Id.*

¹⁸¹ NFL clubs are very concerned about the psychological health of prospects. *See, e.g.*, Mike Florio, *Confusing Reports Emerge About Randy Gregory*, NBC SPORTS: PROFOOTBALLTALK (Apr. 29, 2015, 2:43 PM), <http://profootballtalk.nbcsports.com/2015/04/29/confusing-reports-emerge-about-randy-gregory/> [<http://perma.cc/P9UE-443U>] (reporting that prospect Randy Gregory’s draft status was falling due to “concern about [his] ability to handle the mental rigors of professional football” (internal quotation marks omitted)).

¹⁸² *See supra* subsection I.B.1.

¹⁸³ *See supra* note 168 and accompanying text.

¹⁸⁴ 42 U.S.C. § 12112(d)(2)(A) (2012).

¹⁸⁵ *Id.* § 12112(d)(2)(B). Unfortunately, the ADA does not explicitly define applicant, leaving some question about whether a participant at the Combine qualifies as an applicant for employment by the NFL or NFL clubs. We assume that the participant does.

functions.¹⁸⁶ Thus, an employer might ask whether there is anything the applicant thinks could impede his or her ability to perform the job in question. Again, these provisions apply to *all* job applicants, not just qualified individuals with disabilities.¹⁸⁷

As will be discussed at greater length below, these provisions are particularly relevant to the activities of the NFL and its clubs at the Combine, which include a number of medical examinations before clubs draft or actually offer any of the prospects employment.¹⁸⁸ The Combine is an invite-only recruiting event: approximately 300 of the best college players are invited to participate.¹⁸⁹ Additionally, the authorizations the players sign before the Combine authorize parties to use the released information only in relation to the players "actual or potential employment in the National Football League."¹⁹⁰ Given the targeted and elite nature of the Combine, the screenings that take place are reasonably likely to be deemed pre-employment exams (in contrast to a step even before that), although the issue has never been litigated.¹⁹¹

ii. Post-Offer (Employee Entrance Examination)

The ADA permits post-offer medical examinations when (1) they are imposed on all entering employees regardless of disability; (2) their results are kept confidential, meaning the information is collected and maintained in a medical file separate from the employee's personnel file and not shared except for accommodation, first aid and safety, or compliance reasons; and (3) the information obtained is used only in accordance with the statute (i.e., *not* to screen out individuals with disabilities or otherwise discriminate unless related to job performance).¹⁹² While the results of the post-offer exam are confidential, an employer can require that an employee sign an authorization disclosing all of her health records as a condition of employment¹⁹³ (with the exception of genetic

¹⁸⁶ Mark A. Rothstein, *Occupational Health Law*, in *OCCUPATIONAL HEALTH SERVICES: A PRACTICAL APPROACH* 36, 41 (Tee L. Guidotti et al. eds., 2d ed. 2013).

¹⁸⁷ See *supra* note 174 and accompanying text.

¹⁸⁸ See *infra* subsection II.A.1.b.i.

¹⁸⁹ See *supra* note 29 and accompanying text.

¹⁹⁰ Online Appendix C, *supra* note 62, at 3, 7.

¹⁹¹ While Title I of the ADA applies to stages of review that are potentially earlier than pre-employment, such as open casting calls, remains unclear. Some, however, have advanced such an argument. See, e.g., Carley G. Mak, *Fame, Fortune, and . . . Fourteen-Hour Days? Open Casting Calls for Reality TV Contestants Are Pre-Employment Tests and Public Accommodations Under the Americans with Disabilities Act*, 26 *LOY. L.A. ENT. L. REV.* 523, 544 (2006) (arguing that the ADA's pre-employment provisions apply to open casting calls for reality television programs).

¹⁹² 42 U.S.C. § 12112(d)(3) (2012).

¹⁹³ Rothstein, *supra* note 186, at 41-42.

information pursuant to GINA, as discussed below¹⁹⁴). Put simply, an employer can condition an offer of employment on releasing otherwise private personal health information.

Technically, post-offer exams need not be job-related as long as they meet the three criteria above. However, if the employer *revokes* the offer of employment because an employee fails to fulfill a particular qualification standard, it must show that the exclusionary qualification standard is job-related and consistent with business necessity.¹⁹⁵ For instance, a truck driving company might condition job offers on the candidate having 20/20 vision. As long as all employees have to pass a vision test, the results of the exam are confidential, and the company does not use them to violate the ADA, the examination is lawful under the ADA's medical exam provisions. But if an employee who fails the vision test sues, the employer would have to demonstrate that the standards for passing that exam are job-related and consistent with business necessity. In other words, the truck driving company would have to prove that 20/20 vision relates to driving trucks and that the vision test serves a legitimate business purpose in assuring that the company runs safely and efficiently. During litigation, the employee may be able to establish that 20/40 vision—not 20/20 vision—is sufficient for driving a truck. Thus, while the vision test might not be an unlawful medical exam, the underlying qualification standard could violate the ADA. Ironically then, the law technically allows employers to obtain information during preplacement examinations that cannot ultimately be used to make decisions.¹⁹⁶

iii. During Employment

Title I also regulates medical exams and inquiries *after* the employment relationship has been established. With respect to current employees, it provides,

A covered entity shall not require a medical examination and shall not make inquiries of an employee as to whether such employee is an individual

¹⁹⁴ See *infra* notes 341–42 and accompanying text.

¹⁹⁵ See 29 C.F.R. § 1630.14(b)(3) (2015) (“Medical examinations conducted in accordance with this section do not have to be job-related and consistent with business necessity. However, if certain criteria are used to screen out an employee or employees with disabilities as a result of such an examination or inquiry, the exclusionary criteria must be job-related and consistent with business necessity, and performance of the essential job functions cannot be accomplished with reasonable accommodation as required in this part.”); see also EEOC, *supra* note 176 (stating these conditions to answer the question of whether “an employer [may] ask an employee for *documentation* when s/he requires a reasonable accommodation” (emphasis omitted)).

¹⁹⁶ See Mark A. Rothstein et al., *Limiting Occupational Medical Evaluations Under the Americans with Disabilities Act and the Genetic Information Nondiscrimination Act*, 41 AM. J.L. & MED. 523, 541 (2015) (“The preplacement rules established by the ADA lead to the anomalous result that employers are legally permitted to obtain health information that they are not legally permitted to use in the decision-making process.”).

with a disability or as to the nature or severity of the disability, unless such examination or inquiry is shown to be job-related and consistent with business necessity.¹⁹⁷

Generally, an employer-mandated medical inquiry is both “job-related” and “consistent with business necessity” if the employer “has a reasonable belief, based on objective evidence, that: (1) an employee’s ability to perform essential job functions will be impaired by a medical condition; or (2) an employee will pose a direct threat due to a medical condition.”¹⁹⁸ Thus, job-relatedness requires that the inquiry pertain to the specific job in question, whereas business necessity speaks to whether the particular examination is necessary to achieve a legitimate business purpose.

The statute’s implementing regulations include certain exceptions, allowing “voluntary medical examinations and activities, including voluntary medical histories,”¹⁹⁹ in conjunction with employee health programs²⁰⁰ such as employer-provided wellness initiatives and “inquiries into the ability of an employee to perform job-related functions.”²⁰¹ Yet for reasons discussed below, we do not think this exception is especially relevant to our context.²⁰²

b. *Specific NFL Evaluative Technologies*

The ADA’s disability-related inquiry and medical exam provisions apply to several of the kinds of evaluations described in Part I, including traditional medical examinations and athletic drills, as well as burgeoning nongenetic and genetic technologies.

i. Medical Examinations and Athletic Drills

The ADA could apply to many of the traditional medical examinations and athletic drills conducted by the NFL, the clubs, and National Football Scouting, both before and during a player’s employment. As discussed, pursuant to the EEOC’s guidance, medical examinations include vision, blood pressure, and range-of-motion tests.²⁰³ The statute covers most mental and physical

¹⁹⁷ 42 U.S.C. § 12112(d)(4)(A).

¹⁹⁸ EEOC, *supra* note 176, at n.40 (footnotes omitted) (internal quotation marks omitted).

¹⁹⁹ 29 C.F.R. § 1630.14(d).

²⁰⁰ Information obtained from these voluntary exams is subject to the same confidentiality requirements and exceptions as the results of the employee entrance exams described above. 42 U.S.C. § 12112(d)(4)(C). See *supra* note 192 and accompanying text for the requirements.

²⁰¹ 42 U.S.C. § 12112(d)(4)(B).

²⁰² See *infra* text accompanying notes 231–32.

²⁰³ See *supra* note 180 and accompanying text. For a detailed description of the various types of medical screenings covered by the ADA, see *supra* subsection II.A.1.a.

assessments.²⁰⁴ Moreover, questions related to a current or prospective player's health and fitness could constitute disability-related inquiries as they are "likely to elicit information about a disability."²⁰⁵ It is more likely that the ADA will apply to medical examinations and physicals, which assess health and fitness, as opposed to athletic drills, which principally assess skills and performance. However, given the EEOC's broad construction of medical examinations and inquiries, the ADA might cover an athletic drill that reveals or could reveal information about a potential disability. Whether an athletic drill could be construed as a disability-related inquiry or a medical examination would have to be evaluated on a case-by-case basis.

Of course, the ADA does not create an outright ban on these kinds of evaluations. It simply requires that they meet certain standards. For example, the NFL or a club could ask a prospective player about his health, as it pertains to his ability to play football—i.e., to perform "job-related functions."²⁰⁶ Similarly, the club may make disability-related inquiries and require medical examinations *after* making a conditional offer of employment, as long as it requires all entering employees to undergo the same evaluations and the results are kept confidential and are not used to discriminate.²⁰⁷ Finally, once a player begins employment, the NFL or a club can make disability-related inquiries and impose medical examinations that are job-related and consistent with business necessity.²⁰⁸

The upshot of this analysis is that at present, various parts of the NFL scouting process may violate the ADA. As mentioned, the Combine includes pre-employment medical examinations, such as x-rays, MRIs, EKGs, and blood tests.²⁰⁹ Additionally, players may be asked sensitive questions during Combine interviews, including queries that relate to current or previous disabilities.²¹⁰ Indeed, one of the principal purposes of the Combine is to determine whether a player is "injury prone."²¹¹ In reviewing other work from the Football Players Health Study, the NFL stated that the comprehensive medical examination at the

²⁰⁴ See *supra* note 178 and accompanying text.

²⁰⁵ EEOC, *supra* note 176; see also *supra* text accompanying note 176.

²⁰⁶ See *supra* note 185 and accompanying text.

²⁰⁷ See *supra* note 192 and accompanying text. Recall that an employer can lawfully condition an offer on passing a medical exam. Consequently, if a club has complied with ADA's employee entrance exam provisions but withdraws its employment offer after a prospective player fails a post-offer medical examination, that action would not violate the statute.

²⁰⁸ 42 U.S.C. § 12112(d)(4)(A) (2012).

²⁰⁹ See *supra* note 52 and accompanying text.

²¹⁰ See Josh Alper, *Paxton Lynch Says a Couple of Teams Were "Spooked" by Combine Medical Exam*, NBC SPORTS: PROFOOTBALLTALK (Feb. 26, 2016, 5:26 PM), <http://profootballtalk.nbcsports.com/2016/02/26/paxton-lynch-says-a-couple-of-teams-spooked-by-combine-medical-exam/> [https://perma.cc/C38J-7NE8] (explaining that a prospect was asked questions about previous knee and shoulder injuries).

²¹¹ Hunsinger Benbow, *supra* note 54.

Combine is “a traditional employer ‘fit-for-service’ examination, common across numerous industries.”²¹² While job-related inquiries are permissible, however, *any pre-employment medical examinations violate the ADA*.²¹³

It might be argued that National Football Scouting’s status as a legally distinct entity²¹⁴ could insulate it (and the NFL) from liability, as National Football Scouting itself does not employ players. Yet if a court determined that National Football Scouting is under the control of the NFL or some or all of its clubs (or—if short of actual control—its activities are legally imputed to those entities under the ADA), the evaluations conducted at the Combine would seem to constitute clear violations of the ADA’s ban on pre-employment medical exams. Moreover, even if National Football Scouting is not acting as an arm of the NFL or of the clubs, it nonetheless provides the venue for the NFL and the clubs to conduct activities that violate the ADA. The Combine allows the NFL and the clubs to obtain exactly the type of health-related information that the ADA is designed to regulate. It would defeat the purpose of the ADA’s medical exam and inquiry provisions if an employer could claim it did not violate the law because, instead of conducting the exam directly, it contracted with a third-party medical professional. Similarly, it would defeat the purpose of the ADA’s medical exam and inquiry provisions if the NFL and its clubs could place themselves outside the scope of the ADA by contracting with National Football Scouting to perform evaluations. While this particular issue has not yet been litigated—and may reflect a statutory gap—our view is that pre-employment exams conducted at the Combine likely violate the ADA.

Furthermore, the clubs’ post-offer customs might also violate the ADA in that they are not universal and confidential. Specifically, the clubs may violate the ADA to the extent that the post-offer medical examinations are not administered uniformly. Thus, any special screening of an individual player would be highly suspect. Moreover, the widely publicized nature of the results calls their confidentiality into question.²¹⁵

²¹² Comments and Corrections from the Nat’l Football League, to I. Glenn Cohen & Holly Fernandez Lynch Concerning the Report, Protecting and Promoting the Health of NFL Players: Legal and Ethical Analysis and Recommendations (June 24, 2016) (on file with authors).

²¹³ See *supra* note 185 and accompanying text.

²¹⁴ See *supra* notes 43–45 and accompanying text.

²¹⁵ A federal district court rejected the National Hockey League’s argument that player health information is not discoverable due to the ADA’s confidentiality provisions and implied that the league itself may be violating the ADA. See *In re Nat’l Hockey League Players’ Concussion Injury Litig.*, 120 F. Supp. 3d 942, 951 (D. Minn. 2015) (“[T]he U.S. Clubs disclose players’ medical information to parties other than simply supervisors and managers, whether those parties are retained by the U.S. Clubs or are true third parties, such as the media. This redisclosure of players’ medical information by the U.S. Clubs themselves could arguably be violative of the ADA’s confidentiality provisions, applying the U.S. Clubs’ reading of the statute.” (citation omitted)).

ii. Nongenetic Technologies

The ADA's limitations on medical examinations may also apply to some of the innovative, nongenetic technologies described in Part I.²¹⁶ As a threshold matter, one must first determine if those evaluations constitute medical examinations within the meaning of the statute. Again, courts would likely assess these cases individually by assessing whether a particular technology meets the relevant criteria outlined by the EEOC.²¹⁷

Insofar as technology relies on traditional medical assessments, like blood testing or imaging techniques, they would appear to have at least some of the defining characteristics of ADA-covered medical examinations.²¹⁸ However, with regard to wearable technologies like Catapult's GPS device, Fatigue Science's wristband, BioForce's app, and X2's sensors, the ADA's applicability is less clear. This ambiguity revolves around the question of whether these sensors are medical devices (or are collecting medical or health-related data) when they monitor speed, force, movement, sleep, and heart rate.

Perhaps not surprisingly, the NFL and the NFLPA are currently in negotiations concerning whether the information collected by wearable sensors merely measures performance or is for "health and medical purposes."²¹⁹ Specifically, collecting data on "performance" is permissible under the CBA, whereas collecting data for "health or medical purposes" requires NFLPA consent.²²⁰

Whether wearable technologies are deemed medical devices or found to collect health or medical information will determine if the ADA applies. Using these new technologies does not clearly meet the definition of a medical examination. They do not require the expertise of a healthcare professional and do not need to be employed in a medical setting. With some exceptions (such as the pill described earlier²²¹), many of the technologies are not invasive, nor are they obviously medical equipment. While some wearable technologies could reveal an impairment, devices that measure speed or heart rate are not designed for this purpose. Of the seven defining characteristics of ADA-regulated medical exams, wearable technology appears to consistently meet only one: it "measures an employee's performance of a task or measures his/her physiological responses to performing the task."²²² Although the EEOC's criteria

²¹⁶ See *supra* subsection I.B.2.

²¹⁷ See *supra* notes 178–80 and accompanying text.

²¹⁸ For example, they could be administered and interpreted by healthcare professionals, capable of revealing impairments or measuring performance, and involve medical equipment.

²¹⁹ This information was confidentially provided by the NFLPA on June 28, 2016.

²²⁰ Collective Bargaining Agreement, *supra* note 32, art. 51, § 13(c).

²²¹ See *supra* subsection I.B.2.

²²² EEOC, *supra* note 176.

weigh against designating these technologies as medical examinations, this area lacks robust precedent leading to a clear resolution.

In theory, assessing performance could detect the presence of an impairment, even if the technique being used is *not* considered medical. For example, having a player wear a monitor while sleeping could detect signs of previously undiagnosed sleep apnea. Additionally, collecting performance-related data over time could also lead to the discovery of an impairment if the player experiences subtle declines in ability that would have otherwise gone unnoticed. Thus, whether the ADA applies to the kinds of innovative technologies described in Part I would depend on how broadly courts apply the term “medical examination.”

iii. Genetic Tests

Although some genetic testing, such as paternity, ancestry, or forensic tests, do not relate to health, the varieties that would be of most interest to the NFL and its clubs include tests designed either to predict or enhance performance or to determine the propensity for injury. By revealing a player’s susceptibility to injury or disease, they arguably constitute medical examinations, thereby triggering the ADA’s restrictions on medical examinations and inquiries. As with other kinds of medical examinations, the ADA prohibits pre-employment genetic tests. Thus, a club that administers a pre-offer genetic test for the sickle cell disease or trait violates the law. Genetic testing would be ADA-permissible post-offer if everyone is tested, the tests are confidential, and the results are used in accordance with the statute.²²³ Finally, genetic testing during employment would need to be job-related and consistent with business necessity.²²⁴ However, as will be discussed below, GINA regulates genetic testing in employment far more strictly.²²⁵

c. Possible Responses and Defenses

While the ADA’s protections appear robust at first blush, various exceptions and defenses may allow the NFL, the clubs, and National Football Scouting to lawfully obtain health-related information about current and prospective players. To illustrate, let us return to our hypothetical player, James, introduced at the beginning of this Article. Suppose that, as a prospective player, he went to the Combine and was asked to provide his family medical history, to agree to an EKG, to perform a running drill, to swallow a sensory pill, and to take a genetic test. Whether any—or perhaps all—of these kinds of evaluations would violate the ADA’s prohibition on pre-

²²³ 42 U.S.C. § 12112(d)(3) (2012).

²²⁴ *See id.* § 12112(d)(4)(A).

²²⁵ *See infra* Section II.B.

employment disability-related inquiries and medical examinations depends on how the EEOC and the courts interpret the scope of the statute.

To start, if the court determines that National Football Scouting is completely distinct from the NFL and the clubs, National Football Scouting would not be a covered entity under Title I because it is not an employer of NFL players, an employment agency, a labor organization, or a joint-management committee.²²⁶ However, if a court determines that Title I of the ADA covers National Football Scouting, the statute would prohibit any pre-employment medical examinations at the Combine. Perhaps, National Football Scouting, the NFL, and the clubs could defend the request for family medical history as a job-related inquiry; however, the EKG and the genetic test would be strictly forbidden as medical examinations. Whether the running drills or the pill violate the ADA would depend on how expansively the court in question interpreted the meaning of a medical examination. The NFL and the clubs could, of course, argue that these measures indicate performance, not health, putting them outside the reach of the statute.

Given the level of fitness required to play professional football, a wide-range of health-related questions could potentially be related to a prospective player's ability to perform job-related functions. Thus, the NFL and the clubs likely do not violate the ADA by asking interview questions that might reveal disability-related information before the individual has an employment offer; put differently, the NFL and its clubs could very likely defend most inquiries by establishing their relevance to an individual's ability to play football. These inquiries could range from specific (e.g., the average wide receiver runs a forty-yard post route in under five seconds: is that something you would be able to do?) or general (e.g., is there anything that would impede your ability to perform the essential functions of an NFL football player?). If challenged, the NFL or the clubs could assert that the inquiries speak to the individual's ability to play professional football. Recall, however, that this exception is for job-related inquiries, *not* medical exams. Pre-offer medical examinations are forbidden regardless of job-relatedness.

That said, pursuant to the ADA, the NFL and the clubs could conduct medical examinations of prospective players after those individuals receive employment offers from the clubs (since the Combine is pre-hiring, its medical examinations would always be pre-offer). Importantly, to comply with the law, the NFL and the clubs would have to ensure that the results of the post-offer medical examinations are kept confidential, that the post-offer medical examinations are universal, and that the results are only used in accordance with the ADA. However, news stories about medical examinations conducted during NFL free agency indicate that the results of at least some

²²⁶ See 42 U.S.C. § 12111(2) (2012) (defining covered entities under the ADA).

players' medical examinations are currently released to the press.²²⁷ As mentioned in Part I, players sign broad authorizations before participating in the Combine.²²⁸ While it is possible that the players are waiving their legally protected confidentiality right in the hopes of signing a particular contract, they cannot consent to violations of the law.²²⁹ Thus, to avoid running afoul of the ADA, the clubs likely need to institute more robust confidentiality protections for the results of post-offer medical examinations.

Thus, depending on how expansively the court interprets the meaning of a medical examination, the NFL or the clubs could perform those same five evaluations described above post-offer. (Of course if the drill and the pill are not considered "disability-related" or "medical," the ADA would not apply and the NFL and the clubs could administer them at any time.) In fact, the NFL and the clubs could condition an individual's offer on a prospective player's passing a particular evaluation, as well as on releasing his medical records. However, insofar as the evaluations are not universal or confidential, the ADA would forbid them. Thus, should James be singled out for an EKG or have the results from the EKG released to the press, he could sue and the NFL and the clubs would not have a clear defense.

Finally, should the NFL or the clubs decide to evaluate players throughout their employment—which given the physical nature of the sport, they certainly will want to do so—they may conduct medical examinations that are job-related and consistent with business necessity. In other words, a wide variety of evaluations could relate to playing football. Because health and athletic performance are linked, those entities could easily argue that medical examinations of the players serve the legitimate business purpose of ensuring safe and effective play. This exception is broad enough to cover medical examinations following an injury because an injury could affect an individual's ability to play (job-related), and treating the current injury, as well as preventing re-injury, are legitimate concerns for the player's health and safety (business necessity). For example, a club could authorize an MRI of a player who suffered a knee injury. Thus, most medical examinations of *current* NFL players would most likely be allowed under the ADA, as they would tend to be both job-related and consistent with business necessity.

²²⁷ See, e.g., Stapleton, *supra* note 77.

²²⁸ See *supra* note 62 and accompanying text. For copies of these waivers, see Online Appendix C, *supra* note 62.

²²⁹ A player himself could certainly disclose his results to the press. See 1 GARY S. MARX WITH DEBORAH ROSS, DISABILITY LAW COMPLIANCE MANUAL § 3:40 (2d ed. 2016) ("The ADA does not prohibit an individual with a disability from voluntarily disclosing his or her own medical information to persons beyond those to whom an employer can disclose such information."). However, his employer cannot pressure him to do so. *Id.*

As noted, applicants and employees cannot consent to violations of the law.²³⁰ While the statute does allow employees and applicants to volunteer health and medical information under certain circumstances, such as wellness programs designed to lower health insurance costs,²³¹ none of the exceptions look like fertile ground for an argument that otherwise unlawful evaluations are voluntary. However, it is worth noting that a player could voluntarily offer medical information, for example to assuage the concerns of a club. Yet even if a prospective player voluntarily provides the NFL or the clubs with information regulated by the ADA, the voluntariness of the disclosure does not immunize the NFL or the clubs from the statute's antidiscrimination provisions: they still could not use that information to discriminate on the basis of an actual, past, or perceived disability.²³²

It is true that upon joining an NFL club (post-offer, and actually employed), players are required to make certain health-related disclosures pursuant to their contracts and the CBA. The standard NFL player contract contains a disclosure provision stating,

Player represents to Club that he is and will maintain himself in excellent physical condition. Player will undergo a complete physical examination by the Club physician upon Club request, during which physical examination *Player agrees to make full and complete disclosure of any physical or mental condition known to him which might impair his performance under this contract and to respond fully and in good faith when questioned by the Club physician about such condition.* If Player fails to establish or maintain his excellent physical condition to the satisfaction of the Club physician, or make the required full and complete disclosure and good faith responses to the Club physician, then Club may terminate this contract.²³³

Further, the collectively bargained Notice of Termination lists "fail[ing] to make full and complete disclosure of your physical or mental condition during a physical examination" as an accepted ground for termination.²³⁴

²³⁰ See LARSON, *supra* note 175, § 157.06 ("Since the ADA enforcement procedures are taken from Title VII, and it is well-settled that under Title VII there can be no prospective waiver of an individual's claims, there can be no prospective waiver of an individual's ADA claims. However, the waiver of an ADA claim as part of a settlement or severance agreement will be considered valid provided that the waiver is knowing and voluntary, as evidenced by the totality of the circumstances." (footnotes omitted)).

²³¹ See *supra* note 200 and accompanying text.

²³² See *supra* note 200.

²³³ Collective Bargaining Agreement, *supra* note 32, app. A, para. 8 (emphasis added). The NFL Practice Squad Player Contract contains a similar provision. See *id.* app. J, para. 6.

²³⁴ *Id.* app. H ("You are hereby notified that effective immediately your NFL Player Contract(s) with the Club covering the football season(s) has (have) been terminated for the reason(s) checked below: . . . You have failed to make full and complete disclosure of your physical or mental condition during a physical examination.").

These provisions put players in a difficult position, as they create an incentive to avoid being formally diagnosed with a condition to avoid triggering the obligation to disclose. But avoiding diagnostic tests and medical exams could delay treatment and lead to further harm as the illness or injury worsens over time. Additionally, the collectively bargained nature of these disclosures and releases creates additional pressure on the players, further undermining their purported voluntariness.

Moreover, a failure to adequately disclose can undermine a player's potential injury grievance.²³⁵ Because of the players' disclosure obligations, the CBA presumes that any player who passed the club physical is fit to play.²³⁶ Consequently, alleging that "the player failed to make full and complete disclosure of his known physical or mental condition when questioned during a physical examination by the Club" is a special defense that a club can raise in its answer to a player's injury grievance.²³⁷

From a practical perspective, given the physical nature of the job, insofar as the ADA allows employers to make job-related inquiries (both before and during employment) and conduct medical exams post-offer and during employment, the NFL and its clubs would have a robust defense to demanding such inquiries and exams at the permissible times. That is not to say, however, that the NFL and its clubs can simply require any and all medical inquiries and examinations. While assessing the range of motion of a quarterback's arm quite clearly pertains to his ability to perform his job, conducting a dental exam appears less relevant. Courts would likely make these determinations on a case-by-case basis.

2. Discrimination

In addition to its medical examination and disability-related inquiry provisions, the ADA also forbids adverse employment actions against qualified individuals on the basis of a disability. At the end of this Section, Table 2 summarizes the ADA provisions concerning discrimination against qualified individuals with disabilities.

²³⁵ An injury grievance is "a claim or complaint that, at the time a player's NFL Player Contract or Practice Squad Player Contract was terminated by a Club, the player was physically unable to perform the services required of him by that contract because of an injury incurred in the performance of his services under that contract." *Id.* art. 44, § 1.

²³⁶ *See id.* art. 44, § 12 ("If the player passes the physical examination of the Club prior to the preseason training camp for the year in question, having made full and complete disclosure of his known physical and mental condition when questioned by the Club physician during the physical examination, it will be presumed that such player was physically fit to play football on the date of such examination.").

²³⁷ *Id.* art. 44, § 3(a)(2).

a. *Claims*

Title I contains a rather lengthy description of what constitutes discrimination. Section 12112(a) states, “No covered entity shall discriminate against a qualified individual on the basis of disability in regard to job application procedures, the hiring, advancement, or discharge of employees, employee compensation, job training, and other terms, conditions, and privileges of employment.”²³⁸ The statute includes several subsections explaining how to construe its antidiscrimination mandate. Section 12112(b) explains that discrimination against a qualified individual with a disability covers a wide range of employer actions that both intentionally and unintentionally have an adverse effect on people with disabilities, including classifying individuals on the basis of disability; participating in discriminatory contracts or other agreements with employment-related entities; and adopting qualification standards that tend to screen out individuals with disabilities, unless those standards are job-related and consistent with business necessity.²³⁹

i. *Disability*

Unlike the medical examination provisions,²⁴⁰ the ADA’s discrimination sections require litigants to establish that they are qualified individuals with disabilities. Recall that the ADA defines disability as “(A) a physical or mental impairment that substantially limits one or more major life activities of such individual; (B) a record of such an impairment; or (C) being regarded as having such an impairment.”²⁴¹ It goes on to explain that

[a]n individual meets the requirement of “being regarded as having such an impairment” if the individual establishes that he or she has been subjected to an action prohibited under this chapter because of an actual or perceived physical or mental impairment whether or not the impairment limits or is perceived to limit a major life activity.²⁴²

Consequently, to be a person “with a disability” pursuant to the ADA, an individual does *not* have to be currently experiencing a substantially limiting impairment if she has previously had such an impairment (record of) or is

²³⁸ 42 U.S.C. § 12112(a). At present, courts are split on the question of whether claimants must establish that the disability was simply a motivating factor or whether it must be a but-for cause of the discrimination. See LARSON, *supra* note 175, § 156.02 (citing the Second, Ninth, and Eleventh Circuits as examples of courts that have adopted the “widely recognized [view] that . . . it is not necessary . . . to demonstrate that the disability was the sole cause of the adverse employment decision” but noting that the Sixth and Tenth Circuits follow the sole cause standard).

²³⁹ 42 U.S.C. § 12112(b).

²⁴⁰ See *supra* notes 174–75 and accompanying text.

²⁴¹ 42 U.S.C. § 12102(1).

²⁴² *Id.* § 12102(3)(A).

perceived by her employer to be impaired (regarded as). Impairments cover a wide range of both physical and mental conditions,²⁴³ including addiction.²⁴⁴

With respect to major life activities, in the ADA Amendments Act of 2008 (ADAAA),²⁴⁵ Congress added a nonexhaustive list to the statute. Accordingly, “major life activities include, but are not limited to, caring for oneself, performing manual tasks, seeing, hearing, eating, sleeping, walking, standing, lifting, bending, speaking, breathing, learning, reading, concentrating, thinking, communicating, and working,”²⁴⁶ as well as “major bodily function[s].”²⁴⁷ Major bodily functions “includ[e] but [are] not limited to, functions of the immune system, normal cell growth, digestive, bowel, bladder, neurological, brain, respiratory, circulatory, endocrine, and reproductive functions.”²⁴⁸ These additions to the law were intended to counteract previously restrictive court interpretations of “major life activity.”²⁴⁹ Lastly, the “regarded as” prong, as defined by the ADAAA, could potentially capture a wide range of conduct.²⁵⁰ This definition of disability is intentionally broad.²⁵¹

At first blush, it may seem counterintuitive that NFL players—elite athletes in peak physical condition—might meet the legal definition of “individuals with disabilities.” However, Congress used “disability” as a term of art in the statute with a specific meaning. In addition to players with chronic conditions like heart problems or diabetes, the ADA could potentially cover injured players, depending on the degree of the injury (actual impairment), the history of injuries (record of),

²⁴³ See 29 C.F.R. § 1630.2(h)(1)–(2) (2012) (providing examples of physical and mental impairments).

²⁴⁴ See JOHN F. BUCKLEY, EQUAL EMPLOYMENT OPPORTUNITY: 2016 COMPLIANCE GUIDE § 7.08[A][3] (2016) (“Persons addicted to drugs, but who are no longer using drugs illegally and are receiving treatment for drug addiction . . . are protected by the ADA . . . on the basis of past drug addiction.”).

²⁴⁵ ADA Amendments Act of 2008, Pub. L. No. 110-325, 122 Stat. 3553 (codified in scattered sections of 29 and 42 U.S.C) (amending Americans with Disabilities Act of 1990, Pub. L. No. 101-336, 104 Stat. 327).

²⁴⁶ 42 U.S.C. § 12102(2)(A).

²⁴⁷ *Id.* § 12102(2)(B).

²⁴⁸ *Id.*

²⁴⁹ See Jessica L. Roberts, *Healthism and the Law of Employment Discrimination*, 99 IOWA L. REV. 571, 596 n.163, 597 (2014) (citing *Toyota Motor Manufacturing, Kentucky, Inc. v. Williams*, 534 U.S. 184, 200-01 (2002), *superseded by statute*, § 2(b)(4)–(5), 122 Stat. at 3554—which restricted the scope of major life activities to those “central to most people’s daily lives,” as opposed to “merely a task, or class of tasks, that are required for the claimant’s job,” as an example of the kind of restrictive Supreme Court interpretation of disability that the ADAAA was meant to counteract).

²⁵⁰ While the “regarded as” prong appeared in the original ADA, the Supreme Court introduced an element of mistaken belief into that definition in *Sutton v. United Air Lines, Inc.*, 527 U.S. 471, 489 (1999), *superseded by statute*, § 2(b)(2)–(3), 122 Stat. at 3554. Congress rejected this construction of “regarded as” when it amended the ADA in 2008. § 2(b)(3), 122 Stat. at 3554.

²⁵¹ See *id.* § 2(a)(4), 122 Stat. at 3553 (“[T]he holdings of the Supreme Court in *Sutton v. United Air Lines, Inc.*, 527 U.S. 471 (1999) and its companion cases have narrowed the broad scope of protection intended to be afforded by the ADA.”).

or the player's risk of injury (regarded as). As a result, a player does not have to be experiencing an actual impairment to be considered an individual with a disability.

For example, imagine a player injures himself seriously but not permanently.²⁵² Short-term impairments constitute disabilities when they are "sufficiently severe."²⁵³ Hence, under existing law, he might be able to assert that his temporary injury is severe enough to qualify as a disability.²⁵⁴ However, courts will make these determinations on a case-by-case basis. For example, while the inability to walk for seven months could constitute a disability for ADA purposes, a torn ACL might not.²⁵⁵ Likewise, if a prospective or current player at some point had a substantially limiting impairment and subsequently healed, the history of injury would qualify as a disability under the "record of" prong.

Finally, the breadth of the "regarded as" provision means it could be particularly useful to NFL players. While "regarded as" may not apply to temporary disabilities,²⁵⁶ it would cover instances in which individuals are perceived as having disabilities, regardless of whether they are actually impaired or actually limited in a major life activity.²⁵⁷

For example, Star Lotulelei, discussed above,²⁵⁸ was arguably "regarded as" being disabled after an echocardiogram detected a cardiovascular abnormality. A player who experiences a limitation in a major bodily function that might not directly affect his current ability to play, such as a congenital heart problem, diabetes, or cancer, could also qualify as an individual with a disability. For instance, a federal court found that professional golfer Stephen Barron had established a strong likelihood of success on his claim that he was disabled under the ADA based on low testosterone production.²⁵⁹ Consequently, the "regarded as" prong might be the most powerful avenue of relief for NFL

²⁵² If the injury is severe enough, he might acquire a permanent impairment.

²⁵³ 29 C.F.R. pt. 1630, app. § 1630.2(j)(1)(ix) (2012) (internal quotation marks omitted) (quoting 154 Cong. Rec. H8294–96 (daily ed. Sept. 17, 2008) (statement of Reps. Hoyer & Sensenbrenner)).

²⁵⁴ Following the 2008 amendments, the ADA applies to some temporary impairments. *See Summers v. Altarum Inst. Corp.*, 740 F.3d 325, 333 (4th Cir. 2014) (holding that an accident which left a plaintiff unable to walk for seven months was sufficiently severe to qualify as a disability following the ADAAA expansions).

²⁵⁵ *See Koller v. Riley Riper Hollin & Colagrecio*, 850 F. Supp. 2d 502, 514 (E.D. Pa. 2012) (holding that the plaintiff failed to establish that his torn ACL, which required surgery, rose to the level of a disability under the statute).

²⁵⁶ *See* 42 U.S.C. § 12102(3)(B) (2012) (stating that the regarded as prong "shall not apply to impairments that are transitory and minor" and that "[a] transitory impairment is an impairment with an actual or expected duration of 6 months or less").

²⁵⁷ *Id.* § 12102(3)(A).

²⁵⁸ Newton, *supra* note 68.

²⁵⁹ *Barron v. PGA Tour, Inc.*, 670 F. Supp. 2d 674, 685 (W.D. Tenn. 2009). However, the court ultimately denied his request for a temporary restraining order to require the PGA tour to allow him to compete. *Id.* at 691.

players under the ADA. Even players who are completely free of impairments both past and present may be considered people with disabilities if they can establish that the NFL or the clubs treated them in a discriminatory manner. The regarded as prong may also be the most comfortable fit, as the players themselves loathe portraying themselves as impaired.

Still, it is not sufficient to show that one has a “disability” to proceed with a claim under the ADA’s antidiscrimination provisions.

ii. Qualified

Under Title I of the ADA, a “qualified individual” is “an individual who, with or without reasonable accommodation, can perform the essential functions of the employment position that such individual holds or desires.”²⁶⁰ In determining which job functions are essential, the statute gives deference to the employer.²⁶¹ EEOC regulations define essential job functions as “the fundamental job duties of the employment position the individual with a disability holds or desires,” not including marginal functions.²⁶² For example, the essential functions of an administrative assistant might include printing, filing, scanning, delivering mail, and moderate lifting.

The regulations go on to indicate that a job function could be “essential” for purposes of the ADA for at least three reasons:

(i) The function may be essential because the reason the position exists is to perform that function;

(ii) The function may be essential because of the limited number of employees available among whom the performance of that job function can be distributed; and/or

(iii) The function may be highly specialized so that the incumbent in the position is hired for his or her expertise or ability to perform the particular function.²⁶³

Hence, whether a job function is essential depends on its importance and not its frequency.

Of course, in addition to establishing a disability, an individual who wishes to pursue an ADA claim must also establish that he is qualified. The “qualified individual” inquiry is especially challenging in the context of professional sports

²⁶⁰ 42 U.S.C. § 12111(8).

²⁶¹ *See id.* (“For the purposes of this subchapter, consideration shall be given to the employer’s judgment as to what functions of a job are essential, and if an employer has prepared a written description before advertising or interviewing applicants for the job, this description shall be considered evidence of the essential functions of the job.”).

²⁶² 29 C.F.R. § 1630.2(n)(1) (2015).

²⁶³ *Id.* § 1630.2(n)(2).

where excellence, not mere competence, is the necessary standard. There is very little guidance or case law on this issue. The applicable regulations allow courts to look to written job descriptions and collective bargaining agreements when assessing which job functions are essential.²⁶⁴ The standard NFL player contract states that the “Club employs Player as a skilled football player.”²⁶⁵ It goes on to explain that “Player represents that he has *special, exceptional and unique knowledge, skill, ability, and experience as a football player*, the loss of which cannot be estimated with any certainty and cannot be fairly or adequately compensated by damages.”²⁶⁶ Additionally, the contract states,

Player understands that he is competing with other players for a position on Club’s roster within the applicable player limits. If at any time, in the sole judgment of Club, *Player’s skill or performance has been unsatisfactory as compared with that of other players competing for positions on Club’s roster, or if Player has engaged in personal conduct reasonably judged by Club to adversely affect or reflect on Club*, then Club may terminate this contract.²⁶⁷

Thus, according to the standard contract, whether an individual is qualified to play NFL football is a relative—not an absolute—inquiry. Thus, the qualified individual inquiry likely is more of a moving target in the case of an elite athlete than it is in the case of an administrative assistant.

In terms of relevant case law, two cases potentially address how to determine essential job functions of professional athletes. First, in 2006, Roy Tarpley, a former basketball player whom the NBA banned for violating its drug and alcohol policies, filed an ADA claim with the EEOC after the NBA denied his request to reenter the league.²⁶⁸ The EEOC found reasonable cause that the NBA had violated his rights under the ADA and issued a right to sue letter, placing Tarpley “in an advantaged position, particularly [for] settlement talks.”²⁶⁹ Tarpley sued the league in a Texas federal court, but the case settled before the court made any substantive rulings.²⁷⁰ Nevertheless, documents indicate that Tarpley would have argued that the essential job functions of an NBA player include “not only the ability to play NBA

²⁶⁴ *Id.* § 1630.2(n)(3).

²⁶⁵ Collective Bargaining Statement, *supra* note 32, app. A, para. 2 (2011).

²⁶⁶ *Id.* para. 3 (emphasis added).

²⁶⁷ *Id.* para. 11 (emphasis added).

²⁶⁸ Michael A. McCann, *Do You Believe He Can Fly? Royce White and Reasonable Accommodations Under the Americans with Disabilities Act for NBA Players with Anxiety Disorder and Fear of Flying*, 41 PEPP. L. REV. 397, 419 (2014).

²⁶⁹ *Id.* at 420.

²⁷⁰ *Id.*

basketball, but also the capability of being a role model.”²⁷¹ Given the language of the standard NFL player contract, there would be a strong argument that the essential functions of being an NFL player include exceptional skills and performance, as well as a behavioral element off of the field akin to being a role model.

The other potentially relevant case, *PGA Tour, Inc. v. Martin*, is actually a Title III (public accommodations) case, not a Title I (employment) case.²⁷² Still, the Supreme Court analyzed the essential aspects of golf to determine whether the plaintiff’s request for a modification—that he be allowed to drive a golf cart during play—would “fundamentally alter the nature” of PGA Tour tournaments.²⁷³ In so doing, the Court looked to the “Rules of Golf” that govern both amateur and professional golf, the “Conditions of Competition and Local Rules” that govern the PGA’s professional tournaments, and the “Notices to Competitors” that issued for specific tournaments.²⁷⁴

Thus, a court asked to assess whether an individual is qualified to play professional football would likely look to analogous sources like a player’s contract, the CBA, official NFL rules and regulations, and the descriptions of the player’s position from the NFL and its clubs. “Qualified” in these circumstances would necessarily mean performing at an elite, superior level. To be sure, the qualified inquiry for professional athletes is more complex than for traditional jobs. However, NFL clubs’ need to seek out the best available players does not necessarily mean that anyone less than the best must be unqualified per se. If that were true, the qualification standard would be meaningless given that every employer seeks the best available candidate. Again, whether a player is elite is a relative question—not an absolute one. For example, an individual whose level of skill and performance might have been elite in the past may no longer be qualified relative to the current group of players. Thus, NFL players challenging clubs or the league under the ADA may have difficulty establishing both the aspects of play that constitute “essential functions” of professional football and whether they can perform those essential functions with comparative excellence.

²⁷¹ *Id.* However, it is questionable whether Tarpley would have been able to meet the first function because he had not played in the NBA for eight years and would have been—if reinstated—the second oldest player in the league. Moreover, he also had a history of serious knee problems. *Id.* at 420-21.

²⁷² See 532 U.S. 661, 675-76 (2001) (“At issue now, as a threshold matter, is the applicability of Title III [of the ADA] to petitioner’s golf tours . . .”).

²⁷³ *Id.* at 682 (internal quotation marks omitted). The Court ultimately explained that the use of carts to play golf is not inconsistent with the fundamental characteristic of the game and that the essence of golf is shotmaking. *Id.* at 683. Additionally, the Court explained that the PGA’s walking requirement for professional tournaments is likewise not an “indispensable feature” of tournament golf since the rule’s purpose is to fatigue players and Martin already tired more easily than his able-bodied opponents *Id.* at 685, 690.

²⁷⁴ *Id.* at 666-67.

b. *Specific NFL Evaluative Technologies*

We now apply these principles of the ADA to the various types of traditional NFL examinations and drills, as well as to the cutting edge evaluative technologies described in Part I.

i. *Medical Examinations and Athletic Drills*

The ADA prohibits adverse employment actions on the basis of an actual or perceived disability if the employee can still perform his or her essential job functions.²⁷⁵ If the person can no longer perform those essential job functions, he or she is not qualified and, therefore, cannot sue for discrimination. Thus, if the NFL or a club chooses not to hire, not to renew, or to otherwise disadvantage a player who *can* perform the essential job functions of playing football on the basis of medical or health-related information, they could be liable for discrimination.

For example, imagine that our hypothetical player, James, has diabetes but can still play at an elite level (i.e., the diagnosis does not affect his performance in any negative way).²⁷⁶ Pursuant to the ADA, it is unlikely that National Football Scouting could reject him from the Combine—nor could the NFL or the club fail to hire him on the basis of his diabetes—unless it could show some threat to his health and safety or to the health and safety of others. The same would be true for a player with a congenital heart defect, a player with a record of a severely limiting injuries, or a player, like Star Lotulelei,²⁷⁷ who had been perceived as having an impairment.²⁷⁸ Thus, for their qualification standards to be lawful, the NFL and the clubs must establish that their selection criteria are both “job-related” and “consistent with business

²⁷⁵ See 42 U.S.C. § 12102(3)(A) (2012) (noting that the ADA applies to both actual and perceived impairments); *id.* § 12111(8) (defining a qualified individual under the ADA as one who can still perform the essential functions of the job).

²⁷⁶ This hypothetical is not mere conjecture. In 2012, the New England Patriots released defensive tackle Kyle Love after he was diagnosed with diabetes and “struggled to keep on weight.” Rich Hill, *Former Patriots DT Kyle Love Wants to Face His Old Team in the Super Bowl*, SB NATION: PATS PULPIT (Jan. 15, 2016, 5:28 PM) <http://www.patspulpit.com/2016/1/15/10777188/former-patriots-dt-kyle-love-wants-to-face-his-old-team-in-the-super-randy-moss> [<http://perma.cc/J9M9-EFH3>].

²⁷⁷ See *supra* text accompanying note 258.

²⁷⁸ In 2015, a somewhat similar situation unfolded with wide receiver Bud Sasser. The St. Louis Rams drafted Sasser in the sixth round of the NFL Draft before learning that he had a heart condition. Since Sasser had not been invited to the Combine, his condition was not discovered until after he was drafted. The Rams’ doctors recommended that Sasser not play while Sasser’s agent declared that another doctor had cleared him. The Rams still signed Sasser to a contract commensurate with his draft position (including a \$113,737 signing bonus) even though they were under no such obligation. Nevertheless, the club ultimately terminated the contract, leaving Sasser’s NFL future in doubt. Mike Florio, *Agent Says Bud Sasser Has Been Cleared to Play*, NBC SPORTS: PROFOOTBALLTALK (June 5, 2015, 7:44 AM), <http://profootballtalk.nbcsports.com/2015/06/05/agent-says-bud-sasser-has-been-cleared-to-play/> [<http://perma.cc/YFR9-LJ2W>].

necessity.”²⁷⁹ Even assuming that the NFL, the club, and National Football Scouting are performing medical examinations and athletic drills in accordance with the ADA’s restrictions on disability-related inquiries and medical exams (e.g., not conducting pre-offer examinations), they must still take care to not engage in illegal discrimination upon receipt of post-offer examination information.

It is worth pausing to emphasize that if a medical examination (post-offer or during employment) or inquiry (at any time) reveals that a person cannot perform the essential job functions of a professional football player, the NFL or the club can refuse to hire him or can terminate him lawfully since he is not “qualified” as required by the statute.

ii. Nongenetic Technologies

Should wearable technology reveal a disability, Title I’s antidiscrimination provision would prevent discrimination on the basis of that disability. That said, if a player’s performance declines so substantially that he can no longer meet the rigorous standards of professional football, he would no longer be qualified to play and would thus be outside the scope of Title I’s protection.²⁸⁰

If the technology only measures performance—without detecting impairment²⁸¹—the ADA offers no meaningful protection. An adverse employment action based on performance data alone would not constitute discrimination on the basis of disability. To the contrary, it would most likely be justifiable if the performance data indicated that the individual was no longer capable of performing the essential functions of NFL football. Put another way, anything less than peak performance could be taken as an indication of the person’s relative inferiority as a player, making it an acceptable ground for an adverse employment action.

That said, given the often extensive injury history of NFL players, the line between performance data and impairment detection is a murky one. For example, a sensor that measures the amount of force a player creates might typically be construed as a performance metric, but if the player has a history of knee injuries, a reduction in force might be indicative of the player’s level of impairment. Courts will likely struggle to distinguish the two should these issues be litigated.

²⁷⁹ 42 U.S.C. § 12112(b)(6).

²⁸⁰ See *supra* notes 274–75 and accompanying text.

²⁸¹ See *supra* subsection II.A.1.b.i. for a discussion of the importance of the difference.

iii. Genetic Tests

The ADA's antidiscrimination provisions might also apply to genetic tests. Arguably, to discriminate against an individual on the basis of genetic information is to regard that person as disabled. Moreover, recall that being regarded as disabled requires only that an individual face discrimination "because of an actual or perceived physical or mental impairment whether or not the impairment limits or is perceived to limit a major life activity."²⁸² Hence, a plaintiff could argue that in addition to discrimination on the basis of genetic information under GINA, he or she also faces discrimination on the basis of a perceived disability.

While the ADA may technically apply to scenarios related to genetic testing and genetic-information discrimination, GINA will likely be the primary legal tool for such circumstances. While GINA does not preempt the ADA—and claimants can and do assert violations of both statutes²⁸³—it specifically includes genetic test results and excludes the type of manifested conditions that the ADA covers,²⁸⁴ thereby implying complementary protections.

c. Possible Responses and Defenses

In cases of alleged discrimination, the NFL or a club could use a multitude of defense strategies, such as arguing that the player is not qualified, that an exclusionary qualification standard is job-related and consistent with a business necessity, or that the player poses a direct threat to the health or safety of himself or others. One response to a discrimination claim is to assert that the plaintiff is not a qualified individual with a disability. Thus, the NFL or the club could challenge James regarding how much his alleged impairment currently limits him (substantially limiting impairment), has limited him in the past (record of), or whether he has ever been perceived as being disabled (regarded as). Although the ADA's broader definition of disability makes it harder for employers to establish the absence of a disability,²⁸⁵ they can still assert that the person cannot perform essential job functions—even with reasonable accommodations—and is therefore not "qualified." Since elite athletic ability is essential to playing professional football, this defense could be strong for the NFL or the clubs. The NFL or the club might then argue that while James is at an absolute level of excellence with respect to playing football, he still

²⁸² 42 U.S.C. § 12102(3)(A).

²⁸³ See, e.g., Complaint at 1, *EEOC v. Fabricut Inc.*, No. 13-CV-248-CVE-PJC (N.D. Okla. filed May 7, 2013) (seeking relief "to correct unlawful employment practices on the basis of disability and genetic information" under both "Title I of the Americans with Disabilities Act of 1990" and "Title II of the Genetic Information Non-Discrimination Act of 2008").

²⁸⁴ See *infra* notes 325–36.

²⁸⁵ See *supra* notes 245–50 and accompanying text.

falls comparatively short compared to other aspiring professional players competing for the position.

Challenging whether an individual is disabled or qualified are responses that cut across the various definitions of discrimination in Title I. Yet, some of the specific constructions of discrimination found in § 12112(b) have their own separate statutory exceptions or defenses.²⁸⁶ Suppose James has established that he is qualified to play football at the elite level (as well as to conform to the necessary behavioral norms) and also that he is a person with a disability as defined by the ADA. In response to his claim for failing to accommodate a qualified individual with a disability, James's employer could argue that the requested accommodation is not reasonable,²⁸⁷ or that even if the requested accommodation were reasonable, it would create an undue hardship.²⁸⁸ Say James has a learning disability and requests extra time than is normally provided for taking the Wonderlic test at the Combine.²⁸⁹ James would have to demonstrate that his request for additional time is reasonable; then the NFL or the clubs (through National Football Scouting) could argue his request would impose some kind of unacceptable burden.

The ADA includes specific statutory defenses to allegations that a qualification standard disproportionately screens out individuals with disabilities.²⁹⁰ Importantly, essential job functions (the touchstone for the qualified individual inquiry) are distinct from qualification standards. As noted, essential job functions are the fundamental duties of the job,²⁹¹ while qualification standards are the selection criteria the employer uses to assess whether an individual is qualified. Thus, a person who could perform the essential functions of the job (i.e., is qualified) might be screened out by discriminatory qualification standards.²⁹² For example, playing elite football is an essential job function for an NFL player. In

²⁸⁶ 42 U.S.C. § 12112(b).

²⁸⁷ See *id.* § 12111(8) (defining a qualified individual as one who, “with or without reasonable accommodation, can perform the essential functions” of the job (emphasis added)). To demonstrate that an accommodation is reasonable, a plaintiff “need only show that an ‘accommodation’ seems reasonable on its face, *i.e.*, ordinarily or in the run of cases.” *US Airways, Inc. v. Barnett*, 535 U.S. 391, 401 (2002).

²⁸⁸ Illegal discrimination includes “not making reasonable accommodations” for “an otherwise qualified individual . . . unless [the employer] can demonstrate that the accommodation would impose an undue hardship on the operation of [its] business.” 42 U.S.C. § (b)(5)(A) (emphasis added). An “undue hardship” is “an action requiring significant difficulty or expense.” *Id.* § 12111(10)(A).

²⁸⁹ Prospective players with learning disabilities have not been given extra time to take the Wonderlic test at the Combine, as would be required by the ADA. See, e.g., Lowell Cohn, *NFL Fails to Protect Player with Learning Disability*, PRESS DEMOCRAT (Apr. 9, 2012), <http://www.pressdemocrat.com/news/2310726-181/nfl-fails-to-protect-player> [<https://perma.cc/26EY-HK9X>] (explaining that Morris Claiborne was not afforded any testing accommodations during his Wonderlic examination despite having a documented learning disability).

²⁹⁰ 42 U.S.C. § 12113(a).

²⁹¹ See *supra* note 262 and accompanying text.

²⁹² See 42 U.S.C. § 12112 (b)(6) (noting that illegal discrimination includes using qualification standards that “screen out or tend to screen out an individual with a disability”).

screening for the most elite football players, the NFL or its clubs could theoretically adopt a hearing requirement due to a belief that the best football players need to be able to hear one another in a huddle, hear the officials' whistles, and respond to verbal signals from the coach. While there might be some correlation between hearing and football playing, a hearing requirement could nonetheless screen out qualified players, such as former Seattle Seahawk Derrick Coleman, who is deaf.²⁹³

An employer can potentially defend a qualification standard that screens out individuals with disabilities by showing it is (1) job-related, (2) consistent with a business necessity, and (3) that the job cannot be accomplished with reasonable accommodation.²⁹⁴ Thus, the NFL or its clubs can adopt qualification standards that disparately impact people with disabilities as long as those standards relate to the job of playing football, further a legitimate business purpose, and have no viable reasonable accommodation. For example, if James failed a hearing test at the Combine and was not hired as a result of a hearing policy, the club would have to assert that a certain degree of hearing is job-related and consistent with business necessity and that James could not be adequately accommodated, say through hearing aids or by using sign language or some other visual means of communication.²⁹⁵

Additionally, the ADA allows employers to adopt qualification standards that require that "an individual shall not pose a direct threat to the health or safety of other individuals in the workplace."²⁹⁶ The ADA defines a "direct threat" as "a significant risk to the health or safety of others that cannot be eliminated by reasonable accommodation."²⁹⁷ According to the Supreme Court, the presence or absence "of a significant risk must be determined from the standpoint of the [discriminator], and the risk assessment must be based on medical or other objective evidence."²⁹⁸ Thus, employers cannot invent hypothetical risks to invoke the defense.

While, on its face, the statute only provides a defense when employing an individual with a disability that could harm others, the Supreme Court has

²⁹³ See Tom Friend, *Derrick Coleman Misses Nothing*, ESPN (Jan. 31, 2014), http://espn.go.com/nfl/playoffs/2013/story/_id/10372203/super-bowl-xlvi-deafness-deter-seattle-derrick-coleman [<http://perma.cc/PF3Z-75EL>] (explaining that Coleman was the third deaf player in NFL history and the first to play offense, which requires more quick and last-minute communication with teammates than defense).

²⁹⁴ 42 U.S.C. § 12113(a).

²⁹⁵ The NHL actually excludes players who are blind in one eye. See Bill Littlefield, *David-Alexandre Beaugard: One Eye, 20 Years, 540 Goals*, ONLY GAME (Dec. 21, 2013), <http://onlygame.wbur.org/2013/12/21/david-alexandre-beaugard-blind-hockey-player> [<http://perma.cc/TQJ3-5E4F>] (discussing the twenty-year career of minor hockey player David-Alexandre Beaugard, who has never reached the NHL, in part due to a league rule prohibiting players who are blind in one eye).

²⁹⁶ 42 U.S.C. § 12113(b).

²⁹⁷ *Id.* § 12111(3).

²⁹⁸ *Bragdon v. Abbott*, 524 U.S. 624, 649 (1998).

extended Title I's direct threat defense to the employees themselves.²⁹⁹ In other words, employers can screen out individuals with disabilities to avoid putting *those individuals* at significant risk. In the leading Supreme Court case in this area, *Chevron U.S.A. Inc. v. Echazabal*, the Court held that Chevron could lawfully refuse to hire respondent Echazabal due to a medical exam that revealed liver damage, which Chevron's doctors believed could be exacerbated by exposure to toxins while working in the refinery.³⁰⁰ Thus, one possible defense for the NFL and the clubs would be to argue that making decisions based on players' actual, past, or perceived disabilities would in fact benefit the players themselves by keeping them out of harm's way.

Imagine that James's Combine EKG has revealed abnormal heart function, he is forced to leave the Combine, and—as a result—is not ultimately drafted or signed. James could allege discrimination based on an actual or a perceived cardiac impairment. However, the clubs could raise the direct threat defense, arguing that to employ an individual with compromised heart function as a professional football player would place him at a significant health risk and, given the nature of the sport, that the risk cannot be eliminated by a reasonable accommodation. Therefore, the direct threat defense is potentially powerful for these defendants with respect to health-related screenings because they can argue that adopting health-related qualification standards is necessary to avoid putting players at serious risk. But to succeed, they would have to demonstrate that the risk in question is “significant”—based on objective evidence—and that it cannot be eliminated through reasonable accommodation.

Spinal stenosis, a narrowing of the spinal canal, provides another useful hypothetical for the direct threat defense. David Wilson, a running back for the New York Giants, was advised by team doctors to retire based on his spinal stenosis.³⁰¹ Ostensibly, the doctors based their advice on the belief that Wilson was endangering himself by continuing to play. However, while they may face greater risk of discomfort and ultimately decide that continuing to play is not worth it, at least one article reports “research shows that players with spinal stenosis are at no greater risk of devastating spinal cord injury.”³⁰² Nonetheless, many players with that condition are encouraged to stop playing football.³⁰³ While perhaps well-meaning, recommendations to leave professional football because of

²⁹⁹ See *Chevron U.S.A. Inc. v. Echazabal*, 536 U.S. 73, 76 (2002) (finding that an EEOC regulation “authoriz[ing] [a] refusal to hire an individual because his performance on the job would endanger his own health, owing to a disability,” was permissible under the ADA).

³⁰⁰ *Id.* at 76.

³⁰¹ Zach Schonbrun, *Spinal Issues Loom Over the N.F.L.*, N.Y. TIMES (Aug. 5, 2014), <http://www.nytimes.com/2014/08/06/sports/football/david-wilsons-retirement-from-nfl-raises-injury-awareness.html> [<http://perma.cc/8S3K-TWD7>].

³⁰² Alex Dunlap, *‘The NFL Beat’: Spinal Stenosis*, AUSTIN CHRON. (Jan. 23, 2013), <http://www.austinchronicle.com/daily/sports/2013-01-23/the-nfl-beat-spinal-stenosis/> [<http://perma.cc/X7LF-M5ZM>].

³⁰³ *Id.*

spinal stenosis are therefore based on perceived—not actual—risk. Thus, should a club dismiss a player on the basis of spinal stenosis, a direct threat defense would mostly likely fail due to the absence of an actual risk of heightened injury. Thus, the direct threat defense may be available in the context of professional football, but there are limits to its applicability.

3. ADA Summary

Navigating the goals of the ADA and its application to the NFL context is no easy feat, so we summarize it: Title I of the ADA could apply to the clubs or the NFL (1) by prohibiting certain medical examinations or inquiries and (2) by forbidding both intentional and unintentional adverse employment actions on the basis of an actual, past, or perceived disability. The NFL and its clubs could assert a variety of defenses.³⁰⁴ For example, they could assert that qualification standards or medical inquiries and exams for current employees are job-related and consistent with business necessity. For certain actions, they could challenge whether the individual is qualified or has a disability. Lastly, if a player is endangering himself or others, the club or the NFL may be able to use the direct threat defense.

³⁰⁴ While the NFL and the clubs might have multiple defenses, National Football Scouting's activities are exclusively pre-employment and only related to medical examinations and inquiries, not employment-related actions. *See supra* notes 43–45, 47–54 and accompanying text. This means that the only statutory exception available to it would be for pre-employment, job-related inquiries.

Table 1: Medical Examinations and Inquiries³⁰⁵

Coverage	Types of Screening	Defenses
Applicants	Pre-employment medical examinations	None
Applicants	Pre-employment inquiries	Inquiry is job-related
Applicants (post-offer)	Employee entrance exam	Exams must be (1) universal (all entering employees are subject); (2) confidential; and (3) used only in accordance with ADA
Current employees	Medical examinations and inquiries	Exams and inquiries must be (1) job-related and (2) consistent with business necessity

Table 2: Discrimination Against Qualified Individuals with Disabilities³⁰⁶

Violations	Defenses
Limit, segregate, or classify on the basis of disability ³⁰⁷	<ul style="list-style-type: none"> • No disability • Not qualified • Did not discriminate / adversely affect
Failure to accommodate ³⁰⁸	<ul style="list-style-type: none"> • No disability • Not qualified • Accommodation not reasonable • Undue hardship
Discriminatory qualification standards ³⁰⁹	<ul style="list-style-type: none"> • No Disability • Not Qualified • (1) Job-related; (2) consistent with business necessity; and (3) cannot be eliminated with reasonable accommodation³¹⁰ • Direct threat³¹¹

³⁰⁵ The information contained in the table summarizes 42 U.S.C. § 12112(d)(1)–(4) (2012).

³⁰⁶ Unless otherwise noted, the statutory support for the defenses included in the table corresponds with the provision describing the violation. These provisions apply to all qualified individuals with disabilities at all stages of employment. 42 U.S.C. § 12112(a).

³⁰⁷ *Id.* § 12112(b)(1).

³⁰⁸ *Id.* § 12112(b)(5).

³⁰⁹ *Id.* § 12112(b)(6).

³¹⁰ *Id.* § 12113(a).

³¹¹ *Id.* § 12113(b).

B. Genetic Information Nondiscrimination Act

Apart from the ADA, the Genetic Information Nondiscrimination Act³¹² is another federal statute that could apply to the collection and use of players' health-related information.

Title II of GINA prohibits both acquiring and acting on genetic information in employment.³¹³ The law applies to various types of employers covered by other federal statutes such as Title VII,³¹⁴ as well as employment agencies,³¹⁵ labor organizations,³¹⁶ and training programs.³¹⁷ The sections most relevant to NFL players are the employer and labor organization provisions.³¹⁸ Like the ADA,³¹⁹ GINA does not exempt sports-related employers.³²⁰ To the contrary, proponents of the law cited Eddy Curry's story as evidence of the need for legal regulation.³²¹ Both GINA's prohibitions on genetic discrimination and its restrictions on requests for genetic information could apply to efforts of the NFL or its clubs to evaluate and monitor player health. As is the case under the ADA,³²² plaintiffs must exhaust their administrative remedies before pursuing a lawsuit,³²³ and they cannot prospectively waive their claims.³²⁴

The statute adopts a fairly expansive definition of genetic information. GINA defines an individual's "genetic information" as "information about—(i) such individual's genetic tests, (ii) the genetic tests of family members of such individual, and (iii) the manifestation of a disease or disorder in family members

³¹² Genetic Information Nondiscrimination Act of 2008, Pub. L. No. 110-233, 122 Stat. 881 (codified in scattered sections of 26, 29, and 42 U.S.C.).

³¹³ See § 202(a)–(b), 122 Stat. at 907-08 (codified at 42 U.S.C. § 2000ff-1(a)–(b)) (prohibiting discrimination in employment based on the employee's genetic information and prohibiting employer requests for such information except under certain conditions).

³¹⁴ See 42 U.S.C. § 2000ff(2)(B) (incorporating the definition of employer from 42 U.S.C. § 2000e (Title VII)—among other statutes—into the definition of employer under GINA).

³¹⁵ *Id.* § 2000ff-2.

³¹⁶ *Id.* § 2000ff-3.

³¹⁷ *Id.* § 2000ff-4.

³¹⁸ See Wagner, *supra* note 170, at 94 ("GINA defines covered entities broadly enough to include the clubs and teams (as employers) as well as the players' associations (as labor organizations).").

³¹⁹ See *supra* note 21 and accompanying text.

³²⁰ Wagner, *supra* note 170, at 93.

³²¹ *Id.* For more about Eddy Curry's story, see *supra* note 144 and accompanying text.

³²² See *supra* note 167 and accompanying text.

³²³ GINA's process and remedies are modeled on those of Title VII. See 42 U.S.C. § 2000ff-6(a)(1) (applying the "powers, procedures, and remedies" of Title VII to GINA claimants). As explained above, the ADA also adopts the same pre-lawsuit procedures as Title VII, which includes an administrative remedy exhaustion requirement. See *supra* note 166.

³²⁴ Given that the precedent for Title VII applies to the ADA and that GINA adopts the same process and remedies as Title VII, it follows that individuals cannot prospectively waive their GINA claims. See EEOC, *supra* 168 (noting that the ADA does not permit advance waiver of the rights it guarantees).

of such individual.”³²⁵ The statute focuses exclusively on genetic testing, not other health-related tests. Although the statute does not explicitly state that family medical history constitutes genetic information, the inclusion of manifested conditions of family members has been read to extend the statute to family medical history,³²⁶ a rather common type of health-related information.

Regarding the family member provision, the plain language of neither the statute nor the regulations restrict the scope to conditions with specific hereditary components.³²⁷ Nonetheless, some courts have read this provision more restrictively, finding that GINA does not cover family medical history lacking a genetic component.³²⁸ Regardless, family medical history—and not genetic test results—have been the most frequent basis for GINA claims to date.³²⁹

Importantly, while the statute covers the manifested conditions of a person’s relatives, GINA does not cover an individual’s own manifested genetic conditions.³³⁰ The law’s primary focus is therefore pre-symptomatic or asymptomatic individuals. The EEOC regulations define the terms “manifestation” or “manifested” to mean “that an individual has been or could reasonably be diagnosed with the disease, disorder, or pathological condition by a health care professional with appropriate training and expertise in the field of medicine involved” and specifies that “a disease, disorder, or pathological

³²⁵ 42 U.S.C. § 2000ff(4)(A). The definition of genetic information excludes any information about sex or age. *Id.* § 2000ff(4)(C).

³²⁶ Rothstein et al., *supra* note 196, at 526-27.

³²⁷ The EEOC regulations define “family member” to include dependents through marriage—including spouses and stepchildren—and adoption. 29 C.F.R. § 1635.3(a)(1) (2015). Moreover, in issuing its final rule on employer-provided wellness programs, the EEOC clarified that a spouse “is a ‘family member’ under GINA.” Genetic Information Nondiscrimination Act, 81 Fed. Reg. 31,143, 31,144 (May 17, 2016) (quoting 42 U.S.C. 2000ff(4)(a)(ii)). The regulations themselves explain that “[a] program is not reasonably designed to promote health or prevent disease if it imposes a penalty or disadvantage on an individual because a spouse’s manifestation of disease or disorder prevents or inhibits the spouse from participating or from achieving a certain health outcome,” which indicates that a spouse’s manifested condition qualifies as genetic information. 29 C.F.R. §1635.8(b)(2)(i)(A) (2016). The inclusion of stepchildren, adopted children, and spouses in the definition of family member indicates that the EEOC understands GINA’s family member disease manifestation prong to encompass more than just hereditary risk.

³²⁸ *See, e.g.,* *Poore v. Peterbilt of Bristol, L.L.C.*, 852 F. Supp. 2d 727, 731 (W.D. Va. 2012) (“[T]he fact that an individual family member merely has been diagnosed with a disease or disorder is not considered ‘genetic information’ if ‘such information is taken into account only with respect to the individual in which such disease or disorder occurs and not as genetic information with respect to any other individual’” (quoting H.R. Rep. No. 110-28, pt. 2, at 27 (2007))); *see also* *Maxwell v. Verde Valley Ambulance Co.*, No. CV-13-08044-PCT-BSB, 2014 WL 4470512, at *16 (D. Ariz. Sept. 11, 2014) (citing *Poore* for that proposition); *Allen v. Verizon Wireless*, No. 3:12-cv-482(JCH), 2013 WL 2467923, at *23 (D. Conn. June 6, 2013) (also citing *Poore* for that proposition).

³²⁹ Rothstein et al., *supra* note 196, at 553-54.

³³⁰ *See* EMP. BENEFITS SEC. ADMIN., U.S. DEPT OF LABOR, FREQUENTLY ASKED QUESTIONS REGARDING THE GENETIC INFORMATION NONDISCRIMINATION ACT 3 (2010), <http://www.dol.gov/ebsa/faqs/faq-GINA.html> [<https://perma.cc/2NGG-TMEX>] (“[I]nformation about an individual’s manifested disease or disorder is not genetic information with respect to that individual.”).

condition is not manifested if the diagnosis is based principally on genetic information.”³³¹ Yet even with this clarification, ambiguities remain. While seemingly logical to Congress, drawing the line at manifestation is far more challenging in practice. Consider symptomatic individuals who go on diagnostic odysseys searching for answers and finally discover an atypical genetic variation that could be responsible. Those people have “manifested” the condition in the sense that it caused impairment, but healthcare professionals were unable to provide answers without genetic testing.

Marfan syndrome, the disease that likely ended Isaiah Austin’s professional basketball career,³³² provides a useful example. Physicians with experience in connective tissue disorders can diagnose that condition with a physical exam, but genetic testing can be helpful in some cases.³³³ How much protection would GINA offer? Individuals with Marfan syndrome are already experiencing the deleterious effects of the disease; in that sense, it is manifested. However, in certain circumstances, doctors may be unable to confirm the exact diagnosis without the aid of genetic technology. In that case, is the diagnosis “based principally on genetic information,”³³⁴ meaning that it is *not* manifested as defined by that statute? Or can Marfan syndrome always be reasonably diagnosed by other means, meaning the condition *has* manifested? These questions will remain unanswered until the courts weigh in on these kinds of cases.

Furthermore, the statute expressly allows covered entities to acquire, use, and disclose medical information that is *not* genetic. It specifies that covered entities do not violate the statute by “the use, acquisition, or disclosure of *medical information that is not genetic information* about a manifested disease, disorder, or pathological condition of an employee or member, including a manifested disease, disorder, or pathological condition that has or may have a genetic basis.”³³⁵ Of course, any acquisition, use, or disclosure of nongenetic information would have to be in accordance with other governing statutes, such as the ADA and perhaps the Health Insurance Portability and Accountability Act (HIPAA).³³⁶

Genetic information, as defined by the statute, is of potential interest to the NFL and its clubs. First, basic medical examinations, such as preseason physicals, involve collecting information about family medical history,³³⁷

331 29 C.F.R. § 1635.3(g) (2015).

332 See *supra* note 148 and accompanying text.

333 *Getting Diagnosed*, MARFAN FOUND., <http://www.marfan.org/expectations/diagnosis> [<http://perma.cc/M7JD-LMK5>].

334 29 C.F.R. § 1635.3(g).

335 42 U.S.C. § 2000ff-9 (2012) (emphasis added).

336 Health Insurance Portability and Accountability Act of 1996, Pub. L. No. 104–191, 110 Stat. 1936 (codified as amended in scattered sections of the U.S. Code.).

337 See *infra* note 357 and accompanying text.

which implicates an individual's genetic information. Additionally, while the NFL and its clubs seemingly have not used genetic testing as aggressively as the NBA,³³⁸ they could at some point adopt such tests to screen players for genetic risk. As discussed in Part I, genetic tests purporting to evaluate athletic potential are already on the market and could also be of interest to the NFL and its clubs.³³⁹

GINA includes both privacy and antidiscrimination protections. Unlike the ADA, GINA does not have specific statutory defenses for safety and job-relatedness. Still, it does include a number of provisions related to the valid acquisition of genetic information.³⁴⁰

1. Privacy

This subsection outlines GINA's privacy protections, applies them to professional football, and explores the possible exceptions or responses to a claim for the unlawful acquisition of genetic information.

a. *Claims*

GINA contains protections for privacy and confidentiality. Title II's privacy protection prohibits employers from "request[ing], requir[ing], or purchas[ing] genetic information with respect to an employee or a family member," regardless of whether the employer actually acquires the information.³⁴¹ The accompanying EEOC regulations further explain that there is no exception for medical examinations related to employment:

The prohibition on acquisition of genetic information, *including family medical history*, applies to medical examinations related to employment. A covered entity must tell health care providers not to collect genetic information, including family medical history, as part of a medical examination intended to determine the ability to perform a job, and must take additional reasonable measures within its control if it learns that genetic information is being requested or required. Such reasonable measures may depend on the facts and circumstances under which a request for genetic information was made,

³³⁸ See, e.g., Adi Joseph, *Isaiah Austin, NBA Draft Prospect, Has Career-Ending Genetic Disorder*, USA TODAY (June 22, 2014, 3:03 PM), www.usatoday.com/story/sports/nba/draft/2014/06/22/isaiah-austin-genetic-disorder-marfan-syndrome-baylor-bears/11236699/ [<https://perma.cc/E74Z-UABT>] (explaining how the discovery of Isaiah Austin's Marfan syndrome following pre-draft genetic testing ended his basketball career); Rice, *supra* note 144 (explaining that the Bulls refused to re-sign Eddy Curry until he received a genetic test to determine whether he had a heart condition).

³³⁹ See *supra* subsection I.B.3.

³⁴⁰ See 42 U.S.C. § 2000ff-1(b) (laying out exceptions to the prohibition on employers requesting, requiring, or purchasing genetic information).

³⁴¹ *Id.*

and may include no longer using the services of a health care professional who continues to request or require genetic information during medical examinations after being informed not to do so.³⁴²

Thus, even the employment-related inquiries and examinations that are lawful under the ADA would violate GINA if they involved requests for genetic testing or family medical history.

GINA's privacy provision is unique.³⁴³ Other federal employment discrimination statutes contain no comparable language; in fact, the closest parallel is the ADA's medical inquiry and examination provisions,³⁴⁴ discussed above.³⁴⁵ However, GINA's enforcement and remedy provisions mirror those of Title VII.³⁴⁶ Thus, while claimants can recover for pure privacy violations without associated adverse employment actions, the remedies available in such cases will remain unclear until the case law is more established.³⁴⁷

GINA also includes a stand-alone confidentiality provision, separate from its antidiscrimination sections. It provides that if a defendant possesses "genetic information about an employee . . . , such information shall be maintained on separate forms and in separate medical files and be treated as a confidential medical record of the employee or member."³⁴⁸ GINA further provides that an employer "shall be considered to be in compliance with" the Act by treating the relevant genetic information "as a confidential medical record under section 12112(d)(3)(B) of [42 U.S.C.]."³⁴⁹

³⁴² 29 C.F.R. § 1635.8(d) (2015) (emphasis added).

³⁴³ See Jessica L. Roberts, *Protecting Privacy to Prevent Discrimination*, 56 WM. & MARY L. REV. 2097, 2130-31 (2015) (describing GINA as "atypical" given its ban on requesting, requiring or purchasing genetic information and distinguishing it from "the vast majority of federal [antidiscrimination] law" that merely prohibits adverse employment actions on the basis of the protected trait without "prohibit[ing] employers from seeking—or even disclosing—information related to [the trait]").

³⁴⁴ See *id.* at 2131 ("The statute provides that, pre-employment, . . . 'a covered entity shall not conduct a medical examination or make inquiries of a job applicant as to whether such applicant is an individual with a disability or as to the nature or severity of such disability.'" (quoting 42 U.S.C. 12112(d)(2)(A))).

³⁴⁵ See *supra* subsection II.A.1.

³⁴⁶ 42 U.S.C. § 2000ff-6.

³⁴⁷ One, if not the first, of these cases resulted in a very generous award to the plaintiffs. See *Lowe v. Atlas Logistics Grp. Retail Servs. (Atlanta), LLC*, 102 F. Supp. 3d 1360, 1362-63, 1370 (N.D. Ga. 2015) (finding that defendant warehouse operator violated GINA by requiring employees to provide genetic information as part of its attempt meant to identify which employees had been defecating in the warehouse, even though plaintiff employees were not deemed a match and no adverse employment action was ultimately taken); Gina Kolata, *Georgia: \$2.2 Million Penalty for Illegal DNA Testing*, N.Y. TIMES (June 22, 2015), <http://www.nytimes.com/2015/06/23/us/georgia-dollar2-2-million-penalty-for-illegal-dna-testing.html> [<https://perma.cc/PE5M-HS55>] (reporting that the jury in *Lowe* awarded \$2,225,000 to the plaintiffs).

³⁴⁸ 42 U.S.C. § 2000ff-5(a).

³⁴⁹ *Id.*

The statute states that covered entities cannot disclose an individual's genetic information except to the individual himself—or the family member who is the receiving genetic services—with the individual's written request; a researcher doing lawful research; government officials for compliance purposes; a public health agency if it relates to a deadly contagious disease or life-threatening illness; or to respond to a court order or comply with the relevant family medical leave laws.³⁵⁰ In many respects, the allowable disclosures mirror the privacy section's exceptions governing acceptable requests for and acquisitions of genetic information.

GINA also complicates occupational medical recordkeeping. Recall that after a conditional offer of employment, the ADA permits employers to request access to an individual's full medical records.³⁵¹ However, under GINA, employers must exclude genetic information from those requests.³⁵² While this requirement may, at first blush, seem relatively straightforward, it is far more complex. Given the broad definition of genetic information and its potential to appear throughout an individual's health records, Professor Mark Rothstein deems it “practically impossible for custodians of health records to comply with GINA's disclosure limitations.”³⁵³ Thus, even employers that make their best efforts to comply with both the ADA and GINA may still violate GINA's privacy provisions.

b. *Specific NFL Evaluative Technologies*

While more limited in its application than the ADA since it concerns only *genetic* information, GINA is nonetheless relevant to a number of the evaluating technologies that the NFL or its clubs could use to evaluate the health of both current and aspiring players.

i. *Medical Examinations and Athletic Drills*

Routine physical exams or medical questions could trigger GINA's Title II protections to the extent they entail *asking players to provide family medical history, which constitutes an unlawful request for genetic information.*³⁵⁴ The extent of liability will depend on the specific circumstances, how broadly the courts construe the scope of protected family medical history (i.e., whether it is limited to information about genetic risk), and the scope of the applicable exceptions.

³⁵⁰ *Id.* § 2000ff-5(b).

³⁵¹ *See* Rothstein, *supra* note 186, at 44.

³⁵² *Id.*

³⁵³ *Id.*

³⁵⁴ *See* 29 C.F.R. § 1635.8(d) (2015) (noting that GINA's prohibition on the acquisition of genetic information includes family medical history).

To illustrate how the existing practices may be unlawful, consider the following passage from a 2001 book describing the medical treatment and evaluation of NFL players: “It says here that you have a family history of heart trouble.” “Well yeah, that’s right . . . in my family.” “Well, what exactly kind of heart trouble is that? A heart murmur?” “No, sir.” “Some congenital condition?”³⁵⁵

While such questions may have been lawful when the book was published in 2001 (assuming those inquiries are job-related pursuant to the ADA), they would clearly violate GINA today. Again, it is important to emphasize that the law prevents physicians from asking prospective and current players about family medical history, *regardless* of whether such questions relate to the player’s ability to play football.³⁵⁶ Thus, the NFLPA, the NFL, the clubs, and likely National Football Scouting as well are prohibited from asking players to provide family medical history. In contrast, the Standard Minimum Preseason Physical Examination, as outlined in the CBA, expressly includes the collection of family medical history as part of the general medical examination.³⁵⁷ *By requiring players to provide genetic information in the form of family medical history, the CBA would seem to violate GINA.*

As with medical examinations under the ADA, individuals cannot prospectively waive their legal rights under GINA.³⁵⁸ Hence, the fact that the NFLPA agreed to a standard physical that involves requests for family medical history does not insulate the NFL or its clubs from potential liability. Similarly, the fact that the NFLPA has made such an agreement could itself give rise to a GINA Title II claim against the NFLPA. With respect to other employment discrimination statutes, such as Title VII, courts have held that unions cannot collectively bargain to violate the law.³⁵⁹ Thus, insofar as the NFLPA collectively bargained to violate GINA, albeit inadvertently, the union may be found to have violated Title II.³⁶⁰

While traditional medical examinations or physicals might trigger GINA as requests for family medical history, the statute would not apply to athletic drills. Since those metrics generally measure individual performance, they do not deal with genetic testing or family medical history and therefore do not constitute requests for genetic information. We discuss below how GINA would apply to

³⁵⁵ PIERCE E. SCRANTON, JR., *PLAYING HURT: TREATING AND EVALUATING THE WARRIORS OF THE NFL* 16 (2001) (internal quotation marks omitted).

³⁵⁶ See *supra* note 342 and accompanying text.

³⁵⁷ Collective Bargaining Agreement, *supra* note 32, app. K.

³⁵⁸ See *supra* note 324.

³⁵⁹ See, e.g., *EEOC v. Pathmark Inc.*, No. CIV. A. 97-3994, 1998 WL 57520, at *4 (E.D. Pa. Feb. 12, 1998) (explaining that unions “do not have the right to negotiate away statutorily created individual rights”).

³⁶⁰ See 42 U.S.C. § 2000ff-3(c) (2012) (prohibiting labor organizations from requesting or requiring genetic information with respect to a member).

circumstances in which National Football Scouting, the NFL, or its clubs choose to adopt genetic tests in conjunction with medical exams or physicals.³⁶¹

ii. Nongenetic Technologies

Given the very specific definitions of “genetic information” and “genetic test,”³⁶² GINA would most likely not apply to the wearable technologies described in Part I.³⁶³ While genetic material can be obtained in a number of different ways—such as through buccal swabs, blood, semen, and other bodily materials and tissues—collecting and analyzing data relating to speed, agility, impact, sleep patterns, and heart rate does not involve DNA, RNA, chromosomes, proteins, or metabolites and would not independently reveal information about the content of an individual’s genotype. Thus, the innovative, nongenetic technologies described in Part I are squarely outside the scope of GINA’s protections. James would be unable to challenge them under GINA.

iii. Genetic Tests

If National Football Scouting, the clubs, or the NFL develop a further interest in genetic information (i.e., for injury prevention or enhancement through target training), assuming no exception applies, GINA *prevents those organizations from requesting or requiring players to take genetic tests, even if the tests would reveal information related to playing elite football.*³⁶⁴ Thus, requesting that James provide his family medical history or take a genetic test would violate GINA on its face.

Although GINA does allow occupational monitoring, it does so only with respect to toxic substances.³⁶⁵ Additionally, the wellness program exception, detailed below,³⁶⁶ is also unlikely to apply. Thus, even if protecting players from future injury were the sole purpose, National Football Scouting, the NFL, or its clubs may not be able to mandate genetic testing, regardless of the possible benefits to player health. Furthermore, even if National Football Scouting, the NFL, or a club lawfully obtained genetic information through

³⁶¹ See *infra* subsection II.B.1.b.iii.

³⁶² See 42 U.S.C. § 2000ff(4)(A) (defining genetic information as information about “(i) such individual’s genetic tests, (ii) the genetic tests of family members of such individual, and (iii) the manifestation of a disease or disorder in family members of such individual”); *id.* § 2000ff(7)(A) (defining a genetic test as “an analysis of human DNA, RNA, chromosomes, proteins, or metabolites, that detects genotypes, mutations, or chromosomal changes”).

³⁶³ See *supra* subsection I.B.2.

³⁶⁴ See 29 C.F.R. § 1635.8(d) (2015) (explaining that GINA does not contain an exception for examinations related to employment).

³⁶⁵ See 42 U.S.C. § 2000ff(5) (limiting the definition of genetic monitoring to monitoring “exposure to toxic substances in the workplace”).

³⁶⁶ See *infra* note 375 and accompanying text.

an expansive reading of the exceptions, the statute's antidiscrimination provisions still forbid acting on that knowledge.

c. *Possible Responses and Defenses*

GINA's privacy protection is particularly salient with respect to the interests of both the NFL and its clubs in player health. *This point is worth emphasizing: the clubs and the NFL could violate GINA simply by requesting genetic information, including family medical history.* Unlike the ADA, under GINA's outright prohibition, even job-related genetic tests that serve a legitimate business purpose are unacceptable.³⁶⁷ Thus, even genetic testing that comports with the ADA would still violate GINA. Similarly, the labor organization and training program provisions include prohibitions on requesting, requiring, or purchasing the genetic information of an employee or her family member.³⁶⁸ However, GINA does include some possible exceptions and defenses that merit discussion.

Let us again return to James at the Combine and the example of him providing his family medical history, submitting to an EKG, performing a running drill, swallowing a sensory pill, and taking a genetic test. The first potential line of defense against a GINA claim would likely be that the information does not meet the statute's definition of "genetic information" such that James cannot challenge the EKG, the running drill, or the pill under GINA. But genetic testing quite clearly implicates genetic information.³⁶⁹ In the context of family medical history, the clubs and the NFL could use recent case law to assert that the requested family medical history is *not* genetic information because it does not demonstrate genetic risk per se.³⁷⁰ James could, of course, respond by arguing that a plain reading of the statute and the regulations support the contrary,³⁷¹ or by attempting to establish that the requested family medical history does in fact implicate genetic risk.

Regarding requesting, requiring, or purchasing genetic information, the clubs and the NFL could argue that their actions fall within one of the statute's several exceptions. A covered entity does not violate GINA in the following six circumstances: (1) when the employer *inadvertently* requests or requires the family medical history of an employee or an employee's family member; (2) when the employer offers health or genetic services—such as in the context of a wellness program—and participation is voluntary and any individually identifiable genetic information is only disclosed to the

³⁶⁷ See *supra* note 342 and accompanying text.

³⁶⁸ 42 U.S.C. §§ 2000ff-3, 2000ff-4.

³⁶⁹ See *id.* § 2000ff(4)(A)(i) (listing an individual's genetic tests as part of the definition of "genetic information").

³⁷⁰ See *supra* note 328 and accompanying text.

³⁷¹ See *supra* note 327 and accompanying text for examples of arguments that he could make.

employer in the aggregate; (3) when the employer requests family medical history to comply with family and medical leave laws; (4) when the employer purchases commercially and publicly available documents (i.e., newspapers but not medical databases or court records) that include family medical history; (5) when the employer requests the information for genetic monitoring of toxic substances in the workplace and follows the appropriate procedures for such monitoring; and finally, (6) when the employer conducts DNA analysis for law enforcement purposes or to identify human remains and requires employee genetic information for quality control reasons.³⁷² None of these exceptions clearly apply to the NFL or the clubs in the contexts discussed herein. The statute further provides that the use of any genetic information acquired lawfully under one of these exceptions is still governed by GINA's antidiscrimination and confidentiality provisions.³⁷³

Of GINA's six exceptions, the wellness program exception has the greatest potential applicability. Like the ADA,³⁷⁴ GINA allows employers to obtain health-related information when providing voluntary health services. The statute sets out a number of criteria for lawfully acquiring genetic information.³⁷⁵ While this exception arguably seems primarily geared toward the kinds of wellness programs encouraged by the Affordable Care Act,³⁷⁶ the language of the statute might be read to indicate that if an employer provides medical services, it can ask for genetic information. Yet for several reasons, the clubs and the NFL are unlikely to be able to use this exception. This exception targets wellness programs, not the occupational kind of medicine—medical examinations done for the benefit of the employer—that is provided at the Combine and by the NFL and its clubs. Moreover, the exception requires “prior, knowing, voluntary, and written authorization.”³⁷⁷ Recall that in addition to the broad authorizations signed before participating in the Combine,³⁷⁸ a player, upon joining a club, is required by his contract and the CBA to make various health-related disclosures.³⁷⁹ Failing to make those disclosures is grounds for termination and

³⁷² 42 U.S.C. § 2000ff-1(b)(1)–(6).

³⁷³ *Id.* § 2000ff-1(c).

³⁷⁴ *Id.* § 12112(d)(4)(B).

³⁷⁵ *See id.* § 2000ff-1(b)(2) (conditioning the wellness program exception upon the individual's consent; the information being limited to the individual, her family, and the healthcare professional; and the information being provided to the employer only in aggregate terms).

³⁷⁶ *See* Jessica L. Roberts & Leah R. Fowler, *How Assuming Autonomy Undermines Wellness Programs*, 26 HEALTH MATRIX (forthcoming 2017) (manuscript at 6-10), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2816924 (explaining how the ACA encourages wellness programs).

³⁷⁷ 42 U.S.C. § 2000ff-1(b)(2)(B).

³⁷⁸ *See supra* note 62 and accompanying text.

³⁷⁹ *See supra* notes 233–34 and accompanying text.

could undermine a player's injury grievance.³⁸⁰ Far from voluntary disclosure, these requirements contractually obligate a player to disclose and seem to directly conflict with GINA's prohibition on requesting or requiring genetic information. Further, the exception provides that only the individual or an authorized family member and the healthcare professional can receive individually identifiable genetic information.³⁸¹ The employer can only receive that information in the aggregate,³⁸² and the regulations imply that an employer that seeks to disaggregate employee genetic information violates GINA.³⁸³ In sum, James would have strong GINA claims for the requests for family medical history and genetic testing, and the clubs and the NFL would have little means to counter those claims.

As noted, individuals cannot prospectively waive their GINA claims by consenting to discrimination.³⁸⁴ But, the aforementioned exceptions to GINA's privacy provision could nonetheless allow the lawful disclosure of genetic information. Of course, even if the NFL or its clubs could lawfully obtain genetic information as part of health or genetic services that it offers, Title II's antidiscrimination provision would still restrict the ability to act on that information.

While the above arguments could potentially shield an employer from liability under GINA, the employer would face the additional obstacle of justifying its actions in accordance with the ADA.

2. Discrimination

GINA's antidiscrimination provision forbids employers from taking adverse employment actions on the basis of genetic information.³⁸⁵ Specifically, it makes it unlawful for an employer

³⁸⁰ See *supra* note 237 and accompanying text.

³⁸¹ 42 U.S.C. § 2000ff-1(b)(2)(C).

³⁸² See 29 C.F.R. § 1635.8(b)(2)(i)(D) (2015) ("Any individually identifiable genetic information . . . is not disclosed to the covered entity except in aggregate terms that do not disclose the identity of specific individuals . . .").

³⁸³ See *id.* ("[A] covered entity will not violate the requirement that it receive information only in aggregate terms if it receives information that, for reasons outside [its control], makes the genetic information of a particular individual readily identifiable *with no effort on the covered entity's part . . .*" (emphasis added)).

³⁸⁴ See *supra* note 324 .

³⁸⁵ While no court has yet addressed whether GINA covers mixed-motive claims, some scholars speculate that genetic information must be the "but-for" cause of the discrimination. See, e.g., Brian S. Clarke, *Grossly Restricted Pleading: Twombly/Iqbal, Gross, and Cannibalistic Facts in Compound Employment Discrimination Claims*, 2010 UTAH L. REV. 1101, 1125-26 (2010) (arguing that GINA should be interpreted as requiring a showing of but-for causation since it prohibits discrimination "because of" genetic information (emphasis in original) (internal quotation marks omitted) (quoting 42 U.S.C. § 2000ff-1(a))).

(1) to fail or refuse to hire, or to discharge, any employee, or otherwise to discriminate against any employee with respect to the compensation, terms, conditions, or privileges of employment of the employee, because of genetic information with respect to the employee; or

(2) to limit, segregate, or classify the employees of the employer in any way that would deprive or tend to deprive any employee of employment opportunities or otherwise adversely affect the status of the employee as an employee, because of genetic information with respect to the employee.³⁸⁶

Unlike the ADA,³⁸⁷ GINA does not cover disparate impact (i.e., facially neutral policies that disproportionately exclude individuals on the basis of their genetic information).³⁸⁸ GINA does, however, include an anticlassification provision,³⁸⁹ which could limit *both* negative and positive differential treatment.³⁹⁰ For example, if a club or the NFL decides to dictate which positions individuals play based in part on their genetic information, the players could arguably challenge the policy as an unlawful classification. Thus, if a defendant differentiates between current or prospective players on the basis of genetic tests results or family medical history, that entity would run afoul of the statute, even if the genetic information in question speaks to the individual's ability to play professional football. Additionally, GINA prevents labor organizations from discriminating on the basis of genetic information.³⁹¹ It forbids them from "caus[ing] or attempt[ing] to cause an employer to discriminate against a member in violation of [the Act]."³⁹² GINA also prohibits discrimination and classification in the context of training programs.³⁹³

a. *Specific NFL Evaluative Technologies*

Given this background on GINA's antidiscrimination provisions, we now turn to how those protections would apply to the use of evaluative technologies in professional football.

³⁸⁶ 42 U.S.C. § 2000ff-1(a).

³⁸⁷ *See id.* § 12112(b)(6) (prohibiting employers from adopting qualification standards that "tend to" screen out individuals with disabilities).

³⁸⁸ *See id.* § 2000ff-7(a) (clarifying that "'disparate impact' . . . on the basis of genetic information does not establish a cause of action under this Act").

³⁸⁹ 42 U.S.C. § 2000ff-1(a)(2).

³⁹⁰ *See* Bradley A. Areheart, *GINA, Privacy, and Antisubordination*, 46 GA. L. REV. 705, 709-10 (2012) ("GINA . . . does not allow the strategic consideration of genetic information to counter future genetic subordination Nor does the statute allow any positive consideration of genetic information through programs like genetic diversity initiatives.").

³⁹¹ 42 U.S.C. § 2000ff-3.

³⁹² *Id.* § 2000ff-3(a)(3).

³⁹³ *Id.* § 2000ff-4.

i. Medical Examinations and Athletic Drills

GINA's antidiscrimination provision prevents any adverse employment actions on the basis of genetic information, even when the information is lawfully obtained. Hence, even if the NFL or the clubs could legally obtain family medical history or genetic test results, they still could not act on that knowledge. James would therefore be able to challenge any job-related decision based on his genetic information, such as whether to hire him, whether to terminate him, or where to play him. Moreover, the NFL and the clubs have fewer legal responses at their disposal for GINA claims because the statute lacks the job-relatedness and direct threat defenses of the ADA. As with violations of genetic privacy, GINA would not prohibit adverse employment actions based on information obtained through athletic drills, leaving James without actionable GINA claims related to those evaluations.

ii. Nongenetic Technologies

Turning now to the nongenetic technologies from Part I, physiological data, even insofar as it might reveal a genetic defect, would not be considered genetic information because the condition would already have manifested. For example, imagine that BioForce's heart rate monitoring technology over time revealed an athlete's genetic heart condition. While the heart condition might have been caused by a genetic variation, it would have already manifested in the particular athlete in order to be detected by the technology. Thus, while the condition might constitute an actual or perceived disability pursuant to the ADA, it would fall outside of GINA's definition of genetic information. GINA therefore offers little protection with respect to wearable technologies. James's best strategy would be to argue that these evaluations were medical examinations under the ADA.

iii. Genetic Tests

As already discussed, genetic test results unequivocally constitute genetic information.³⁹⁴ Thus, any employment-related decision by the NFL or one of its clubs based on the results of genetic tests would be challengeable pursuant to GINA.

b. *Possible Responses and Defenses*

Should James allege that he suffered an adverse employment action on the basis of genetic information, such as being dismissed from the Combine or not being hired as a player, the club or the NFL could argue that the

³⁹⁴ See *supra* note 362.

information they used was not genetic or that the action they took did not rise to the level of an adverse employment action. As mentioned, data from traditional medical examinations, athletic drills, or wearable technologies are outside the scope of GINA. With respect to what constitutes an adverse employment action, say a club wanted to use James's lawfully obtained genetic information to construct a training and eating plan designed to maximize his potential. If James challenged the plan as an unlawful classification, the club could respond that the specialized training and eating plan does not adversely affect his status as an employee.

Significantly, GINA does not restrict its coverage to qualified individuals, unlike the ADA's employment discrimination protections that only apply to individuals who can perform the essential functions of the job despite having a disability.³⁹⁵ Thus, GINA litigants can avoid the potential issue of establishing which aspects of NFL football constitute essential functions and whether they can perform those functions with comparative excellence.

GINA also does not include statutory defenses designed to ensure safety or efficiency. Title II has no equivalent to the ADA's direct threat or job-related / business necessity defenses. It likewise does not include a bona fide occupational qualification (BFOQ) defense found in statutes like Title VII of the Civil Rights Act.³⁹⁶ Thus, even if genetic information relates to an individual's ability to safely perform a particular job, at present, a covered entity cannot use that fact to defend a decision to act on that person's genetic information.

³⁹⁵ See 42 U.S.C. § 12111(8) (defining a qualified individual under the ADA as one who "can perform the essential functions" of the job).

³⁹⁶ Wagner, *supra* note 170, at 92 & n.72. While our focus is on NFL players, it is worth noting that GINA potentially poses unique challenges with respect to the practice of occupational medicine. Occupational physicians providing care to players (rather than exams only) would likely request family medical history and possibly genetic testing and act on the information to improve player care. However, GINA prevents them from doing so, even when the genetic information could speak to the employee's health and safety. Not surprisingly, then, the American College of Occupational and Environmental Medicine (ACOEM) has expressed concern that GINA could place occupational physicians in ethical quandaries. In a position statement on genetic screening in the workplace, it explained,

It seems reasonable to expect that, in the future, some forms of genetic testing will provide a basis for more effective methods to ensure the health of individual workers, but that preventive actions taken on the basis of such testing might violate GINA. In such situations, both *acting* on the basis of genetic information to better protect the worker and *not acting* on that information, and thereby failing to protect the worker, would violate standards of ethical conduct. ACOEM hopes that such potential conflicts can be preemptively resolved without recourse to litigation and the federal court system.

Paul Brandt-Rauf, Jonathan Borak, & David C. Deubner, *ACOEM Position Statement: Genetic Screening in the Workplace*, 57 J. OCCUPATIONAL AND ENVTL. MED. e17, e17 (2015) (emphasis in original).

3. GINA Summary

To summarize, Title II of GINA has two relevant kinds of protections: privacy and antidiscrimination. From the perspective of litigating these claims, NFL players would probably enjoy more success under GINA because, unlike the ADA, it lacks both a qualification requirement and job-relatedness and direct threat defenses. At the same time, GINA's coverage of genetic information is far narrower than the ADA's coverage of current, past, and perceived disabilities, so instances of genetic-information discrimination would likely be less frequent. For example, GINA would only apply to two of the hypothetical evaluations James was asked to agree to—providing family medical history and taking a genetic test—but he could argue that the ADA should cover most, if not all of them, including submitting to an EKG, performing a running drill, and swallowing a sensory pill. The applicability of and possible defenses under GINA are summarized in Table 3.

Table 3: Genetic-Information Protection

Coverage ³⁹⁷	Protections ³⁹⁸	Defenses
(1) Genetic test results	Protection against discrimination	<ul style="list-style-type: none"> • Not genetic information • Did not discriminate / adversely affect
(2) Genetic test results of family members		
(3) Manifested disease or disorder in family members (i.e., family medical history)	Protection of privacy	<ul style="list-style-type: none"> • Not genetic information • Statutory exceptions³⁹⁹ • Did not request, require, or purchase

* * *

Current law appears to limit the ability of the NFL, its clubs, and National Football Scouting to obtain and act on information related to player health. Both the ADA and GINA include limitations on acquiring and using knowledge that relates to either disability or genetic information, respectively. With regard to acquisition, the ADA's medical examination and inquiry provisions and GINA's ban on requesting, requiring or purchasing genetic information, limit the ability of the NFL and its clubs to seek information, even if it could speak to an individual's ability to play football. Both

³⁹⁷ 42 U.S.C. § 2000ff(4)(A) (2012).

³⁹⁸ *Id.* § 2000ff-1(a)-(b).

³⁹⁹ *Id.* § 2000ff-1(b)(1)-(6).

statutes allow applicants and employees to volunteer health-related information under certain circumstances. However, prospective and current players, as well as the NFLPA, cannot simply waive all of the relevant protections. With regard to discriminatory actions, the ADA contains some health- and safety-related exceptions that the NFL or the clubs could use to obtain pertinent information and to act on it in the name of health and safety. GINA, by contrast, contains fewer exceptions and defenses. Thus, the NFL and its clubs should consider whether their actions and policies violate one or both of these federal employment discrimination statutes.

III. GOING FORWARD

When we began working on this project, we imagined its chief import would be to help determine which, if any, of the *new* types of wearable technologies and genetic testing that are being considered or currently used in the NFL (among other professional sports leagues) violate existing laws, in particular GINA and the ADA. This concern remains an important part of the project, but we were surprised in our research: first on the way in which the testing of professional sports players violates or accords with these laws and second, to learn that even more basic and “lower tech” testing mechanisms that have been in place for a long time in the NFL may be problematic. For that reason, our recommendations going forward pertain both to the new technologies as well as their predecessors still in place.

Admittedly, antidiscrimination claims—a category that includes those alleged under the ADA or GINA—are notoriously hard to win and frequently do not make it past summary judgment.⁴⁰⁰ Moreover, the ADA may well be especially pro-defendant.⁴⁰¹ We have no reason to believe that professional athletes would fare any better than other litigants. We do however think litigation by players is special because even if it proves ultimately unsuccessful, filing a case against very public entities like the NFL and its clubs—with attendant media coverage—may be more likely to cause policy change than a typical employment discrimination lawsuit. Moreover, regardless of an individual’s ability to prevail in court, we believe all employers—including the NFL and its clubs—should comply fully with the current law. To that end, our recommendations center around four “C”s: compliance, clarity, circumvention, and changes to existing statutory schemes as

⁴⁰⁰ See Denny Chin, *Summary Judgment in Employment Discrimination Cases: A Judge’s Perspective*, 57 N.Y. L. SCH. L. REV. 671, 673 (2012–2013) (“[S]ummary judgment [in favor of defendants] was granted, in whole or in part, in employment discrimination cases approximately seventy-seven percent of the time . . .”).

⁴⁰¹ See Sharona Hoffman, *Settling the Matter: Does Title I of the ADA Work?*, 59 ALA. L. REV. 305, 308 (2008) (“Numerous studies have confirmed that plaintiffs experience extremely low win rates in cases decided under Title I of the ADA.”).

applied to the NFL (and perhaps other professional sports leagues). In making all of these recommendations, we believe our suggestions to be the best solutions to the problems we have identified, but we also recognize that the current state of politics makes implementing some of our proposals challenging. Thus, it is not our goal to provide definitive solutions to the issues identified throughout the Article but to begin a conversation that we hope will benefit NFL players and perhaps also the rest of the working population.

A. Compliance

The first upshot of our analysis is that it appears that some of the existing testing of NFL players, both at the Combine and once drafted and playing for a club, seem to violate existing federal employment discrimination laws. Specifically,

- (1) the medical examinations at the Combine potentially violate the ADA's prohibitions on pre-employment medical exams;
- (2) post-offer medical examinations that are made public potentially violate the ADA's confidentiality provisions;
- (3) post-offer medical examinations that reveal a disability and result in discrimination—e.g., the rescission of a contract offer—potentially violate the ADA provided the player can still perform the essential job functions;
- (4) Combine medical examinations that include a request for a player's family medical history potentially violate GINA; and
- (5) the preseason physical's requirement that a player disclose his family medical history potentially violates GINA.

While we discuss the possibility of an exemption for professional sports below,⁴⁰² the ADA and GINA currently apply to professional football. Accordingly, the NFL, its clubs, and National Football Scouting should not wait for lawsuits alleging violations but should instead proactively work to bring themselves in compliance with the law. In particular, we believe it is essential for the NFL, the clubs, and National Football Scouting to ensure they comply with the statutes' confidentiality requirements so that current and prospective players do not have private health information about themselves and their families released to the press. We also believe it is important to amend the CBA to no longer require players to disclose their family medical history as part of physicals.

⁴⁰² See *infra* subsection III.D.1.

B. Clarity

Beyond this set of practices that seem to contravene the ADA and GINA, there is another set of practices for which there is ambiguity in the application of the existing legislative and regulatory standards, with many issues left untested by litigation. It would therefore be useful for the EEOC or even Congress to weigh in on several different legal issues. Additionally, the NFL itself could issue official statements explaining its position on how to best resolve these ambiguities.

As noted in the Compliance section,⁴⁰³ the legality of the various employment-related medical examinations is our primary concern. Many of the evaluations performed at the Combine appear to be exactly the kind that the ADA (and possibly GINA) prohibit. Similar open questions relate to the defenses available to employers for post-offer (employee entrance) examinations, done by the clubs themselves after a player has been drafted. Recall that employers can conduct post-offer exams as long as they are universal, confidential, and the results are used in accordance with the ADA.⁴⁰⁴ Thus, insofar as the clubs target particular players for additional medical screening, or release the results of the examinations to the press, they are not complying with the ADA. But certain ambiguities render these judgments difficult. We therefore invite the various stakeholders to offer clarification with respect to professional football as employment, the independence of National Football Scouting, the scope of ADA-covered medical examinations, and the scope of GINA's definition of family medical history.

1. Job-Relatedness and Qualified Individual

Playing for the NFL is not a typical job. Hence, the meaning of legal terms that are intuitive or self-evident in most employment claims becomes stubbornly difficult to define in the context of professional football. Two such examples are essential job functions and what it means for a particular inquiry or qualification standard to be job-related or consistent with business necessity.

Recall that the ADA allows both pre-employment inquiries regarding whether an applicant can “perform job-related functions”⁴⁰⁵ and medical examinations and inquiries during employment, so long as they are “job-related and consistent with business necessity.”⁴⁰⁶ Moreover, if an employer complies with the statute's requirements for lawful employee entrance exams, it can legally withdraw an offer of employment if the prospective employee cannot meet a

⁴⁰³ See *supra* Section III.A.

⁴⁰⁴ 42 U.S.C. § 12112(d)(3).

⁴⁰⁵ *Id.* § 12112(d)(2)(B).

⁴⁰⁶ 42 U.S.C. § 12112(d)(4)(A)–(B) (2012).

qualification standard that is “job-related and consistent with business necessity.”⁴⁰⁷ And finally, the ADA’s employment discrimination provisions apply only to “qualified individuals with disabilities,” that is, individuals who can perform “the essential functions of the employment position.”⁴⁰⁸ Thus, understanding the scope of the job and which functions are job-related and essential is crucial for applying the ADA.

The statutory text suggests that defining the contours of a particular job is a threshold matter. With a clear definition of the core functions of the specific job in question, an employer can go on to design inquiries or examinations that relate to those core functions, and any individual who cannot meet that basic threshold cannot sue for discrimination. But what are the essential, job-related functions of an NFL player?

The NFL or its clubs might define the essential job function of playing professional football as “being the best—the strongest, the fastest, the healthiest, etc.,—possible player,” making any health- or performance-related inquiry or examination job-related (and also perhaps consistent with business necessity). Moreover, if “being the best” is an essential job function, then any person who is not the highest performing player on his club, or perhaps in the league, will arguably not be a qualified individual entitled to the ADA’s antidiscrimination protections. Thus, under that reading, the clubs or the NFL could lawfully take adverse employment actions against all but a handful of players. Finding the best possible players appears to be what the clubs are really after in the Combine. But adopting a relativist definition of a given job position—i.e., wanting only the best—poses problems for the ADA. Its statutory requirements are transsubstantive across industries, such that absent sports-specific amendments to the law, whatever definition applies to the NFL will apply equally in all other employment settings.

To show why a relativist job description could be problematic, it may be helpful to go outside the NFL context for a moment. Suppose that Stanford Law School asked prospective law professors for medical information during the Association of American Law Schools (AALS) Faculty Recruitment Conference.⁴⁰⁹ When challenged that its actions violate the ADA or GINA, Stanford could adopt a relativist definition and defend its practices as job-related. It could argue that as an elite law school, it only wants the best professors who will perform at the highest level for the duration of their

⁴⁰⁷ 29 C.F.R. § 1630.14(b)(3) (2015)

⁴⁰⁸ 42 U.S.C. § 12111(8).

⁴⁰⁹ AALS is a nonprofit organization consisting of nearly all of the law schools in the United States. *About, ASS’N AM. L. SCHOOLS*, <http://www.aals.org/about/> [<http://perma.cc/W8JQ-4QK6>]. The Faculty Recruitment Conference is a place for law school recruiting teams to interview prospective faculty members. *Faculty Recruitment Conference, ASS’N AM. L. SCHOOLS*, <https://www.aals.org/services/faculty-recruitment-services/faculty-recruitment-conference/> [<https://perma.cc/4KYE-HV4U>].

careers. Thus, an applicant's family medical history of Alzheimer's could speak to the quality of a candidate's scholarship across her lifetime appointment; the strength of her heart and her chance of cardiac arrest could speak to her chances of having to miss a semester due to a heart attack; and so on. Similarly, if "being the best" is an essential job function and a current professor suffers a heart attack or a stroke that lowers her productivity—causing it to fall below that of her colleagues—she would no longer be qualified, as she is no longer the best. Arguably, Stanford could then terminate her, even if she were still able to write and teach. Just like NFL clubs, Stanford has a limited number of available slots and would have an understandable preference to fill those slots with the absolute best possible candidates—not only those who will produce the best scholarship and be the best teachers, but those who will also be productive for the longest amount of time with the fewest distractions, health-related or otherwise. As this example indicates, if jobs are defined in terms of one's ability to be the "best possible" person for the job and not simply as the ability to meet a certain basic threshold of performance, the job-related exceptions for medical examinations and inquiries will swallow the rule that prohibits them, and the ADA's employment discrimination provisions will lose their teeth. In other words, the ADA's protections would essentially disappear.

For this reason, we think the "threshold" model reading of the statute is the better fit. The ADA demands that employers define job positions and their requirements in absolute, not relative terms. That is not to say that an NFL club (or indeed a law school) cannot look at the "whole player," but they need to do so in a way that is specific and defensible: they should articulate specific standards for the questions they ask at the Combine, identify a threshold value, and defend that value as related to a function of the job. In this way there is no "blank check" for asking any medical question a club may find useful. Instead, the law should require them to generate a carefully articulated and justified list of acceptable inquiries that invade the medical privacy of the player to the least extent possible.

Of course, any threshold requirements for being a professional football player would have to be carefully constructed. Every position is different, and the players are of different sizes and skill levels and fit within their teams differently. Thus, to be useful, any description of the essential, job-related functions of football would have to account for these variations. Although professional football is unique as an occupation, other professions with physical requirements that may want to recruit the best employees have adopted threshold physical requirements and designed their pre-employment and post-offer screenings accordingly. For example, fire departments tend to include extensive descriptions of the physical, mental,

and interpersonal requirements.⁴¹⁰ Essential job requirements include knowledge of firefighting and good communication skills, as well as physical abilities.⁴¹¹ In Mesa, Arizona, specific physical essential job functions, for example, include “[w]ear[ing] personal protective equipment weighing approximately 70 pounds . . . in high humidity (up to 100 percent) situations . . . [while] rel[ying] on [a] self-contained breathing apparatus for respiratory ventilation.”⁴¹² In Farmington, New Mexico, the job description includes both general requirements related to physical ability—such as being “frequently required to stand; walk; use hands to finger, handle, or operate objects, tools, or controls; and reach with hands and arms” and “occasionally [being] required to sit; climb or balance; stoop, kneel, crouch, or crawl; talk or hear; and taste or smell”—and specific requirements regarding lifting ability and vision.⁴¹³ Thus, while defining specific baselines for physical performance in highly selective and physical jobs may be challenging, it is not impossible. Consequently, to fully comply with the law, the NFL and its clubs may require some clarification regarding how to apply basic employment law concepts like essential job functions and job-relatedness to professional football.

2. Independence of National Football Scouting

Another difficulty warranting further clarification is the way in which the Combine is run. Many of the evaluations described above are not being directly administered by the NFL, or the individual clubs. Instead, National Football Scouting functions as a separate corporate entity, which enters into a contractual agreement with the NFL for the operation of the Combine.⁴¹⁴ The Combine is a scouting service used by the clubs and the NFL to make hiring decisions. It obtains information those entities can use when assessing prospective players. Moreover, while IU Health doctors test players at the Combine,⁴¹⁵ clubs (and their medical staffs) also perform their own examinations and interviews.⁴¹⁶

However, it is not clear whether National Football Scouting itself independently qualifies as an employer, an employment agency, a labor organization, or a joint labor-management committee. Thus, to argue liability under the ADA or GINA, one would have to assert that National Football

⁴¹⁰ See, e.g., *Firefighter*, CITY MESA, <http://apps.mesaaz.gov/JobDescriptions/Documents/JobDescriptions/cs4111.pdf> [<http://perma.cc/R3KD-8FEL>]; *Lateral Firefighter*, CITY FARMINGTON NM <https://fmtn.applicantpro.com/jobs/260378.html> [<http://perma.cc/GJ72-6ANQ>].

⁴¹¹ *Firefighter*, *supra* note 410; *Lateral Firefighter*, *supra* note 410.

⁴¹² *Firefighter*, *supra* note 410.

⁴¹³ *Lateral Firefighter*, *supra* note 410.

⁴¹⁴ See *supra* notes 43–45 and accompanying text.

⁴¹⁵ See *supra* note 49 and accompanying text.

⁴¹⁶ See *supra* note 51 and accompanying text.

Scouting is effectively operating as an agent or an extension of the NFL and its clubs. As mentioned above, if the NFL or the clubs maintain sufficient control over the operation of the Combine, National Football Scouting may likewise be bound by the applicable employment discrimination laws.⁴¹⁷ As we discuss below in our Section on “Circumvention,”⁴¹⁸ we would find any determination that employers can circumvent the ADA’s or GINA’s protections by outsourcing the prohibited examinations to be problematic. We therefore need clarity regarding whether the separate corporate status of National Football Scouting and the existing setup of the Combine immunize the clubs and the NFL from liability.

3. Scope of Medical Examinations and Inquiries (ADA)

Additionally, fully understanding how the ADA applies to professional football also requires clarification regarding how the statute defines medical examinations and disability-related inquiries, particularly with respect to the new technologies outlined above. Certain athletic drills and wearable technologies could reveal the presence of an impairment. If the results of these evaluations convey disability-related information to the NFL or the clubs, could they be considered medical examinations or inquiries covered by the ADA? If they are medical in nature, the ADA would restrict when and how the NFL, the clubs, or National Football Scouting may administer the drills or use the technologies. If they are not medical, the ADA would not regulate their use.

We can again return to firefighters as an illustrative example. The firefighter application process in Houston includes a pre-employment physical ability test that involves various simulations, such as a ladder raise, a dummy drag, and a mile-and-a-half run.⁴¹⁹ After an applicant completes the physical ability test, a civil service exam, and an interview, she may receive an offer of employment contingent on her successful completion of a drug screening and medical and physical exams.⁴²⁰ Because the physical ability test is not considered a medical examination, fire departments can administer them pre-employment. Likewise, assuming athletic drills and use of wearable technologies are not medical, the NFL, the clubs, and National Football Scouting could require them even before a prospective player has an employment offer. Thus, whether the ADA applies to drills or wearable technologies that reveal impairments is another area that could benefit from further clarification.

⁴¹⁷ See *supra* text accompanying notes 155–56.

⁴¹⁸ See *infra* Section III.C.

⁴¹⁹ HOUS. FIRE DEP’T, FIREFIGHTER PHYSICAL ABILITY TEST: CANDIDATE ORIENTATION GUIDE 1 (2014), http://www.houstontx.gov/fire/employment/Candidate_Orientation_Guide.pdf [<http://perma.cc/C7YS-CUUY>].

⁴²⁰ *Hiring Process*, HFDCAREERS.ORG, <http://www.hfdcareers.org/hiring.html#PA> [<http://perma.cc/5VCH-TSWG>].

The relationship between the ADA and GINA could also be clarified. Genetic tests appear to meet the ADA's definition of a medical examination.⁴²¹ Yet in addition to abiding by the ADA's medical examination provisions, employers must follow GINA's prohibition of requests for genetic information. Thus, if an employer offers genetic testing, it would simultaneously violate both statutes. The relationship becomes somewhat more ambiguous regarding discrimination on the basis of genetic test results. In such cases, GINA would provide a clear remedy. However, a claimant could also argue that an adverse employment action based on her genetic information constitutes discrimination on the basis of a perceived disability. It would be useful to clarify whether the ADA provides concurrent protection in those cases.

4. Scope of Family Medical History (GINA)

Lastly, it would be helpful to have a definitive statement on the scope of GINA's protections for family medical history. As discussed above, the definition of genetic information includes "the manifestation of a disease or disorder in family members of such individual."⁴²² Neither the statute nor the accompanying regulations restrict this provision to diseases or disorders proven to have a genetic component. Instead, the regulations focus on who is a family member.⁴²³ Perhaps Congress's decision not to cabin GINA's protections to family medical histories that communicate a known genetic risk was a strategic decision, as researchers constantly discover genetic risk factors for more and more conditions.⁴²⁴ Regardless, the courts have taken it upon themselves to limit the statute's coverage of family medical history to violations dealing only with manifested *genetic* diseases or disorders.⁴²⁵ Thus, it

⁴²¹ See EEOC, *supra* note 176 (defining a "medical examination" as a "procedure or test that seeks information about an individual's physical or mental impairments or health").

⁴²² 42 U.S.C. § 2000ff(4)(A) (2012).

⁴²³ See *supra* note 327 and accompanying text.

⁴²⁴ See, e.g., *Gene Leads to Nearsightedness When Kids Read*, COLUM. U. MED. CTR. (Aug. 31, 2015), <http://newsroom.cumc.columbia.edu/blog/2015/08/31/gene-leads-to-nearsightedness-when-kids-read/> [<https://perma.cc/V9EA-7KKB>] (explaining the discovery of a gene that causes myopia in people who spent a lot of time reading as children); Jenna Iacurci, *Scientists Discover Two New Gene Variants Linked to Breast Cancer*, NATURE WORLD NEWS (Feb. 20, 2015, 3:07 PM), <http://www.natureworldnews.com/articles/12875/20150220/scientists-discover-two-new-gene-variants-linked-to-breast-cancer.htm> [<https://perma.cc/D3WM-RTYC>] ("Scientists have discovered two new gene variants associated with an increased risk of breast cancer."); Sharon Parmet, *Strong Genetic Risk Factor for MS Discovered in Five Affected Siblings*, UIC CTR. NEWS (Mar. 4, 2015), <https://news.uic.edu/strong-genetic-risk-factor-for-ms-discovered-in-family-of-five-affected-siblings> [<https://perma.cc/LN63-R423>] (reporting on a study that identified a genetic variation linked to an increased risk of multiple sclerosis in women); *Researchers Identify New Genetic Risk Factor for NF1-Associated Glioma*, NEUROFIBROMATOSIS CTR. (Jan. 9, 2015), <https://nfcenter.wustl.edu/research/research-news/researchers-identify-new-genetic-risk-factor-nf1-associated-glioma/> [<https://perma.cc/LKV5-UQNO>] (summarizing a study linking subtle changes in children's genes to glioma).

⁴²⁵ See *supra* note 328 and accompanying text.

would be useful for Congress or the EEOC to specifically address these interpretations. This clarification would be useful in the context of professional football and beyond.

C. Circumvention

Again, National Football Scouting is not technically owned or operated by the NFL but is rather a scouting service that is owned and managed by approximately two-thirds of the league's clubs.⁴²⁶ Indeed, *all thirty-two NFL clubs* consider the medical examinations, performed by IU Health doctors and club physicians, to be the most important aspect of the Combine.⁴²⁷ It is worth reiterating that while employers can make job-related inquiries pre-employment, the ADA bans all pre-offer medical examinations,⁴²⁸ rendering what happens at the Combine a clear violation. Although some of the Combine's interview questions might arguably fall within a broadly construed job-relatedness exception, *all* of the Combine's medical examinations would seem to violate the ADA, as the statute applies to the clubs, and National Football Scouting appears to be acting as their agent when running the Combine.

Although we have no evidence to suggest that the corporate structure of National Football Scouting or the Combine in relation to the NFL and the clubs has been intentionally structured in order to circumvent the applicability of the ADA and of GINA, that may nonetheless be the effect. The end result is that through the Combine, the NFL clubs are getting the exact kinds of health-related information that the ADA and GINA seek to prohibit. Should these laws' protections be rendered toothless because of this contractual end run? We think the answer is no. It would frustrate the purpose of those statutes to allow the corporate and contractual structure of the Combine to immunize misconduct.

A non-football example is informative, especially given that the laws in question are not football-specific. To return to the market for law professors, imagine that AALS set up its own combine—the "AALS Scouting Combine"—as a separately owned and incorporated organization to run a three-day event where all prospective law professors were subjected to medical examinations and inquiries of the kind done by the NFL. Should that be lawful if an individual law school could not do the same testing or ask the same questions due to the ADA's or GINA's protections? In other words, should the corporate formality of this combine not being organized by the law schools themselves—even if they send their own doctors and rely on medical reports done by combine

⁴²⁶ See *supra* note 43 and accompanying text.

⁴²⁷ See *supra* note 48 and accompanying text.

⁴²⁸ 42 U.S.C. § 12112(d)(2)(A) (2012).

doctors—immunize the parties from ADA or GINA liability? We think that if the rules restricting medical examinations under the ADA or requests for genetic information pursuant to GINA are to mean anything, such corporate or contractual arrangements cannot be immunity-conferring.

The better rule, and the one for which we would advocate, would discourage any potential circumvention of these protections. It is often said one should “follow the money,” but in this context, one should “follow the data.” Our approach eschews the formalism of corporate organization and contractual relationships in favor of examining who is seeking medical data and to what end it is being sought. Regardless of National Football Scouting’s separate corporate status, the Combine is organized for the benefit of the clubs—a fact made clear given that they even send their own club doctors to interview and examine players there. The data is flowing to the clubs and aiding in their decisionmaking as to whom to hire.

Nor is it any answer to these concerns that players voluntarily go to the Combine and consent to these evaluations. Participating significantly increases a player’s chances of playing NFL football.⁴²⁹ To say that NFL hopefuls have freely chosen to participate adopts a truncated view of what freedom means. Consenting freely to one activity may mean inadvertently agreeing to subsequent activities, some in which—all things held equal—the person would not have otherwise chosen to do. Hence, when an aspiring NFL player consents to participate in the Combine, he also finds himself consenting to the public release of sensitive medical information—a condition to which, absent the Combine, he might not have agreed. The ADA’s and GINA’s prohibitions were put in place in part to prevent a race to the bottom and to prevent individual employees from facing a choice between consenting to such medical examinations and being beaten out for jobs by other employees who do. If such a purpose is to be effectuated, the design of the corporate form cannot circumvent the underlying obligation.

D. *Changes*

While we advocate for both compliance and clarification under the current law, we also recognize that playing NFL football—as well as professional sports generally—is not a typical occupation and, therefore, could warrant special treatment under the law. Thus, we propose three possible professional sports exceptions to the ADA and GINA. Additionally, we suggest a general reform to GINA designed to better protect employee safety.

⁴²⁹ See Jim Reineking, *Notable Current NFL Players Who Weren’t Invited to the Combine*, NFL (Feb. 16, 2016, 12:51 PM), <http://www.nfl.com/photoessays/oap300000636359> [<https://perma.cc/Z3YC-YZ6J>] (noting that 83.6% of players selected in the 2016 NFL Draft had attended the Combine and that no player who did not attend was drafted before the fourth round).

1. General Professional Football (Sports) Exemption

As mentioned throughout this Article, the ADA and GINA apply with equal force to professional sports as they do to traditional occupations. But perhaps they should not. Given the very exceptional nature of NFL football—the salaries, the selectivity, the degree of physical performance, the risk of serious injury, etc.—health-related and medical information takes on an added level of relevance not present when hiring a factory worker or perhaps even a firefighter. While giving the NFL, the clubs, and National Football Scouting access to information that relates to disability or to genetic makeup opens the door for subsequent discrimination, the benefits may outweigh the risks. From the perspective of the clubs and the NFL, those entities want as much information as possible and to be able to make a decision about whether to invest in a particular player. From the perspectives of the players themselves, they also could have reasons for wanting to give the clubs, the NFL, and National Football Scouting medical or genetic information to allow them to make decisions based on that information. Since professional football is so physical, it may be in the interest of players to give as much medical information as possible—and to permit the NFL and the clubs to use that knowledge for work-related decisions, including injury-prevention purposes. Furthermore, medical and health-related information could be used to enhance performance and to help the players reach new levels of play. However, because of the restrictions on medical examinations and requests for genetic information, the NFL and the club may not be able to obtain data that could be used to enhance performance. Moreover, even if they could lawfully gain access to that information via one of the ADA's or GINA's exceptions, the statutes' anticlassification provisions could restrict the ability to act on it. Congress could therefore consider adding a professional sports exemption to the ADA and GINA.

But with that said, the NFL is a workplace like all others. People have as much a right to be free from disability and genetic-information discrimination there as elsewhere. The ADA builds in myriad defenses for an employer, and it is not clear that the NFL or the clubs warrant an extra privilege that is denied to every other employer in America. Thus, if Congress chooses to revisit the applicability of the ADA and GINA to professional sports organizations, it should first conduct extensive fact-finding regarding the benefits and the dangers of such a broad exemption, including the views of current and former players.

2. Exception to Medical Examination Provisions (ADA)

Another possibility would be a more narrow exception for just the ADA's disability-related inquiry and medical examination provisions, as opposed to an exception to the entirety of Title I of the ADA and Title II of GINA. Pre-

employment medical examinations are the most significant, especially given the central role the Combine plays in hiring. A very narrow professional sports exception might lift the outright ban on pre-employment medical examinations and instead require professional sports employers to conform with the universality, confidentiality, and antidiscrimination requirements imposed on employee entrance exams. Such an exception would leave the ADA's antidiscrimination protections in place and still outlaw discrimination on the basis of disability that is not job-related and consistent with business necessity and that falls short under the direct threat defense. It would also leave intact the full panoply of GINA's Title II protections.

3. Exception for Family Medical History (GINA)

Similarly, Congress could adopt a narrow exception that would allow professional sports employers to obtain and consider family medical history when it is relevant to a player's risk of injury or could be used to improve performance. Such an exception would have to apply to both GINA's privacy and antidiscrimination provisions. To allow access to potentially useful information about family medical history but prohibit the clubs or the NFL from acting on that information would undermine the potential benefit of such an exception.

4. Need for a Direct Threat Defense (GINA)

There is another respect in which we think GINA is too protective. As discussed above, the ADA provides employers a defense to charges of discrimination relating to threats to self or others.⁴³⁰ As mentioned, GINA has no equivalent defense available for employers who wish to protect the health and safety of their employees. In cases of direct threats to others, we think the fact that such a defense is unavailable in the GINA context is problematic. To be sure, because of the definition of "genetic information" within GINA—which requires that the disorder has not yet manifested at the time of the discrimination⁴³¹—cases involving direct threats to others within the meaning of the statute are likely to be few in number. But if such a case arose—for example, if an NFL club determined through a genetic test that a player was likely to pose a direct threat to the safety of other players—we think that the club ought to have a defense if it refused to employ the player.

Whether there ought to be a similar exception under GINA for cases where a player alleges he was discriminated against because he posed a direct threat *to himself* is a closer question. To see how this might come about, imagine a genetic

⁴³⁰ 42 U.S.C. § 12113(b).

⁴³¹ See *supra* note 330 and accompanying text.

test was developed to determine which players are at higher risk of chronic traumatic encephalopathy (CTE) after suffering a concussion.⁴³² Such a test would reveal a susceptibility—not a manifested condition, and if the information was genetic in nature, it would fall within GINA's antidiscrimination protections.

Should the NFL clubs nonetheless be given a prerogative to discharge a player if presented with this information? Our tentative assessment, with one important caveat, is yes. To illustrate, imagine a parallel case involving a susceptibility that *had* manifested: a player who was already showing signs of cognitive impairment and whom—for that reason—doctors were confident might suffer further (due to second impact syndrome⁴³³) if he took another hit. Under the ADA, the employer might have a direct threat defense should that player be discharged. Now imagine that a potential player has not yet been injured but has a clear genetic susceptibility to traumatic brain injury.⁴³⁴ Why should we want a different rule in the context of genetic information? In both cases, the law has made a decision to overrule the autonomy of the player to decide whether or not to continue to play because there is a direct threat to his health that cannot be resolved by a reasonable accommodation. It seems to us the cases should be treated symmetrically, though we acknowledge that the matter is closer.⁴³⁵

The caveat we want to emphasize is one about uniformity of application, a kind of equal protection notion. Because the direct threat defense is raised on a case-by-case basis, a club could in theory permissively dismiss one player due to a predisposition to CTE but not dismiss a similarly situated player. Such cherry-picking could be used to unfairly target certain players. That is, if the NFL or the club seeks to defend a discharge on this ground, the player

⁴³² This example is provided only as a simplified illustration. We recognize that the science of concussions and CTE is complicated and evolving and that there are disagreements on many things, including the causal pathway from football to CTE.

⁴³³ *Second Impact Syndrome*, BRAINANDSPINALCORD.ORG, <http://www.brainandspinalcord.org/second-impact-syndrome/> [https://perma.cc/F4YV-7FC8] (“Second impact syndrome is a very rare condition in which a second concussion occurs before a first concussion has properly healed, causing rapid and severe brain swelling and often catastrophic results.”).

⁴³⁴ While a clear genetic susceptibility to traumatic brain injury has not yet been discovered, scientists are researching the question. See Sun Xiao-chuan & Jiang Yong, *Genetic Susceptibility to Traumatic Brain Injury and Apolipoprotein E Gene*, 11 CHINESE J. TRAUMATOLOGY 247, 248 (2008) (“It is now demonstrated that genetic polymorphism may play a key role in the susceptibility to [traumatic brain injury] . . .”); Press Release, Am. Orthopaedic Soc’y for Sports Med., *Gene Variation in Athletes Might Signify Longer Recovery Following Concussion* (Mar. 5, 2016, 6:00 AM), <http://www.sportsmed.org/AOSSMIMIS/members/downloads/media/SpecialtyDay2016/McDevittConcussionsAndGenetics.pdf> [https://perma.cc/3UG7-FWT3] (“[R]esearchers . . . believe there may be a new genetic connection regarding recovery rates following a sports-related concussion.”).

⁴³⁵ Perhaps some readers will think that neither the ADA nor GINA should overrule the player's autonomy in this case, and that the direct threat to self-defense should be eliminated. That is an argument worth discussing at length, though not here. For now, our only point is about symmetry: conditional on believing that such a defense should exist, it is implausible to have it in the ADA but not GINA.

should be able to challenge that defense by showing that it has not been consistently applied to similarly situated players. This strategy has enjoyed at least some success in other employment contexts. For example, a diabetic police officer sued her employer for removing her from patrol duties following her diabetes diagnosis, arguing that the police department did not similarly remove other diabetic officers.⁴³⁶ The court rejected the employer's direct threat defense and denied its motion for summary judgment on her ADA claim,⁴³⁷ and the case later settled.⁴³⁸ A showing that the employer treated some players one way while others a different way (perhaps based on their perceived support among fans, for example) could demonstrate that the offered defense is pretextual for discrimination, and thus forfeited.⁴³⁹ Yet even with a clearer uniformity requirement, an employer could still attempt to defend its actions by distinguishing between the two employees' relevant risks or abilities to safely perform the job.

* * *

A player's health and fitness directly impact his ability to play professional football. However, at present, federal employment discrimination laws—mainly the ADA and GINA—apply to the NFL's, the clubs', and perhaps National Football Scouting's use of both old and new evaluative technologies. To that end, we first advocate compliance with the current law. Next we request clarity regarding how these statutes apply to the exceptional context of NFL football. We also seek to avoid circumvention of the law's goals through clever corporate structuring. Finally, we suggest changes that could better balance the interests of the players and of the NFL and its affiliates.

CONCLUSION

As our analysis reveals, several of the accepted practices of the NFL, the clubs, and National Football Scouting could implicate current and prospective players' rights under the ADA and GINA. First and foremost, we encourage the NFL, the clubs, and National Football Scouting to comply with the

⁴³⁶ Jackson v. City of New York, No. CV 06-1835(RRM)(MDG), 2011 WL 1533471, at *7 (E.D.N.Y. Mar. 3, 2011), *adopted in full*, 2011 WL 1527935 (E.D.N.Y. Apr. 22, 2011).

⁴³⁷ See Jackson v. City of New York, No. 06-CV-1835, 2011 WL 1527935, at *1 (E.D.N.Y. Apr. 22, 2011) (adopting the magistrate judge's recommendation in its entirety, which rejected the direct defendants' threat defense).

⁴³⁸ Stipulation and Order of Settlement and Discontinuance at 1, Jackson v. City of New York, No. 06 CV 1835 (E.D.N.Y. Dec. 19, 2012).

⁴³⁹ Pugh v. City of Attica, 259 F.3d 619, 626 (7th Cir. 2001) (applying the *McDonnell Douglas* burden-shifting approach to ADA claims, which includes an analysis of whether the employer's proffered reason for its adverse employment decision is pretext for illegal discrimination).

existing law. We invite lawmakers and regulators—specifically Congress and the EEOC—as well as stakeholders in professional football, to offer clarification about how those statutes apply to professional football players. We discourage circumvention of the law through clever corporate forms. And finally, we suggest possible legal reforms, including a broad professional sports exemption or more modest statutory exceptions.

While NFL players have been the exclusive focus of this Article—and we have emphasized time and again the players' uniqueness as individuals and the uniqueness of their job—this Article has implications beyond professional sports. Many jobs include some physical element or the risk of potential injury. While the physical requirements of being a firefighter might be immediately apparent, administrative assistants must sometimes lift heavy boxes and nurses must help move patients.

Furthermore, employers have a number of reasons for being interested in the health of their employees, such as keeping the costs of providing health insurance down (especially now in the wake of the employer mandate⁴⁴⁰) and avoiding lawsuits and workers' compensation claims. Thus, while the NFL may be particularly interested in the health of its employee players, health risk and injury prevention are of interest to a wide range of employers for a variety of reasons.

As a result, some of our recommendations have implications outside the realm of professional sports. Specifically, clarifications regarding whether essential, job-related functions can be relative—as opposed to absolute; whether the ADA's construction of medical examinations includes wearable technology or genetic tests; and whether GINA's family medical history protections only cover manifested conditions with genetic components would be of use to many if not all kinds of work. Moreover, adding a direct threat defense to GINA could further employee health beyond professional sports, and requiring uniformity in an employer's invocation of the direct threat defense for both the ADA and GINA could avoid using risk as a pretext for discrimination. Thus, while NFL football is unique, it provides a valuable analytical lens for exploring the intersections of employment, medical care, privacy, and antidiscrimination.

⁴⁴⁰ See *ObamaCare Employer Mandate*, OBAMACARE FACTS, <http://obamacarefacts.com/obama-care-employer-mandate/> [<https://perma.cc/L8HU-JN6Y>] (“ObamaCare’s ‘employer mandate’ is a requirement that all businesses with 50 or more full-time equivalent employees . . . provide health insurance to at least 95% of their full-time employees . . .”).

ONLINE APPENDIX A: AVERAGE HEIGHT AND
WEIGHT OF NFL PLAYERS¹

Position	Height	Weight (pounds)
<u>Offense</u>		
Quarterback	6'3"	223.8
Running Back	5'11"	215.3
Wide Receiver	6'1"	202.6
Tight End	6'4"	254.7
Offensive Tackle	6'5"	313.5
Guard	6'4"	314.5
Center	6'3"	306.2
<u>Defense</u>		
Defensive Tackle	6'3"	309.8
Defensive End	6'4"	283.1
Linebacker	6'2"	246.3
Cornerback	5'11"	193.4
Safety	6'0"	207.6

¹ Craig Booth, *The Height and Weight of Every Active Football Player*, CRAIG M. BOOTH (Oct. 16, 2013), <http://www.craigmbooth.com/blog/the-height-and-weight-of-every-active-football-player/> [<https://perma.cc/J6AZ-C4MD>].

ONLINE APPENDIX B: EVALUATIVE TECHNOLOGIES

Preface: In our descriptions of the below evaluative technologies, we include potential benefits and risks to players that could result from use of these technologies. Nevertheless, for several of these technologies, it is unclear if they have ever been used in the potentially beneficial or detrimental manners described.

A. *Company: Catapult Sports (Catapult)*¹

Headquarters Location: Australia²

Technology Category: Player Tracking and Force

Available Technologies: Catapult provides matchbook-sized GPS devices, which are housed in straps worn around the player's chest or in a pocket in the player's shirt.³ The devices contain inertia sensors capable of measuring and collecting data about the player's performance, including agility, force, and acceleration.⁴ The data is transmitted by radio to cloud-based software for analysis.⁵

FDA Status:⁶ A review of the FDA's Medical Devices database does not reveal that Catapult has received FDA approval for these devices.⁷

Current Use in the NFL: Catapult's technology is currently used by seventeen NFL clubs (the Atlanta Falcons, Buffalo Bills, Cleveland Browns,

¹ In July 2014, Catapult acquired Globally Positioning Sports (GPSports), an Australian competitor. *GPSports Acquired by Catapult Sports*, GPSports (July 3, 2014), <http://gpsports.com/gpsports-acquired-catapult-sports/> [https://perma.cc/2A4H-D7SE]. GPSports reportedly was working with the Seattle Seahawks and two other NFL clubs. Tom Pelissero, *All NFL Teams May Be Using Head Impact Sensors by 2015*, USA TODAY (June 16, 2014, 9:47 AM), <http://www.usatoday.com/story/sports/nfl/2014/06/16/head-impact-sensors-concussions-2015/10572251/> [https://perma.cc/B8UQ-YSY2].

² *About*, CATAPULT, <http://www.catapultsports.com/about/> [https://perma.cc/8WAE-88NE].

³ Jen Cohen Crompton, *Philadelphia Eagles Tap into Tech for Training*, DIGITALIST MAG. (July 25, 2013), <http://www.digitalistmag.com/industries/sports-and-entertainment/2013/07/25/philadelphia-eagles-tap-into-tech-for-training-0305701> [https://perma.cc/Y357-LF8Y].

⁴ *Id.*

⁵ *Id.*

⁶ Note that some of the technologies discussed herein may not require FDA approval. Additionally, while we have searched the FDA's Medical Devices database to determine whether a company's product has obtained FDA approval, we cannot be certain that the technologies are not FDA-approved.

⁷ The FDA's Medical Devices database revealed no entries for Catapult's devices. *See 510(k) Premarket Notification*, U.S. DEP'T. HEALTH & HUM. SERVS., <http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfPMN/pmn.cfm> [https://perma.cc/TN33-M252] (last updated Nov. 14, 2016) (enter "Catapult" in "Applicant Name" field; then press "Search").

Dallas Cowboys, Denver Broncos, Green Bay Packers, Houston Texans, Indianapolis Colts, Jacksonville Jaguars, Miami Dolphins, Minnesota Vikings, New York Giants, Philadelphia Eagles, Pittsburgh Steelers, San Diego Chargers, Seattle Seahawks, and St. Louis Rams).⁸

Benefits and Risks to Players: Presently, the devices are used during practices but not during games.⁹ Clubs are principally focused on using the device to prevent injuries.¹⁰ By measuring the forces exerted by players during each practice, clubs can identify which players exerted high or excessive amounts of force and, as a result, have them participate less or at a lower intensity in future practices.¹¹ Additionally, the clubs are able to use the data to design practices that are more efficient and less damaging to players, as well as create practice regimens that suit the needs of each position.¹²

The devices could also be used to the detriment of players. The data recorded also shows which players are moving slower and less forcefully than others, which could cause a club to terminate those players' contracts.

Current Use in Other Professional Sports: Catapult's technology is being used by ten NBA clubs (the Dallas Mavericks,¹³ Golden State Warriors, Houston Rockets, Memphis Grizzlies, New York Knicks, Orlando Magic, Philadelphia 76ers, Sacramento Kings, San Antonio Spurs and Toronto Raptors); two NHL clubs (the Buffalo Sabres and the Philadelphia Flyers); and dozens of foreign sports organizations including those in soccer, rugby, hockey, and rowing.¹⁴

B. Company: Zebra Technologies, Inc. (Zebra)¹⁵

Headquarters Location: Lincolnshire, Illinois¹⁶

Technology Category: Player Tracking

⁸ *Clients*, CATAPULT, <http://catapultsports.com/united-states/clients> [https://perma.cc/8NXV-V2KU].

⁹ Catapult Sports, *Buffalo Bills Player Monitoring Goes High Tech*, YOUTUBE (July 24, 2013), <https://www.youtube.com/watch?v=kjfti4Um14I&feature=youtu.be> [https://perma.cc/FM2E-YZHD].

¹⁰ *Id.*

¹¹ *Id.*

¹² *Id.*

¹³ Mavericks owner Mark Cuban is an investor and advisor to Catapult. Mark Burns, *Through Strategic Moves, Catapult Sports Remains Industry Leader in Wearable Technology*, FORBES (Nov. 5, 2014, 1:32 PM), <http://www.forbes.com/sites/markjburns/2014/11/05/through-strategic-moves-catapult-sports-remains-industry-leader-in-wearable-technology/> [https://perma.cc/4TWX-GKN4].

¹⁴ *See Clients*, *supra* note 8.

¹⁵ *Company Information*, ZEBRA, <https://www.zebra.com/us/en/about-zebra/company-information.html> [https://perma.cc/9R8L-7V6U]. Zebra also offers a variety of marking, tracking, and printing technologies used in a variety of industries, including barcode printers and RFID locating systems. *See Products*, ZEBRA, <https://www.zebra.com/us/en/products.html> [https://perma.cc/EN5R-P6KY].

¹⁶ *Contact Zebra*, ZEBRA, <https://www.zebra.com/us/en/about-zebra/contact-zebra.html> [https://perma.cc/VHJ6-8ATZ].

Available Technologies: Zebra's MotionWorks sports tracking technology is a wearable real time location system (RTLS).¹⁷ Zebra places quarter-sized, radio-frequency identification (RFID) transmitters "inside the shoulder pads of each player to capture precise location measurements, in real time, during the game."¹⁸ The data is then transmitted to devices located throughout the stadium.¹⁹ Zebra's technology collects "data such as position, speed, and distance that [is] registered and compiled into a database."²⁰ Zebra's technology does not use GPS.²¹

FDA Status: A review of the FDA's Medical Devices database does not show that Zebra has received FDA approval for its device.²²

Current Use in the NFL: Zebra is "[t]he Official On-Field Player-Tracking Provider" of the NFL.²³ In July 2014, the NFL announced that it would install Zebra's technology in seventeen stadiums during the 2014 NFL season.²⁴ Specifically, the NFL planned to install the technology in the fifteen stadiums that hosted Thursday Night Football games, as well as in Detroit and New Orleans.²⁵ In 2016, the NFL and Zebra announced that Zebra's technology would be deployed in all NFL stadiums in the United States.²⁶ In addition, the NFL planned to install Zebra technology in Camping World Stadium in Orlando, in Wembley and Twickenham Stadiums in London, and in Estadio Aztech in Mexico City.²⁷ The announcement also noted that for the first time, the NFL used Zebra's RFID tags in every football during the

¹⁷ See Press Release, Zebra, Media Alert: National Football League and Zebra Technologies to Provide 'Next Gen Stats' for the 2014 Season (July 31, 2014), <https://www.zebra.com/us/en/about-zebra/newsroom/press-releases/2014/nfl-zebra-next-gen.html> [<https://perma.cc/4V84-5BZ7>] [hereinafter Zebra Media Alert].

¹⁸ Zebra Media Alert, *supra* note 17; see also Press Release, Zebra, Zebra Technologies Changes the Game with Launch of Motionworks Sports Solution (July 29, 2013), <https://www.zebra.com/us/en/about-zebra/newsroom/press-releases/2013/motionworks-announcement.html> [<https://perma.cc/P926-RBNH>] (describing the RFID tags placed inside players' equipment as "quarter-sized").

¹⁹ Zebra Media Alert, *supra* note 17.

²⁰ *Id.*

²¹ See *Zebra Technologies Partners with NFL to Track Player Movements*, TECHGRAPHS (Jan. 2, 2015), <http://www.fangraphs.com/techgraphs/zebra-technologies-partners-with-nfl-to-track-player-movements> [<https://perma.cc/7ANG-QER8>] (contrasting Zebra's MotionWorks technology with GPS-based technology).

²² The FDA's Medical Devices database revealed no entries for Zebra's devices. See 510(k) Premarket Notification, *supra* note 7.

²³ *Partners in Innovation*, ZEBRA, <https://www.zebra.com/us/en/nfl.html> [<https://perma.cc/8PWW-L2SQ>].

²⁴ Zebra Media Alert, *supra* note 17.

²⁵ *Id.*

²⁶ Press Release, Zebra, Zebra Developed an Instrumented Football with Wilson Sporting Goods; NFL Will Furnish Each Team in League with Data Generated by the Zebra Sports Solution (Sept. 1, 2016), <https://www.zebra.com/us/en/about-zebra/newsroom/press-releases/2016/nfl-and-zebra-expand-game-changing-partnership.html> [<https://perma.cc/8PXE-G9NM>].

²⁷ *Id.*

preseason.²⁸ In addition, starting in the 2016 season, the NFL provided data generated by Zebra's technology to each NFL club.²⁹

Benefits and Risks to Players: The principal purpose of Zebra's technology is for entertainment purposes. Beginning with the 2014 season, the NFL has broadcasted the data from the Zebra sensors in real time during the games, showing how fast players are moving and how far they are running.³⁰ Because the sensors track player speed and movement, the data could also be used by clubs to analyze player performance and make related roster decisions.

Zebra's technology offers little benefit to players. Unlike Catapult's devices, the Zebra technology does not measure force to help players avoid injury.³¹ Theoretically, players could use the data to understand and thus improve their performance, including their speed and positioning on the field, but this data seems to largely duplicate the data derived from game tapes that players already watch.

Current Use in Other Professional Sports: Zebra's technology is also used in NASCAR³² and in Chinese women's soccer.³³

C. Company: Omegawave

Headquarters Location: Finland³⁴

Technology Category: Readiness

Available Technologies: Omegawave's technology is used prior to practice to measure an athlete's "[r]eadiness" for activity.³⁵ The process begins with the athlete wearing a heart rate monitor band and two Omegawave sensors, which are electrodes placed on the athlete's forehead and hand, for two to five

²⁸ *Id.*

²⁹ *Id.*

³⁰ See, e.g., Michael Phillips, *A Chip on Their Shoulders*, RICHMOND TIMES-DISPATCH, Sept. 27, 2014, 2014 WLNR 26969544.

³¹ See *The NFL Is Finally Tapping into the Power of Data*, WIRED (Jan. 13, 2016, 6:55 AM), <https://www.wired.com/2016/01/the-nfls-impending-data-revolution> [<https://perma.cc/V8P2-EWCF>] (explaining that currently, "the Zebra system can't directly measure deceleration force at the head, because the sensors are in the shoulder pads" but noting that the addition of a "Bluetooth-connected accelerometer to helmets is well within current capabilities").

³² Press Release, Zebra, Zebra Technologies Partners with Michael Waltrip Racing to Deploy Zebra Motionworks Motor Sports Solution (May 20, 2014), <https://www.zebra.com/us/en/about-zebra/newsroom/press-releases/2014/waltrip-partnership-announcement.html> [<https://perma.cc/MY5F-6FAA>].

³³ *Partners in Innovation*, *supra* note 23.

³⁴ *Terms and Conditions*, OMEGAWAVE, <http://www.omegawave.com/terms-and-conditions/> [<https://perma.cc/WDK6-RVKQ>].

³⁵ ROMAN FOMIN & VALERIE NASEDKIN, OMEGAWAVE, WHITE PAPER: EFFECTIVE MANAGEMENT OF ATHLETE PREPARATION 6-8 (2013), <https://omegawave.blob.core.windows.net/sitematerials/Academy/white-paper.pdf?sfvrsn=0> [<https://perma.cc/4LV3-WGRC>].

minutes.³⁶ The sensors measure the electrical activity generated by the body and purport to determine the “readiness” of the athlete’s central nervous, cardiac, energy supply, neuromuscular, and sensorimotor systems for physical activity.³⁷ The data is transmitted to Omegawave’s cloud technology through the athlete’s smartphone.³⁸ The athlete or his coaches then receive Omegawave’s analysis via smartphone and can adjust the athlete’s workout based on his readiness,³⁹ including reducing the workout to prevent injuries.⁴⁰

FDA Status: A review of the FDA’s Medical Devices database does not reveal that Omegawave has received FDA approval for its device.⁴¹

Current Use in the NFL: The only NFL clubs reportedly using Omegawave’s products are the New England Patriots and Philadelphia Eagles.⁴²

Benefits and Risks to Players: Omegawave’s technology could be useful to players and help them avoid injuries. If the product works as intended,⁴³ this technology could help players understand the limitations of their bodies and to structure and conduct their workouts accordingly.

Omegawave’s technology appears to have limited downside to players. While coaches obtain data that might show a player is physically ill-prepared for practice and thus think less of the player, presumably if the player is not prepared that will be demonstrated during practice anyway.

Current Use in Other Professional Sports: Omegawave’s technology is also being used by an uncertain number of NHL, MLB, and MLS clubs.⁴⁴ In addition, the technology is popular among professional endurance athletes such as runners, cyclists, and triathletes.⁴⁵

³⁶ See *Personal Apple User Guide*, OMEGAWAVE, <https://omegawave.blob.core.windows.net/sitematerials/default-document-library/ow-personal-user-guide-for-Apple.pdf> [https://perma.cc/7XRW-W936] (explaining how to affix the devices to begin monitoring).

³⁷ FOMIN & NASEDKIN, *supra* note 35 at 14.

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ Brian Kamenetzky, *The Next Big Thing in Sports Data: Predicting (And Avoiding) Injuries*, FAST COMPANY (Aug. 25, 2014, 5:50 AM), <http://www.fastcompany.com/3034655/healthware/the-next-big-thing-in-sports-data-predicting-and-avoiding-injuries> [https://perma.cc/9VX4-5PPH].

⁴¹ The FDA’s Medical Devices database revealed no entries for Omegawave’s devices. See 510(k) *Premarket Notification*, *supra* note 7.

⁴² Kamenetzky, *supra* note 40.

⁴³ On Omegawave’s website, one can request scientific literature Omegawave asserts validates its products. See *Welcome to Omegawave Knowledge*, OMEGAWAVE, <http://www.omegawave.com/knowledge> [https://perma.cc/T85G-7LSM].

⁴⁴ *About Omegawave*, OMEGAWAVE, <http://www.omegawave.com/company> [https://perma.cc/WWY9-C29G].

⁴⁵ Roy Wallack, *Tech Advances to Keep Fit, From Apps to Straps*, L.A. TIMES (Nov. 8, 2013, 9:45 AM), <http://www.latimes.com/health/la-he-gear-apps-20131109-column.html> [https://perma.cc/28A2-F8LQ].

D. Company: Polar

Headquarters Location: Finland⁴⁶

Technology Category: Heart Rate

Available Technologies: Polar is one of the world's leading heart rate monitor companies, having first developed the technology in 1977.⁴⁷ Athletes wear heart rate monitor straps around their chest, and the straps wirelessly transmit data to a wristwatch.

FDA Status: A review of the FDA's Medical Devices database does not reveal that Polar has received FDA approval for these devices.⁴⁸

Current Use in the NFL: In 2011, Polar became the "official heart rate training system" for the Atlanta Falcons.⁴⁹ Polar outfitted the Falcons with their monitors to allow the coaches to monitor the intensity of the players' workouts and their ability to recover.⁵⁰ As of 2013, Polar products are reportedly used by five NFL clubs.⁵¹

Benefits and Risks to Players: Polar's products promise to help players and their clubs. Heart rate can be a useful measure of an athlete's exertion levels. By knowing a player's heart rate, the player and/or his coach can increase or decrease the intensity of the workout as appropriate.

A foreseeable concern for players relates to the diagnostic potential of the technology. Heart rate monitors enable a club to learn medical information about a player that may cause it to reconsider the player's short-term or long-term employment. At the same time, they inform the player of a medical condition (such as an irregular heartbeat) that he should perhaps take steps to address.

Current Use in Other Professional Sports: Polar heart rate monitors are also used in the NHL and European soccer leagues.⁵² Additionally, heart rate monitors are standard equipment for endurance athletes such as runners, cyclists, and triathletes.

⁴⁶ *Polar Origins*, POLAR, https://www.polar.com/us-en/about_polar/who_we_are/polar_origins [https://perma.cc/N27M-WHXX].

⁴⁷ *Who We Are*, POLAR, http://www.polar.com/us-en/about_polar/who_we_are [https://perma.cc/DQ3B-4MSD].

⁴⁸ The FDA's Medical Devices database revealed no entries for Polar's devices. See 510(k) *Premarket Notification*, *supra* note 7.

⁴⁹ Press Release, Polar, Polar Team² Pro Set Solution Is Official Heart Rate Training System for the Atlanta Falcons (Sept. 7, 2011), http://www.polar.com/us-en/about_polar/news/polar_team_2_pro_solution [https://perma.cc/7569-99DT].

⁵⁰ *Id.*; see also D. Orlando Ledbetter, *Players Take Monitors to Heart*, ATLANTA J.-CONST., Sept. 19, 2010, 2010 WLNR 18594890.

⁵¹ See Mike Vorkunov, *Cutting-Edge Technology Becomes the Heartbeat of a Program*, STAR-LEDGER (Newark, N.J.), Oct. 6, 2013, 2013 WLNR 25015731.

⁵² Ledbetter, *supra* note 50.

E. Company: Fatigue Science

Headquarters Location: Vancouver, British Columbia⁵³

Technology Category: Sleep

Available Technologies: Fatigue Science offers a wrist-worn device called Readiband that is worn while sleeping and collects data about an athlete's sleep, including quality, quantity and timing.⁵⁴ The Readiband captures "actigraphy" data, measurements of the tiny movements in the wearer's wrist.⁵⁵ Readiband takes sixteen measurements per second and processes the data through an algorithm to determine when someone is sleeping or awake.⁵⁶

FDA Status: Approved⁵⁷

Current Use in the NFL: The Seattle Seahawks are the only NFL club known to be utilizing Fatigue Science's technology.⁵⁸

Benefits and Risks to Players: Fatigue Science's technology can be beneficial to players. The importance of sleep from a medical and scientific viewpoint is well-established, and studies link sleep to athletic performance.⁵⁹ Thus, if players have more accurate data about their sleep, they can take steps to sleep better and improve their health and performance.

Fatigue Science's technology should have limited adverse effects on NFL players. One possible downside is that clubs could learn that a player is failing to get enough sleep because of his own poor behaviors, such as staying out late.

Like Polar's heart rate monitoring devices, Fatigue Science's technology could have complications for players if used diagnostically. While a player might learn of a medical condition that he should perhaps take steps to address, the club might learn medical information about the player that causes them to reconsider the player's short-term or long-term employment. For example, a club could learn of a

⁵³ Contact, FATIGUE SCI., <https://www.fatiguescience.com/contact/> [<https://perma.cc/MHX8-EU4H>].

⁵⁴ *Biomathematical and Wearable Sleep Science Technology*, FATIGUE SCI., <https://www.fatiguescience.com/sleep-science-technology/> [<https://perma.cc/2SAK-TBN8>].

⁵⁵ C.A. RUSSELL ET AL., ARCHINOETICS, LLC, VALIDATION OF THE FATIGUE SCIENCE READIBAND™ ACTIGRAPH AND ASSOCIATED SLEEP/WAKE CLASSIFICATION ALGORITHMS 7-8 (undated), https://fatigue-science.squarespace.com/s/Readiband_Validation.pdf [<https://perma.cc/R8W8-GBHC>].

⁵⁶ *Id.*

⁵⁷ The FDA's Medical Devices database revealed relevant entries for Fatigue Sciences's devices. See 510(k) *Premarket Notification*, *supra* note 7.

⁵⁸ *Predictive Fatigue Management for Industry and Elite Sport*, FATIGUE SCI., <http://fatiguescience.com/human-performance/> [<https://perma.cc/AY85-XEXJ>].

⁵⁹ See, e.g., Cherie D. Mah et al., *The Effects of Sleep Extension on the Athletic Performance of Collegiate Basketball Players*, 34 SLEEP 943, 946 (2011) (explaining the improvements to athletic performance demonstrated by members of the Stanford men's basketball team after increasing their nightly sleep time); Roger S. Smith et al., *The Impact of Circadian Misalignment on Athletic Performance in Professional Football Players*, 36 SLEEP 1999, 1999 (2013) ("Sleep deprivation can impair performance in athletes . . .").

player's sleep apnea, from which 34% of offensive linemen (the biggest players on the club) suffer, according to a 2003 study.⁶⁰

Current Use in Other Professional Sports: Fatigue Science's technology is also used by the Seattle Mariners and the Chicago Cubs of MLB and the Seattle Sounders of the MLS.⁶¹

F. *Company: Proteus Digital Health, Inc.*

Headquarters Location: Redwood City, California⁶²

Technology Category: Heart Rate and Body Temperature

Available Technologies: Proteus's technology involves a pill and a wearable sensor.⁶³ When an athlete swallows a Proteus pill, stomach fluids activate an edible communications device contained in the pill, sending wireless signals through the body to a sensor the athlete wears.⁶⁴ The technology is able to track and record physiologic information, including "heart rate, respiration rate, skin temperature, activity, body posture and other associated metrics."⁶⁵ The data can be uploaded to a smartphone for review.⁶⁶

FDA Status: Approved⁶⁷

Current Use in the NFL: There are no reports of any NFL clubs using Proteus's technology.

Benefits and Risks to Players: Proteus's technology could help players understand their current condition and adjust their training appropriately. The

60 L. ELAINE HALCHIN, CONG. RESEARCH SERV., RL34439, FORMER NFL PLAYERS: DISABILITIES, BENEFITS, AND RELATED ISSUES 14 (2008).

61 *Predictive Fatigue Management for Industry and Elite Sport*, *supra* note 58. Fatigue Science's technology is also used by military organizations and the heavy industry and transportation industries. *Id.*

62 *Mission*, PROTEUS DIGITAL HEALTH, <http://www.proteus.com/company/mission/> [<https://perma.cc/W97A-K3XU>].

63 Michael Kesterton, *Methane Menace, New Bird Species, Hippo on the Loose*, GLOBE AND MAIL (Aug. 23, 2012, 1:45 PM) <http://www.theglobeandmail.com/life/facts-and-arguments/methane-menace-new-bird-species-hippo-on-the-loose/article4301964/> [<https://perma.cc/4FWU-5PQW>].

64 *Id.*

65 Jonah Comstock, *Proteus Digital Health Quietly Launches Consumer-Facing Wearable for Athletes*, MOBI HEALTH NEWS (Oct. 29, 2014), <http://www.mobihealthnews.com/37784/proteus-digital-health-quietly-launches-consumer-facing-wearable-for-athletes> [<https://perma.cc/7G9E-CU6B>].

66 Kesterton, *supra* note 63.

67 The FDA granted Proteus's "de novo petition for the Proteus Personal Monitor including Ingestion Event Marker" in 2012. *Evaluation of Automatic Class III Designation (De Novo) for Proteus Personal Monitor Including Ingestion Event Marker*, U.S. FOOD & DRUG ADMIN. (May 7, 2012), http://www.accessdata.fda.gov/cdrh_docs/reviews/k113070.pdf [<https://perma.cc/VG5K-NM4E>]. The personal monitor was classified as a Class II device. *Id.* Classification is determined by "the risk the device poses to the patient and/or the user is a major factor in the class it is assigned," with the lowest risk devices assigned to Class I and devices with the greatest risk assigned to Class III. *Classify Your Medical Device*, U.S. FOOD & DRUG ADMIN., <http://www.fda.gov/MedicalDevices/DeviceRegulationandGuidance/Overview/ClassifyYourDevice/> [<https://perma.cc/9SV6-MX4B>] (last updated July 29, 2014).

technology is potentially most useful during summer training camps when overheating is a major concern that has had fatal consequences, including the death of Minnesota Vikings' offensive lineman, Korey Stringer, in 2001.⁶⁸

Similar to Fatigue Science's technology, it is unclear to what extent Proteus's technology could be used diagnostically and thus provide both medical information that could benefit the player but also potentially harm him in his employment.

Current Use in Other Professional Sports: There are no reports of any professional sports leagues using Proteus's technology.

G. Company: BioForce HRV (BioForce)

Headquarters Location: Kirkland, Washington⁶⁹

Technology Category: Heart Rate and Readiness

Available Technologies: "BioForce HRV" is a web and smartphone application that collects heart rate data to measure heart rate variability (HRV).⁷⁰ BioForce claims that HRV is a measure of an athlete's "readiness and fatigue."⁷¹ The company sells the software and a membership.⁷² While the company offers a Bluetooth chest strap and HRV finger sensor, the software is also designed to work with other heart rate monitors, such as Polar's, discussed above.⁷³

FDA Status: A review of the FDA's Medical Devices database does not show that BioForce has received FDA approval for its software or devices.⁷⁴

Current Use in the NFL: BioForce's website asserts that several NFL clubs are using the product.⁷⁵ The product was developed by Joel Jamieson, a former strength and conditioning coach for the Seattle Seahawks.⁷⁶

⁶⁸ For a complete review of Korey Stringer's death and the subsequent legal proceedings, see Kelly Basinger Charnley, *Is the Football Culture Out of Bounds - Finding Liability for Korey Stringer's Death*, 12 VILL. SPORTS & ENT. L.J. 53, 56-60 (2005).

⁶⁹ See *Terms of Use*, BIOFORCE HRV, <http://www.bioforcehrv.com/terms-conditions> [<https://perma.cc/5ZAZ-TKUY>].

⁷⁰ See *Bioforce HRV Sales*, BIOFORCE HRV, <http://www.bioforcehrv.com/sales/> [<https://perma.cc/8ZLX-VT54>]; *How BioForce HRV Works*, BIOFORCE HRV, <http://www.bioforcehrv.com/#How-Bio-Force-HRV-Works> [<https://perma.cc/JE74-BCZX>].

⁷¹ *How BioForce HRV Works*, *supra* note 70.

⁷² *Bioforce HRV Sales*, *supra* note 70.

⁷³ *Id.*

⁷⁴ The FDA's Medical Devices database revealed no entries for BioForce HRV devices. See 510(k) *Premarket Notification*, *supra* note 7.

⁷⁵ See *The Future of Personal Training Has Arrived*, BIOFORCE HRV, <http://www.bioforcehrv.com/pro-trainer/> [<https://perma.cc/3GRP-WKAF>].

⁷⁶ See *HRV Explained Part 3: How to Measure HRV*, HRVTRAINING (Jan. 20, 2012), <http://hrvtraining.com/2012/01/20/hrv-explained-part-3-how-to-measure-hrv/> [<https://perma.cc/4XS7-BD6H>] (mentioning that product was developed by Jamieson, a "former NFL strength coach"); see also Don Ruiz, *Sounders Have Faith in High-Tech Drills*, KITSAP SUN (Bremerton, Wash.), Nov. 6, 2009, 2009 WLNR 30313819 (mentioning Jamieson's prior work with the Seahawks).

Benefits and Risks to Players: As with Polar's heart rate monitors, understanding a player's heart rate can help the player and the club modify practice intensity as necessary. Yet, the product could potentially cause problems if used diagnostically. While a player might learn of a medical condition that he should perhaps take steps to address, the club might learn medical information about the player that causes them to reconsider the player's short-term or long-term employment.

Current Use in Other Professional Sports: BioForce also asserts that its product is being used by NBA, MLB, NHL and MLS clubs, as well as in the UFC.⁷⁷

H. Company: Atago U.S.A., Inc.

Headquarters Location: Bellevue, Washington⁷⁸

Technology Category: Hydration

Available Technologies: Atago offers a device known as the PEN-Urine S.G. that is a handheld device used to measure the specific gravity of urine by dipping the tip of the device into a urine sample.⁷⁹ The specific gravity of urine is generally indicative of the athlete's hydration level.⁸⁰

FDA Status: A review of the FDA's Medical Devices database does not reveal that Atago has received FDA approval for its device.⁸¹

Current Use in the NFL: Research has not revealed that the PEN-Urine S.G. is being used by any NFL clubs. However, there have been reports of NFL clubs using unidentified hydration measurement devices (some of which may be the PEN-Urine S.G.).⁸²

⁷⁷ *The Future of Personal Training Has Arrived*, *supra* note 75.

⁷⁸ *Contact Us*, ATAGO, U.S.A., INC., <http://www.atago.net/USA/faq.html> [<https://perma.cc/TK6J-8JFZ>].

⁷⁹ *Pen-Urine S.G.*, ESSEX SCI. LAB. SUPPLIES LTD., <http://www.esslab.com/atago/documents/PEN-UrineSG.pdf> [<https://perma.cc/SK23-NB5Q>].

⁸⁰ See Dawn M. Minton, *Best Practice for Clinical Hydration Measurement*, 14 INT'L J. OF ATHLETIC THERAPY & TRAINING, Jan. 2009, at 9, 9 ("The [NCAA] suggests U[rine Specific Gravity] [is] the most practical, cost-efficient measurement of hydration status for athletes."); see also *Urine Specific Gravity Test*, MEDLINE PLUS, <http://www.nlm.nih.gov/medlineplus/ency/article/003587.htm> [<https://perma.cc/SK23-NB5Q>] (discussing that increased urine specific gravity can be a sign of dehydration) (last updated Dec. 2, 2016).

⁸¹ While the FDA reviewed Atago's notice of intent to market its device in 2002 and allowed the company to do so "subject to the general controls of the [Federal Food, Drug, and Cosmetic Act]," the Agency did not grant FDA approval. Letter from Alan E. Williams, Dir., Div. of Blood Applications, to Guy McFarland, Chairman, VEE GEE Sci., Inc. (Jan. 2, 2002), <http://www.fda.gov/BiologicsBloodVaccines/BloodBloodProducts/ApprovedProducts/SubstantiallyEquivalent510kDeviceInformation/ucm088923.htm> [<https://perma.cc/N8LQ-5K8Z>].

⁸² See Sam Borden, *Going Its Own Way, Football Team Adapts GPS for Training*, INT'L HERALD TRIB., June 16, 2012, 2012 WLNR 12560924 (discussing the New York Giants' use of biotechnologies, including hydration devices requiring urine specimens).

Benefits and Risks to Players: The PEN-Urine S.G. could help ensure that players are properly hydrated during practices and games, particularly during the hot summer training camps. The PEN-Urine S.G. could assist clubs in preventing dehydration and related conditions, including cramping and potentially fatal heatstroke.

The PEN-Urine S.G. could, however, also have concerning interplay with the NFL–NFLPA Policy on Performance-Enhancing Substances (PES Policy)⁸³ and the NFL–NFLPA Policy and Program on Substances of Abuse (Drug Policy).⁸⁴ The PES Policy sets a minimum level for the specific gravity of a urine specimen.⁸⁵ Specific gravity below the minimum threshold is considered an indication of the player having used a diuretic,⁸⁶ which is banned by the PES Policy.⁸⁷ The Drug Policy also sets a minimum level for the specific gravity of a urine specimen. Specific gravity below the minimum threshold is considered a diluted specimen,⁸⁸ in violation of the Drug Policy.⁸⁹

Although the Drug Policy and PES Policy contain limitations on the amount of testing the NFL can perform,⁹⁰ the PEN-Urine S.G. could potentially reveal some of the same information sought by testing under those policies. Violations of either the Drug Policy or the PES Policy can subject players to fines and

⁸³ Nat'l Football League & Nat'l Football League Players Ass'n, *Policy on Performance-Enhancing Substances* (2016) [hereinafter *Policy on Performance-Enhancing Substances*].

⁸⁴ Nat'l Football League & Nat'l Football League Players Ass'n, *Policy and Program on Substances of Abuse* (2016) [hereinafter *Policy and Program on Substances of Abuse*].

⁸⁵ See *Policy on Performance-Enhancing Substances*, *supra* note 83, at 11.

⁸⁶ FRANCES TALASKA FISCHBACH & MARSHALL BARNETT DUNNING III, *A MANUAL OF LABORATORY AND DIAGNOSTIC TESTS* 197 (9th ed. 2015).

⁸⁷ See *Policy on Performance-Enhancing Substances*, *supra* note 83, at 13 (“The use of so-called ‘blocking’ or ‘masking’ agents is prohibited by this Policy. These include diuretics or water pills, which have been used in the past by some Players to reach an assigned weight.”).

⁸⁸ Edward J. Cone et al., *Normalization of Urinary Drug Concentrations with Specific Gravity and Creatinine*, 33 J. ANALYTICAL TOXICOLOGY, Jan./Feb. 2009, at 1, 1 (“Methods utilized in drug testing programs to minimize the effect of excessive dilution frequently include measuring specific gravity and creatinine. ‘Dilute’ urine specimens are defined . . . as those specimens whose specific gravity is > 1.0010, but < 1.0030 and their creatinine concentration is ≥ 2.0, but < 20.0 mg/dL.”); *Policy and Program on Substances of Abuse*, *supra* note 84, at 10 (defining a “dilute specimen” as “urine specimen that has a specific gravity value less than 1.003 and a creatinine concentration of less than 20 mg/dL”).

⁸⁹ See *Policy and Program on Substances of Abuse*, *supra* note 84, at 11-12 (“A Player who . . . provides a dilute specimen will be treated as having a [p]ositive [t]est [r]esult.”); *Policy on Performance-Enhancing Substances*, *supra* note 83, at 7 (“Any effort to substitute, dilute or adulterate a specimen, or to manipulate a test result to evade detection will be considered a violation of the Policy and may result in more severe discipline than would have been imposed for a positive test.”).

⁹⁰ See *Policy and Program on Substances of Abuse*, *supra* note 84, at 9 (limiting testing for players under contract to once during the preseason unless the player has previously failed a test); *Policy on Performance-Enhancing Substances*, *supra* note 83, at 5 (providing for ten players per club to be tested each week of the preseason, regular season, and postseason); *id.* at 12 (limiting blood tests for HGH to six times per calendar year).

suspensions;⁹¹ therefore, they potentially have reason to be concerned about the usage of the Pen-Urine S.G. test.

Current Use in Other Professional Sports: Research has not revealed that the PEN-Urine S.G. is being used in any other professional sport.

I. *Company: PUSH*

Headquarters Location: Toronto, Canada⁹²

Technology Category: Force

Available Technologies: “PUSH” is a wearable armband that includes both an accelerometer and a gyroscope⁹³ to measure an athlete’s power (in watts) and velocity while weightlifting.⁹⁴ The data is transmitted wirelessly to the athlete’s smartphone where it can be analyzed by the athlete and coaches.⁹⁵

FDA Status: A review of the FDA’s Medical Devices database does not reveal that PUSH has received FDA approval for its device.⁹⁶

Current Use in the NFL: PUSH is being used by the San Francisco 49ers.⁹⁷

Benefits and Risks to Players: PUSH can provide data to players that can be useful in decreasing or increasing the intensity of strength training workouts. Such information could also help prevent players from overtraining and injuring themselves.

There is no clear downside for players’ use of PUSH. Players already lift weights and have that information monitored by the club. Thus, while PUSH provides a new type of weightlifting data, the clubs already know the relative strengths of each player and can make any related decision accordingly.

Current Use in Other Professional Sports: PUSH is being used by the Dallas Stars (NHL) and by international rugby and soccer teams.⁹⁸

⁹¹ See *Policy and Program on Substances of Abuse*, *supra* note 84, at 13-18 (providing for fines and suspensions depending upon number of previous violations of the Drug Policy); *Policy on Performance-Enhancing Substances*, *supra* note 83, at 10-11 (providing for a two-game suspension for the first positive test result for diuretics or masking agents; a four-game suspension for the first positive test for stimulants during the season or anabolic steroids; a six-game suspension for a positive test result plus a diuretic, masking agent, or attempt to substitute or dilute; a ten-game suspension for a second violation; and, a two-year ban for a third violation).

⁹² *Canada’s Top 10 Wearable Startups You Ought to Know*, 1 DESIGN 1ST, <http://www.design1st.com/2015/07/12/canadian-wearable-technology-turning-heads/> [<https://perma.cc/QL8G-MXSC>].

⁹³ See *The Swiss Army Knife of Weight Room Training*, PUSH, <http://www.trainwithpush.com/push-band/> [<https://perma.cc/JJ36-3RLL>] (describing arm band and sensors).

⁹⁴ See Daniel Baker, *Using PUSH to Improve Coaching*, PUSH (June 19, 2015), <https://www.trainwithpush.com/blog/using-push-to-improve-coaching> [<https://perma.cc/W6MS-BJFD>].

⁹⁵ See *The Swiss Army Knife of Weight Room Training*, *supra* note 93.

⁹⁶ The FDA’s Medical Devices database revealed no entries for PUSH’s devices. See 510(k) *Premarket Notification*, *supra* note 7.

⁹⁷ *Fusing Science and Sport*, PUSH, <http://www.trainwithpush.com/> [<https://perma.cc/882Q-R46R>].

⁹⁸ *Id.*

J. *Company: EliteForm*

Headquarters Location: Lincoln, Nebraska⁹⁹

Technology Category: Force

Available Technologies: EliteForm combines 3D camera technology mounted on weightlifting racks with software that provides athletes results in real time, capturing the metrics of every repetition completed and storing it online.¹⁰⁰ Specifically, EliteForm measures an athlete's power and velocity.¹⁰¹

FDA Status: A review of the FDA's Medical Devices database does not reveal that EliteForm has received FDA approval for its device.¹⁰²

Current Use in the NFL: The only NFL club reported to have used EliteForm is the Philadelphia Eagles.¹⁰³

Benefits and Risks to Players: EliteForm's technology is similar to that of PUSH and offers the same potential benefits and concerns to players.

Current Use in Other Professional Sports: EliteForm has been used by major college football and basketball programs,¹⁰⁴ but there are no reports of it being used by other professional sports clubs.

K. *Company: HQInc.*

Headquarters Location: Palmetto, Florida¹⁰⁵

Technology Category: Body Temperature

Available Technologies: HQInc. offers an ingestible sensor, known as "CorTemp," that wirelessly transmits an athlete's core body temperature as the sensor travels through the digestive tract.¹⁰⁶ The sensor's signal passes through the body to the CorTemp Data Recorder worn on the outside of the body.¹⁰⁷ The sensor is silicone coated and "contains a micro battery, quartz crystal, communication coil and circuit board, all encapsulated in medical grade epoxy. Once ingested, the crystal sensor vibrates at a frequency relative to the body's internal temperature, produces a magnetic flux and transmits a

⁹⁹ *How We Work*, ELITEFORM, <http://eliteform.com/index.html#howItWorks> [https://perma.cc/YL36-F26L].

¹⁰⁰ *Id.*

¹⁰¹ *Id.*

¹⁰² The FDA's Medical Devices database revealed no entries for EliteForm's devices. *See* 510(k) *Premarket Notification*, *supra* note 7.

¹⁰³ Jenny Vrentas, *Chip Kelly's Mystery Man*, MMQB, (July 24, 2013), <http://mmqb.si.com/2013/07/24/chip-kellys-mystery-man/> [https://perma.cc/Z9PU-TXA6].

¹⁰⁴ *See* Vorkunov, *supra* note 51 (discussing use by the University of Kansas's basketball program and Texas A&M's football team).

¹⁰⁵ *See About Us*, HQINC., <http://www.hqinc.net/about-us/> [https://perma.cc/BK2P-ZR3S].

¹⁰⁶ *CorTemp Sensor*, HQINC., <http://www.hqinc.net/cortemp-sensor-2/> [https://perma.cc/36LU-8G2Q].

¹⁰⁷ *Id.*

low-frequency signal harmlessly through the body,” which is sent to a data recorder.¹⁰⁸ The sensor passes through the body at the athlete’s normal rate of digestion and is used only once.¹⁰⁹

FDA Status: HQInc.’s website says that CorTemp has been FDA-approved,¹¹⁰ however, a review of the FDA’s Medical Devices database does not reveal any FDA approval for its device.¹¹¹

Current Use in the NFL: The Jacksonville Jaguars, Philadelphia Eagles, and Minnesota Vikings have been identified as clubs using CorTemp.¹¹²

Benefits and Risks to Players: Players’ body temperatures—particularly during training camp—are a major concern. Thus, the CorTemp product can provide useful, real-time data to ensure that players’ body temperatures are kept in a safe range. Assuming the product operates as advertised, there are no apparent downsides to players using CorTemp.

Current Use in Other Professional Sports: CorTemp has been used in race car driving,¹¹³ as well as by college football teams.¹¹⁴ NFL clubs have been using CorTemp since approximately 2003.¹¹⁵

L. Company: X2 Biosystems (X2)

Headquarters Location: Seattle, Washington¹¹⁶

Technology Category: Head Impact Sensors

Available Technologies: X2 offers two types of sensors designed to measure the force of hits sustained by players and transmit that data wirelessly to mobile devices.¹¹⁷ The first sensor is embedded into the player’s mouthguard and the

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*

¹¹⁰ See *About Us*, *supra* note 105 (stating that CorTemp product is FDA approved).

¹¹¹ As of November 2016, the FDA’s Medical Devices database revealed no entries for HQInc.’s devices. See *510(k) Premarket Notification*, *supra* note 7.

¹¹² *Ingestible Thermometer Pill Aids Athletes in Beating the Heat*, NASA, http://spinoff.nasa.gov/Spinoff2006/hm_1.html [<https://perma.cc/4BYY-79EE>].

¹¹³ *Drivers’ Bitter Pill to Swallow*, WHITTLESEA POST (Melbourne, Austl.), Feb. 20, 2002, 2002 WLNR 5994099.

¹¹⁴ Rich Kaipust, *Huskies to Use Temperature Pill*, OMAHA WORLD-HERALD, June 12, 2006, 2006 WLNR 26726706; Robbi Pickera, *Tar Heels Test Body*, BOULDER DAILY CAMERA, Aug. 18, 2009, 2009 WLNR 16049487.

¹¹⁵ See Mark Craig, *Trainers Get Early Warning with Pill*, STAR TRIB. (Minneapolis-St. Paul), Aug. 7, 2005, 2005 WLNR 12519169 (noting that the Philadelphia Eagles began use of the product in 2003).

¹¹⁶ *Contact*, X2 BIOSYSTEMS, https://www.x2biosystems.com/x2_contact/ [<https://perma.cc/ZAQ4-3LMS>].

¹¹⁷ Katie Linendoll, *Could X2’s Skin Patch Detect Concussions?*, ESPN (Jan. 7, 2013), http://espn.go.com/blog/playbook/tech/post/_/id/3547/could-x2s-skin-patch-detect-concussions [<https://perma.cc/LRY5-H46P>].

second is worn as a patch behind the player's ear.¹¹⁸ X2 also offers a concussion evaluation software that can gather data to help diagnose concussions.¹¹⁹

FDA Status: A review of the FDA's Medical Devices database does not reveal that X2 has received FDA approval for its device.¹²⁰

Current Use in the NFL: Beginning with the 2013 season, NFL clubs were provided with X2's software to use in the evaluation of possible concussions.¹²¹ Around the same time, the NFL commissioned a study of X2's mouthguard for potential use during NFL games.¹²² In February 2015, the NFL announced that it would delay implementation of the X2 mouthguard during games because studies had shown them to be unreliable at the present time.¹²³

Benefits and Risks to Players: If X2's products can accurately and reliably assist in the diagnosis of concussions, then the products will be incredibly useful in protecting the health of players.

However, players and the NFLPA have expressed resistance to the sensors.¹²⁴ Players are concerned that, if the data is not reliable, it could be used to remove from the game players who do not need to be removed.¹²⁵ Additionally, players are concerned that the data will be used by clubs to avoid employing players with a history of concussions.¹²⁶

Current Use in Other Professional Sports: The NHL and MLS also use X2's concussion evaluation and management software.¹²⁷

¹¹⁸ *Id.*

¹¹⁹ X2 *Integrated Concussion Evaluation App: Setting the Standard*, X2 BIOSYSTEMS, http://www.x2biosystems.com/x2_integrated_concussion_app [https://perma.cc/9TYA-MDXU].

¹²⁰ The FDA's Medical Devices database revealed no entries for X2's devices. See 510(k) *Premarket Notification*, *supra* note 7.

¹²¹ Press Release, X2 Biosystems, NFL Adopts X2Impact Concussion Management Software (Aug. 2012), http://www.x2bio.com/files/X2_NFL_CMS_Press_Release.pdf [https://perma.cc/8TG6-VVVY].

¹²² See Steve Fainaru, *No Helmet Sensors for NFL in '15*, ESPN (Feb. 20, 2015), http://espn.go.com/espn/otl/story/_/id/12348395/nfl-teams-use-concussion-sensors-helmets-2015 [https://perma.cc/6NGK-VUKM] (discussing, among other things, testing of X2's mouthguard sensor).

¹²³ *Id.*

¹²⁴ *Id.*

¹²⁵ *Id.*

¹²⁶ *Id.*

¹²⁷ Press Release, X2 Biosystems, The National Hockey League Adopts X2 Biosystems' Concussion Evaluation and Management Software (Feb. 4, 2015), <http://www.marketwired.com/press-release/national-hockey-league-adopts-x2-biosystems-concussion-evaluation-management-software-1988355.htm> [https://perma.cc/H74L-Z7WB].

M. *Company: Riddell and its Subsidiary Simbex*

Headquarters Location: Rosemont, Illinois (Riddell)¹²⁸ and Lebanon, New Hampshire (Simbex)¹²⁹

Technology Category: Head Impact Sensors

Available Technologies: Riddell, the leading football equipment manufacturer, developed what is known as the Head Impact Telemetry System (HITS).¹³⁰ HITS is a system of sensors housed within football helmets which are intended measure and record the location, magnitude, duration, and direction of head impacts.¹³¹ Data from the sensors can be uploaded to computers for analysis.¹³²

FDA Status: A review of the FDA's Medical Devices database does not reveal that Riddell has received FDA approval for its device.¹³³

Current Use in the NFL: In 2014, the NFL commissioned a study of the effectiveness of HITS with the intention of possibly implementing it into NFL games in 2015.¹³⁴ However, after the study showed the data to be unreliable, the NFL indefinitely postponed use of HITS.¹³⁵

Benefits and Risks to Players: The possible benefits and concerns of HITS are the same as those of X2's head impact sensors.

Current Use in Other Professional Sports: HITS was designed exclusively for football so it is not currently being used in any other professional sports.

¹²⁸ *Privacy Policy*, RIDDELL, <http://www.riddell.com/privacy-policy> [https://perma.cc/NzZN-WAQF].

¹²⁹ SIMBEX, <http://simbex.com/#> [https://perma.cc/5VMM-GNPN]. Riddell acquired Simbex's impact monitoring technology in 2004. *Simbex Sells Impact Monitoring Tech to Football Helmet Maker Riddell*, BOS. BUS. J. (Sept. 6, 2004), <http://www.bizjournals.com/boston/blog/mass-high-tech/2004/09/simbex-sells-impact-monitoring-tech.html> [https://perma.cc/8H3T-XZ4U].

¹³⁰ *Riddell Revolution IQ Hits Helmet*, RIDDELL, <http://team.riddell.com/shop-riddell/helmet/riddell-revolution-iq-hits-helmet/> [https://perma.cc/968Z-793E].

¹³¹ *Id.*

¹³² *Id.*

¹³³ The FDA's Medical Devices database revealed no entries for Riddell's devices. *See* 510(k) *Premarket Notification*, *supra* note 7.

¹³⁴ Fainaru, *supra* note 122.

¹³⁵ *Id.*

NATIONAL INVITATIONAL CAMP, INC.

**AUTHORIZATION FOR USE AND DISCLOSURE OF
RECORDS AND INFORMATION**

Name: _____ D.O.B.: _____

Address: _____

City: _____ State: _____ Zip: _____

1. Persons/Entities Authorized to Release and Disclose Information:

I hereby authorize and give my permission to the following persons and/or entities to release and disclose my medical records, medical information, and/or “protected health information” (as defined under the Health Insurance Portability and Accountability Act, as amended, and the regulations thereunder (“HIPAA”)), altogether, my “PHI”, in the manner described in this Authorization:

National Football Scouting, Incorporated, the National Football League and each of its member Clubs, as now existing or at any time in the future (“NFL”), the National Football League Drug Advisers and Medical Advisors, National Invitational Camp, Inc., the advisors to the National Football League’s Policy and Program on Substances of Abuse, the advisors to the National Football League’s Policy on Anabolic Steroids and Related Substances, the advisors to the National Football League’s Prescription Drug Program and Protocol, any NFL Club medical staff members, team physicians, athletic training staff members, committees, panels, programs and boards commissioned by the NFL for player health and safety initiatives, Quintiles, Inc., or any successor entity engaged by the NFL to provide data-related analytics and other services (including services intended to support player health and safety initiatives), any outside or third-party physicians, physician groups, hospitals, clinics, laboratories, consulting physicians, specialists, pharmacies, and/or healthcare professionals engaged by National Football Scouting, Inc., National Invitational Camp, Inc., the NFL or any NFL Club(s) for the purpose of providing medical care to the releasor, and any present and future electronic medical record vendors and/or prescription networks used

by the NFL or any NFL Club(s), including, but not limited to, eClinicalWorks, Inc., Intelemage, LLC, and/or Infinitt, Inc., and their respective representatives, agents, and/or employees, officers, servants, staff members, and contractors of the foregoing.

2. Personal Health Information to Be Used and Disclosed:

I hereby authorize the following medical records and/or PHI to be used and disclosed as described in this Authorization to the Authorized Parties (defined below):

My entire health or medical record and/or PHI relating to any injury, sickness, disease, mental health condition, physical condition, medical history, medical or clinical status, diagnosis, treatment or prognosis from any source, including without limitation all written and/or electronic information or data, clinical notes, progress notes, discharge summaries, lab results, pathology reports, operative reports, consultations, physicals, physicians' records, athletic trainers' records, diagnoses, findings, treatments, history and prognoses, test results, laboratory reports, x-rays, MRI, and/or imaging results, outpatient notes, physical therapy records, occupational therapy records, prescriptions, and any and all other information pertaining to my past, present, or future medical condition, diagnosis, treatment, history, and prognosis. This Authorization expressly includes all records and PHI relating to any mental health treatment, therapy, and/or counseling, but expressly excludes psychotherapy notes.

3. Persons/Entities Authorized to Receive and Use:

I hereby authorize the following persons and/or entities to receive and use my medical records and/or PHI only for the purposes that are permitted under this Authorization. These persons and entities will be referred to as the "Authorized Parties":

National Football Scouting, Inc., the National Football League and each of its member Clubs, as now existing or at any time in the future ("NFL"), the National Football League Drug Advisers and Medical Advisers, National Invitational Camp, Inc., the advisors to the National Football League's Policy and Program on Substances of Abuse, the advisors to the National Football League's Policy on

Anabolic Steroids and Related Substances, the advisors to the National Football League's Prescription Drug Program and Protocol, any NFL Club medical staff members, team physicians, athletic training staff members, the NFL Players Association Executive Committee, Medical Advisors and designated legal counsel, committees, panels and boards commissioned by the NFL or NFLPA for player health and safety initiatives, Quintiles, Inc., or any successor entity engaged by the NFL to provide data-related analytics and other services (including services intended to support player health and safety), any outside or third-party physicians, physician groups, hospitals, clinics, laboratories, consulting physicians, specialists, pharmacies, and/or healthcare professionals engaged by National Football Scouting, Inc., National Invitational Camp, Inc., the NFL or any NFL Club(s) for the purpose of providing medical care to the releasor, and any present and future electronic medical record vendors and/or prescription networks used by the NFL or any NFL Club(s), including, but not limited to, eClinicalWorks, Inc., and/or Infinit, Inc., and their respective representatives, agents, and/or employees, officers, servants, staff members, and contractors of the foregoing.

4. Purpose of the Disclosure:

This Authorization for Use and Disclosure of Records and Information is *only* for purposes relating to: (a) my actual or potential employment in the National Football League, including for the provision of healthcare, evaluation, consultation, treatment, therapy, and related services, which purposes are limited to reviewing, discussing, transmitting, disclosing, sharing, and/or using my medical records and PHI between and among: (i) any of the Authorized Parties and (ii) any of my healthcare providers and/or mental health providers, for: (b) employment-related injury reports; (c) the activities of the National Football League Drug Advisors, the advisors to the National Football League's Policy and Program on Substances of Abuse, and/or the advisors to the National Football League's Policy on Anabolic Steroids and Related Substances, specifically limited to due diligence and audit activities, investigations of possible violations of the Policies or eligibility for a "therapeutic -use" exception under either Policy; (d) ophthalmic examinations, consultations or treatment; (e) NFL player health and safety initiatives and projects, in accordance with the August 4, 2011 Collective Bargaining Agreement and amendments to it, including without limitation the Side Letter Agreement regarding the Injury Surveillance System and Player Health

Information Analysis, Dissemination and Research, dated December 2014 (“CBA”).

Notwithstanding anything to the contrary, I hereby permit my medical information and PHI to be used and disclosed as expressly permitted or required under the CBA.

5. Expiration Date: This Authorization will expire two (2) years from the date of signature below.

6. Photocopy: A photostatic copy of this Authorization shall be considered as effective and valid as the original.

7. Signature: By my signature below, I acknowledge that I have read this Authorization, understand my rights as described herein, understand that I am allowing medical and mental healthcare providers, and others set forth in Section 1 above, to disclose my PHI, and have had any questions answered to my satisfaction. I also acknowledge and understand that this Authorization has been collectively bargained for by the National Football League and the National Football League Players Association.

Signature: _____

Date: _____

NOTICE: You are entitled to a copy of this Authorization after you sign it. You have the right to revoke this Authorization any time by presenting a written request to National Invitational Camp, Inc., except to the extent that any Authorized Party has relied upon it. Revocation will not apply: 1) to information that has already been released in connection with this Authorization, 2) during a contestability period under applicable law, or 3) if the Authorization was obtained as a condition of obtaining insurance coverage. We may not condition treatment, payment, enrollment, or eligibility for benefits on your execution of this Authorization, except for the purpose of creating protected health information for disclosure to a third party on provision of Authorization. Information disclosed pursuant to this Authorization may be re-disclosed by the recipient(s) and no longer protected by certain federal or state privacy laws or regulations. Information disclosed pursuant to this Authorization may include records created by a healthcare provider or mental healthcare provider other than the disclosing party, unless access to such PHI has been restricted as permitted under HIPAA or other federal or state law, or unless such provider has expressly prohibited such re-disclosure.

NATIONAL INVITATIONAL CAMP, INC.

**AUTHORIZATION FOR RELEASE & DISCLOSURE
OF MEDICAL & MENTAL HEALTH RECORDS**

Player Name: _____ Date of Birth: _____

School Name: _____

1. Persons/Entities Authorized to Release and Disclose Information. I hereby authorize, empower, request, and direct all healthcare providers, physicians, hospitals, mental health providers, counselors, therapists, clinics, schools, universities, colleges, student health services, dispensaries, sanatoriums, any other agencies, NFL Clubs, professional football teams, athletic trainers, all other amateur or professional teams or organizations, facilities, and/or entities that may possess my medical records, my medical information and/or my protected health information (“PHI”) (as defined under the Health Insurance Portability and Accountability Act, as amended, and the regulations thereunder (“HIPAA”)), altogether, my “Health Information”: (1) to release, disclose, and to make these records and other Health Information freely available to the persons and entities identified on this Authorization as the Authorized Parties; and (2) to discuss the contents of these records and other Health Information with the Authorized Parties and their representatives.

2. Persons/Entities Authorized to Receive and Use the Information. I hereby authorize, empower, and give permission to the following persons and/or entities and their representatives to receive, inspect, copy, obtain copies, examine, and/or use of any and all medical records and other Health Information described in this Authorization. These persons and entities will be referred to as the “Authorized Parties”:

National Football Scouting, Inc., the National Football League and each of its member Clubs, as now existing or at any time in the future, the National Football League Drug Advisers, National Invitational Camp, Inc., the advisors to the National Football League’s Policy and Program on Substances of Abuse, the advisors to the National Football League’s Policy on Anabolic Steroids and Related Substances, respective representatives, agents, and/or employees, owners, officers,

servants, staff members, and contractors, any NFL Club medical staff members, team physicians, athletic training staff members, as well as any outside or third-party physicians, physician groups, hospitals, clinics, laboratories, consulting physicians, specialists, and/or healthcare professionals engaged by National Football Scouting, Inc., National Invitational Camp, Inc., the NFL or NFL Clubs, and any present and future electronic medical record vendors used by the NFL or NFL Clubs, including, but not limited to, eClinicalWorks, Inc., Intelemage, LLC, Infinitt, Inc., and/or Surescripts.

3. Description of the Information to be Released and Disclosed. I hereby authorize, empower, direct, and give permission for the following Health Information to be released and disclosed to the Authorized Parties:

My entire health or medical record and Health Information about me relating to any injury, sickness, disease, mental health condition, physical condition, medical history, medical or clinical status, diagnosis, treatment or prognosis from any source, including without limitation all written and/or electronic information or data, clinical notes, progress notes, discharge summaries, lab results, pathology reports, operative reports, consultations, physicals, physicians' records, athletic trainers' records, diagnoses, findings, treatments, history and prognoses, test results, laboratory reports, x-rays, MRI, and/or imaging results, outpatient notes, physical therapy records, occupational therapy records, prescriptions, and any and all other information pertaining to my past, present, or future medical condition, diagnosis, treatment, history, and prognosis. This Authorization applies to any and all Health Information, including medical records and other Health Information which the Persons/Entities Authorized to Release and Disclose Information may have received from another provider, unless access to such Health Information has been restricted as permitted under HIPAA or that provider has expressly prohibited re-disclosure.

This Authorization expressly includes all records and other Health Information relating to any mental health treatment, therapy, and/or counseling, but expressly excludes psychotherapy notes.

4. Purpose of the Disclosure. For purposes relating only to my actual or potential employment in the National Football League including the provision of healthcare, evaluation, consultation, treatment, therapy, and related services, which purposes are limited to reviewing, discussing, transmitting, disclosing, sharing, and/or using my Health Information: (a) between and among any of the Authorized Parties; (b) with any of my healthcare providers and/or mental health providers; (c) for employment-related injury reports; (d) for the activities of the National Football League Drug Advisors, the advisors to the National Football League’s Policy and Program on Substances of Abuse, and/or the advisors to the National Football League’s Policy on Anabolic Steroids and Related Substances, specifically limited to due diligence and audit activities, investigations of possible violations of the Policies or eligibility for a “therapeutic-use” exception under either Policy; (e) for ophthalmic examinations, consultations or treatment; and/or (f) with respect to disclosure to the National Football League, this authorization shall not be used by the NFL or its member Clubs to obtain documents, evidence, or material for purposes of litigation, grievances, or any dispute with the National Football League or its member clubs, except as contemplated by the August 4, 2011 Collective Bargaining Agreement (CBA), and as is necessary for the NFL and its member Clubs to fulfill their obligations under the CBA.

5. Expiration Date. This Authorization will expire two (2) years from the date of signature below.

6. Photocopy. A photostatic copy of this Authorization shall be considered as effective and valid as the original.

7. Signature. By my signature below, I acknowledge that I have read this Authorization, understand my rights as described herein, understand that I am allowing medical and mental healthcare providers to disclose my Health Information, and have had any questions answered to my satisfaction. I expressly and voluntarily authorize the release, disclosure, and use of my Health Information as described in this Authorization. I also acknowledge and understand that: this Authorization has been collectively bargained for by the National Football League and the National Football League Players Associations.

Signature

Date

If a personal representative signs this Authorization on behalf of the Player, complete the following:

Personal Representative's Name: _____

Relationship to Individual: _____

NOTICE: You are entitled to a copy of this Authorization after you sign it. You have the right to revoke this Authorization any time by presenting a written request to the Club's Head Athletic Trainer or his designee, except to the extent that any Authorized Party has relied upon it. Revocation will not apply: 1) to information that has already been released in connection with this Authorization, 2) during a contestability period under applicable law, or 3) if the Authorization was obtained as a condition of obtaining insurance coverage. We may not condition treatment, payment, enrollment or eligibility for benefits on your execution of this authorization, except for the purpose of creating protected health information for disclosure to a third party on provision of Authorization. Information disclosed pursuant to this Authorization may be re-disclosed by the recipient(s) and no longer protected by federal privacy laws or regulations. Information disclosed pursuant to this Authorization may include records created by a healthcare provider or mental healthcare provider other than the disclosing party, unless access to such PHI has been restricted as permitted under HIPAA or such provider has expressly prohibited such re-disclosure.