Kantian Ethics, CTE, and the Implications of American Football

Emily Bach

Georgetown University

Introduction

In this paper, I aim to examine the ethical implications of pursuing American tackle football. I will approach the discussion from a Kantian lens and accept the humanity formulation of the categorical imperative. I will elaborate on the implications of this version of the categorical imperative and how it gives rise to the imperfect duty of self-improvement. After setting up this ethical framework, I endeavor to answer the question of whether pursuing American tackle football at the college level can be an appropriate way to fulfill this duty. I ultimately argue that, although it can be a way to cultivate one's talents, pursuing college football is a morally impermissible activity. The risk of acquiring chronic traumatic encephalopathy (CTE) from football is too high for the end of playing college football to be one that aligns with Kant's vision of the imperfect duty to self.

The first section of this paper provides a summary of Immanuel Kant's humanity formulation of the categorical imperative and the imperfect duty to self that follows from this principle. The second section details an example of a high school football athlete who is deciding whether to pursue college football and discusses whether this pursuit will fulfill his Kantian duty of self-perfection. In the third section, I explain how playing college football elevates the risk of contracting CTE and why this added risk makes it morally impermissible to play college football. In the fourth and fifth sections, I entertain two potential objections, namely "The Tom Brady Objection" and "The Scholarship Objection," and respond to them. Finally,

I conclude with a restatement of my argument and a discussion of its real-world implications.

I) Kant's Humanity Formulation and the Imperfect Duty of Self-Improvement

Kant's ethical system is largely grounded in his categorical imperative, a principle that guides the rational person's actions so that they align with what is objectively morally right. Kant asserts that any person should be able to arrive at this principle through making proper use of their rationality. He provides different formulations of the categorical imperative and believes these formulations to be equivalent. I will focus on the humanity formulation in particular, which requires us to "[a]ct in such a way that you treat humanity, whether in your own person or in any other person, [1] always at the same time as an end, [2] never merely as a means." 1 The key assumption behind this doctrine is that, because of their rational capacities, all humans have value. This value, which I will also call dignity, is both incommensurable and absolute. Since it is incommensurable, human value cannot be traded, measured, or compared in the way that we compare the value of objects. Since it is absolute, or unconditional, it does not depend on the possession of certain traits or goods, or on the interests of some other agent. To treat ourselves and others with respect to our dignity requires that we abide by both parts of the humanity formulation.

I will first discuss the second part, which tells us to never treat a person as a *mere* means. To treat a person as a means would be to use them to achieve one's own goal. To treat them as a mere means is to use them in such a way that their dignity is compromised. Thus, this part of the categorical imperative requires us to avoid acting in ways that disrespect or endanger a rational agent's ability to reason (i.e., an agent's capacity to set appropriate values or principles and consider how those values interact with contextual information to form beliefs and make decisions). For instance, say you are a high schooler who has eaten the last nine of your mother's homemade chocolate chip cookies in one sitting and is now embarrassed. Later on, to your horror, your mother asks you whether you know what happened to the cookies. If you lie to her and say you have no idea where

they went, you are treating your mother as a mere means. (You are also treating yourself as a mere means, but I need not elaborate on that aspect of the wrongful action for the sake of this example.) By presenting your mother with incorrect information as truth, you are preventing her from properly reasoning and thus using her as simply an object to help you pursue your goals of not getting in trouble and not being regarded as gluttonous. Abiding by this part of the categorical imperative here and in all other examples involves *not* doing something in order to act appropriately in a moral sense. Not treating humans as mere means suggests certain actions (including lying) are forbidden and should be avoided. We have negative duties, or perfect duties, to *not* perform such actions.

In contrast, the first part of the categorical imperative mandates that we treat humanity always as an end. In Kant's philosophy, an agent's 'end' refers to what the agent hopes to achieve and is roughly synonymous with the agent's intended goal. Treating humanity as an end in itself requires that we treat ourselves and other people as setters of ends, as agents who use reason to set goals and decide how to act. To effectively do so, we must act in ways that promote human dignity. In other words, we must take on goals that follow from the rational choices of ourselves and others or help further rational decision-making more generally. Since this part of the categorical imperative concerns performing morally appropriate actions as opposed to not performing morally inappropriate actions, it is linked to our positive duties, or imperfect duties. Although these duties are obligatory, they are imperfect in the sense that we have options for how to fulfill them. Countless ends could promote the dignity of ourselves and others, so we have some leeway in the ends we select.

Still, Kant argues that there are two general ends which we all must adopt—one is our imperfect duty to self, and one is our imperfect duty to others. Our imperfect duty to self requires us to cultivate our own perfection, whereas our imperfect duty to others requires us to adopt others' ends as our own. Regardless of whether I am working toward another person's goal or my own, I would theoretically perform some set of actions to bring about

that goal.¹ Much of this paper focuses on the imperfect duty to self in particular–the duty to set my own goals and perform actions that help bring about those goals. I will refer to it as the duty of self-improvement, self-development, or self-perfection.

Self-development, when done properly, benefits both the self-developing agent and the other members of the agent's community. The intuitive desire that many people have to find and pursue their "purpose" closely resembles what is meant by self-perfection. To fulfill the duty in Kant's ideal way, one must rationally reflect on what goals to set for one's life and act in ways that help to fulfill those goals.

For instance, if becoming a calculus teacher seems like the most rational life goal of my options, I should apply to graduate programs in education to cultivate my teaching skills, review the relevant mathematical concepts to cultivate my calculus skills, and similarly cultivate all other relevant talents. However, the duty is not as simple as setting goals and cultivating skills to achieve them. The rational reflection process should lead one to target goals that are realistic and worthwhile. Thus, when deciding which ends to adopt to fulfill the duty of self-perfection, the individual should rule out pursuits which (1) do not follow from one's natural abilities, (2) are foolish, (3) are impossible, (4) are undesirable, or (5) may violate some perfect duty.

The first condition, that goals should align with one's natural abilities, does not necessitate that one be a prodigy from the outset. Rather, one must be capable of becoming adequate enough for the endeavor to be a worthwhile

¹ It is a common misconception that Kant cares only about the state of our will, about the intentions of our actions and not the consequences. However, to properly conceptualize our imperfect duties, we must care about the consequences of our actions. When fulfilling an imperfect duty, I am pursuing some end and trying to bring about a particular outcome. To properly pursue this end, I must consider whether my actions would actually help bring about that outcome. If they are not succedding in promoting the end or are inhibiting the end in some way, then I must seek out alternative actions. Moreover, if I have yet to perform some action to promote an end but anticipate that action failing to promote the end or inhibiting the end in some way, then that action would not help me fulfill my imperfect duty. I would not perform that action in the first place because of its unhelpful consequences, so consequences are relevant to the Kantian.

goal, one that is not foolish. Moreover, just because one possesses some talent that may be beneficial does not mean one *must* cultivate that talent. Every person has a variety of capacities they *could* develop, but since selfperfection is an imperfect duty, we have choice in the way we fulfill the duty. When selecting a goal to pursue, one must keep in mind the second condition, that the goal should not be foolish. To meet this condition, firstly, one's end of choice must be worthwhile in the sense that, when pursued properly, it would somehow benefit both the individual and the community. Secondly, to not be foolish the goal must promote rationality in some way. It must position us in a way that allows us to "identify problems, figure out effective solutions to them, and be creative about new ways to move forward."2 The particular problems, solutions, and creative approaches depend on the agent and their choices. Nevertheless, for any agent to fulfill their duty of self-perfection, they must limit their end of choice and the actions required to pursue that end to non-foolish ones.

To meet the third condition, that the goal not be impossible, one must choose goals that make sense given not only one's natural abilities, but also one's circumstances. If a particular context would make all attempts to reach one's aim unsuccessful, one should reason that selecting some other aim(s) is necessary. When the chances of achieving an aim are slim, the agent must use their rational capacity to determine whether the aim is feasible enough in light of their abilities and the external factors involved.

The fourth requirement is that the goal not be undesirable, specifically for the agent. The individual must decide the type of life they deem desirable, and whether one has the ability to cultivate the skills to live that life. However, I am not implying that every step toward achieving the goal must be enjoyable in some sense. Say Lucy is taking premed classes because she considers doctorhood a desirable life. Lucy can detest her required organic chemistry class and find studying for her organic chemistry final an unenjoyable endeavor. Nevertheless, if she finds the ultimate aim a desirable one, she is not violating the fourth requirement by setting an end to work as a doctor.

The fifth requirement, that whatever end one adopts to work toward self-improvement would not require violating any negative duties, is an important one. This requirement is related to what distinguishes perfect and imperfect duties. Positive duties are imperfect in that we have choice in what acts they entail, and negative duties are perfect in that they forbid specific acts. Although we are morally obligated to fulfill both sets of duties, perfect duties must always take precedence over imperfect duties. If I decide end X promotes humanity as an end in itself, but to achieve end X I must treat some human as a mere means, then I cannot perform whatever course of action would lead to end X. I am free to choose some other end to pursue instead to promote human dignity, so long as that end does not compromise anyone's rational capacity. Thus, when figuring out how to self-develop, I must rule out goals that Kantians would deem immoral as well as goals that consist of seemingly moral ends but require morally inappropriate steps toward those ends.

These requirements considered, we must keep in mind that Kant is not telling us to pick one path, ignore all other potential paths, and not look back. As Kantian scholar Robert N. Johnson notes, "[t]he obligation of selfdevelopment should not be thought of as binding only the young; it is an on-going project, always revisable in light of current circumstances." Thus, at any point in time, one can rationally reflect and see whether one's goals still make sense in light of new circumstances or newly identified talents. If not, one is free to shift one's priorities and adopt new goals. In addition, we must see the value in not specializing too much but in developing skills in a more general manner. We must develop capacities in a way that allows for a modification of our pursuits when such modification is deemed rational. Thus, the cultivation of our talents should leave open a realm of possible paths for fulfilling the duty of self-improvement. Our goals must allow for well-roundedness in the sense that we continue to have different options for our potential purposes.

In addition, they must contribute to our well-roundedness in the sense that the goals in themselves involve the cultivation of multiple human capacities. Selfdevelopment consists in both moral development and natural development. Moral development involves "cultivating four moral 'endowments' of moral feeling, self-respect, conscience and love of humanity." Natural development involves cultivating the natural capacities of "mind (including capacities used in the pursuit of mathematics, logic, science, and philosophy), spirit (including memory, imagination, learning and taste), and body (including athletic abilities[...])." Most talents or abilities involve exercising capacities from multiple of these categories, and we must cultivate as many of these capacities as possible yet prioritize the cultivation of rationality-related capacities. Human dignity is promoted by thinking rationally about what ends to pursue, but it is promoted even more when those ends themselves involve thinking rationally. Furthermore, cultivating as many human capacities as possible is linked to the requirement for goals to not be foolish, for them to be worthwhile and benefit society. By selecting goals that develop a range of human capacities, one effectively does one's part for "the task of humanity as a whole"—the task of achieving "complete perfection of all individual human capacities."6

II) Case of the High School Athlete Pursuing College Football

Taking this Kantian ethical framework into account, we can consider a case where a high school athlete, Max, is deciding whether to play college football. Max is a running back known for his exceptional skills on the field. He has loved football since he started at age three. His nights are spent practicing his football skills, working to get faster and stronger, and studying game tapes to strategize with his team. Now, countless Division I college teams are trying to recruit him, and he must consider whether the end of playing college football is one he can pursue to fulfill his duty of self-development.

Upon rational reflection, Max should realize that football does follow from his natural abilities. Since he has demonstrated his talent on the playing field already, clearly he can continue to develop his skills to become a college-level player and get even better at the sport in college. He can continue to perform football drills, do more weight training and sprinting, and partake in more strategizing and game tape watching. Given this potential

and the fact that he is being recruited by multiple schools, clearly the goal of cultivating his football skills at the collegiate level is not out of reach for Max. His end is thus possible and follows from his natural capacities. His end need not be ruled out by the fourth condition, as Max thoroughly enjoys football. Moreover, his end is not a foolish one because his football pursuits benefit both himself and the community. The community is benefited in part through the entertainment value that comes from football. Max would contribute to the pleasure that comes with following college football. This pleasure is at least partially linked to the rational capacities of fans since fans can analyze statistics and games and use their reasoning skills to draw conclusions about the sport. He would be benefiting the smaller community of his college team by hopefully helping them have a successful season and improve at the sport by playing alongside Max. It would benefit Max by allowing him to cultivate his capacity of mind through strategizing, his capacity of spirit through the imaginative aspect of hoping for successful games and seasons, and his capacity of body through the cultivation of strength, speed, and hand-eye coordination. Pursuing college football would help Max possess a Kantian wellroundedness, as he would be cultivating a variety of natural capacities and also leave his options for future paths open by receiving a college education. By perfecting his football-related skills. Max would contribute to the larger task of humanity to perfect as many capacities as possible.

Since Max's case does not satisfy any of the first four conditions that would render his pursuit of college football an unfit end for the duty of self-improvement, we must consider whether it satisfies the fifth. In other words, it raises the question of whether playing college football might violate some perfect duty. In the section below, I will argue that playing college football puts one at significantly higher risk of contracting CTE. Accepting this risk would be a violation of certain perfect duties and treat humanity as a mere means.

III) Chronic Traumatic Encephalopathy and Perfect Duties

Before I elaborate on its Kantian import, I will

provide some relevant background on CTE. CTE is a neurodegenerative disease caused by repeated concussive and subconcussive head trauma, i.e. impacts to the head. A concussive head trauma, or concussion, occurs when the brain is shaken within the skull to a point of altered "alertness of the injured person"; this altered alertness looks like slight dazedness on the mild side and unconsciousness on the severe side. A subconcussive head trauma, on the other hand, is a head trauma that does not lead to any of the concussive symptoms and does not involve a change in alertness.8 Since many athletes who never experienced concussions have contracted CTE, subconcussive hits are seen as just as serious a causal factor as concussive ones. When a person receives many blows to the head over time, regardless of whether the blows are concussive, subconcussive, or both, such blows may bring about "lasting structural changes in the brain" that result in CTE.¹⁰ Specifically, when a head trauma involving either of these hits occurs, tau proteins are "dislodged from brain fibers" and accumulate over time. 11 The tau accumulation spreads from the initial deposit to surround full regions of the brain and consequently prevents communication between neurons (brain cells). 12 As the tau accumulations grow, the symptoms of CTE get worse in severity. They emerge 8-10 years after the first repeated head blows and become gradually more intense. 13

Assuming one develops CTE, one's rational faculties are inevitably impaired by the CTE symptoms. Although CTE can be diagnosed only by autopsy, the experiences of those with confirmed cases of CTE have been analyzed postmortem to help scientists identify symptoms of the disease. These symptoms are divided into cognitive features, behavioral features, mood features, and motor features.14 The list of cognitive symptoms includes memory impairment, executive dysfunction, impaired attention, dementia, cognitive impairment, and reduced intelligence, among others. 15 However, memory impairment, executive dysfunction, and impaired attention are noted to be "core diagnostic clinical feature[s,]" meaning they were experienced by at least 70% of the confirmed cases of CTE.¹⁶ If a person has CTE, they will almost certainly have one of these three symptoms, so I will focus on how these cognitive symptoms in

particular would impair a CTE sufferer's rationality. Firstly, memory impairment would inhibit one's ability to use their memory of past experiences and of facts about the world to make rational decisions. Secondly, impaired attention would make one unable to recall information that they failed to attend to and thus inhibit them from using this information to make rational decisions. Thirdly, executive dysfunction implies a dysfunction in normal executive functions, which the American Psychological Association defines as "higher level cognitive processes of planning, decision making, problem solving, [and similar processes.]"17 These higher-level cognitive processes are encompassed in the broader category of reasoning skills, so an agent who starts experiencing executive dysfunction is essentially being stripped of their ability to properly reason. Thus, all three of the core cognitive features of CTE directly interfere with the individual's ability to maintain full use of their rational capacity. Since one with CTE would in all likelihood experience one or more of these symptoms, their rational capacity would almost necessarily be compromised by the disease.

Importantly, playing college football would increase one's risk of developing CTE. CTE was originally identified mainly in professional boxers, but in 2005 the first case in an NFL player was identified.¹⁸ Since then, many more players have been diagnosed postmortem. A 2017 study autopsied the brains of former football players, including former NFL players, those who played only through college, and a few who played only through high school. 177 of the 202 brains, almost 90%, were diagnosed with CTE.¹⁹ Although this does not show that playing football inevitably leads to CTE, it shows that football players are at significant risk. A 2013 study found that "[i]n American football players with neuropathologically confirmed CTE, there is a positive correlation with the severity of pathology and the total number of years played."²⁰ Thus, playing in high school and in college places one more at risk for CTE than playing only in high school. Football is a high contact sport that increases the likelihood of concussive and subconcussive hits, as "human-to-human collisions are fundamental to play."21 Since these hits are the underlying cause of CTE, the nature of football itself lends itself to the development of CTE. Given that playing college football makes one more susceptible to CTE and its cognitive symptoms, playing college football substantially raises the risk of damaging one's rational capacity.

By putting yourself at a high risk of developing a neurodegenerative disease like CTE, you are treating yourself as a mere means. For, treating oneself as a mere means is essentially committing some act that threatens or destroys one's human dignity-we have a perfect duty to avoid committing such acts. Since human dignity is linked to our rational capacities, we have a perfect duty to avoid impairing our own rationality. Furthermore, avoiding acts that impair our rationality includes not performing acts that put one at a significantly higher risk of impairing our rationality, especially when such risk is preventable. Playing college football puts one at a strikingly high risk of contracting CTE, which impairs one's reasoning skills, so this pursuit violates our perfect duty to avoid impairing our own rationality. You are not respecting your own dignity if you compromise your rational capacity to pursue this end, as accepting the risks of CTE amounts to treating yourself as an object meant only for achieving your end of playing college football. Even though CTE is not an inevitability when one pursues college football, any additional years of play put one at substantially higher risk of developing the disease. This risk is preventable (one need only not play football or other activities that are conducive to head hits) and should be avoided to fulfill a crucial negative duty. Thus, returning to the case in question, Max should realize that accepting his offers to play college football would not be an adequate way to fulfill the Kantian duty of self-development.

IV) The Tom Brady Objection

The conclusion that it is unethical for anyone to play college football is a radical one, and football fans might be inclined to reject the notion that this end is not an adequate one for the duty of self-perfection. These fans might argue that there is value in a highly talented player pursuing the game. After all, the ends involved in self-development are supposed to be beneficial for the larger community, not just the agent themself. A naturally gifted player would add entertainment value to the sport and enhance its import to fans. The entertainment value in

watching football comes from not merely sensual pleasures through visual stimulation but also cognitive pleasures through analyzing game play and statistics. Thus, players should cultivate their talents to help the world make use of their rationality. Don't prodigies like Tom Brady owe it to the world to develop their football skills?

My response to this objection is that perfect duties always take precedence over imperfect duties. Even if an end achieves some of the aims of self-perfection, it should not be pursued if it violates a perfect duty. Since playing college football violates a perfect duty to avoid impairing the player's rationality, this end should not be sought out to fulfill any imperfect duty. Thus, playing college football is not an adequate end for the duty of self-perfection or for the duty of taking on others' ends as one's own (in this case, others' ends would involve finding fulfillment through watching talented college football players).

With a player as talented as Tom Brady, it may seem foolish to say that he should pursue some path that might not benefit the world as much. However, it is important to acknowledge that every person has a variety of talents that they *could* cultivate. It is our responsibility to think rationally about what talents to cultivate, but we have options when it comes to which talents to cultivate. For instance, Tom Brady played both baseball and football in high school. He is known to have passed up an opportunity to play professional baseball so that he could instead play football at the University of Michigan. Who is to say that Brady could not have reached a skill level in baseball comparable to his prodigious football skills? Had he cultivated his baseball talents instead, he might have still provided substantial entertainment value for sports fans. Since baseball poses less of a risk of concussive and subconcussive hits compared to football, perhaps the rational choice for Tom Brady would have been to play baseball rather than play quarterback at Michigan.

V) The Scholarship Objection

Another objection to my conclusion that no one should pursue college football regards the many Americans who are not in financial positions that allow them to receive a college education without a football scholarship. Receiving a college education is arguably the best way to promote human dignity. It teaches one to think rationally about the world, learn information that might aid with decision-making, and come up with creative solutions to problems. Furthermore, an education opens up one's career options. Receiving an education thus helps one become well-rounded. It leaves open a variety of life paths to potentially pursue, and it improves one's ability to rationally reflect on which of these paths would promote the most human capacities. Why should one skip out on a college education to avoid playing football when receiving an education is so important for promoting human dignity?

In response to this objection, I counter that the rational value in an education would be severely undermined by any CTE-induced neurodegeneration. Suppose Max can receive his college education only by way of a football scholarship. He knows about the risks of head trauma and makes it a goal to play football through college and then quit the game to take on whatever life path seems the most rational choice. However, those four years of play still put him at significant risk of developing CTE and losing much of his cognitive abilities. Whatever path Max chooses after graduation, he would not be able to exercise his full human dignity along this post-graduation path. The neurodegeneration that would likely occur 8-10 years after his first spree of hits to the head would compromise his ability to reason, so whatever skills he cultivated to pursue a self-improvement-related end would not represent the fullest possible cultivation of such skills. If his symptoms are severe, he might not perform adequately in any (rationality-related) career. Thus, the important skills developed through education might not be developed to the same extent in a college football player, and the education would not be as valuable.

If Max chooses to play college football in this situation, he is still using himself as a mere means. The only difference is that he would be using himself as a mere means for the end of receiving an education rather than for the end of cultivating his tackle football skills. Thus, the Kantian should rule out accepting the football scholarship as an adequate way of fulfilling the duty of self-perfection. If the only way to become educated is to violate a perfect

duty, one should pursue a purpose that does not require an education. Proper rational reflection on how to go about self-developing would take into consideration the circumstances of one's life. If those circumstances make receiving an education either immoral or impossible, then one should set rational goals that are achievable without an education.

Conclusion

Overall, playing American tackle football in college is not the ideal way to work toward Kantian self-improvement. When a player is talented and enjoys the sport, a goal of playing college football would in fact be possible, worthwhile (not foolish), and cultivate a multitude of human capacities. However, college football places players at higher risk of developing CTE and violates a negative duty to avoid impairing one's rationality due to the risk of neurodegeneration. Playing the sport therefore amounts to players treating themselves as mere means, so it is a morally impermissible end that should not be taken on for self-perfection. More generally, with a Kantian ethical framework, it can never be rational to pursue a goal that might compromise one's rationality.

Many are now realizing the dangers in playing football and that it is not worth the risk of brain damage. In 2011, the American Academy of Pediatrics and the Canadian Pediatric Society published a paper advising that children should not play "high-impact contact sports... and willfully damage their developing brains."22 Since the 2008-2009 season, the number of high school football players has steadily declined every season besides 2013-2014.²³ This change may reflect how parents intuitively realize the moral danger in compromising their children's cognitive functioning. Even some of the most talented professional football players have said that they would not let their children play contact football. For instance, retired quarterback Brett Favre in 2018 said he "would much rather be a caddie for [his grandsons] in golf than watch them play football... People say, 'I can't believe he would say that.' But you know, head injuries are going to continue. The quality of player is only going to go up, and that means concussions are not going to go down. So it's a scary issue."²⁴ In response to growing concerns, the

NFL has made over 50 rule changes since 2002 to prevent injuries. Even so, it has not succeeded at preventing concussions. Since the nature of tackle football is so conducive to human collisions, head trauma might be adequately prevented only by playing flag football (or some other non-contact form of football) at the youth, high school, collegiate, and professional levels.

Notes

- 1. Immanuel Kant, "Chapter Two," in *Groundwork for the Metaphysics of Morals*, ed. Thomas E. Hill, Jr. and Arnulf Zweig (n.p.: Oxford University Press, n.d.), 230.
- 2. Karen Stohr, "Chapter 20 Personal Development: Making Something of Ourselves," in *Choosing Freedom: A Kantian Guide to Life*, Guides to the Good Life Series (n.p.: Oxford University Press, 2022).
- 3. Robert N. Johnson, *Self-improvement: An Essay in Kantian Ethics* (Oxford: Oxford University Press, 2011), 28.
- 4. Johnson, Self-improvement: An Essay, 29.
- 5. Ibid.
- 6. Ibid.
- 7. Philip H. Montenigro, Charles Bernick, and Robert C. Cantu, "Clinical Features of Repetitive Traumatic Brain Injury and Chronic Traumatic Encephalopathy," *Brain Pathology* 25, no. 3 (April 23, 2015): 304-5, accessed December 5, 2021, https://doi.org/10.1111/bpa.12250.
- 8. Montenigro, Bernick, and Cantu, "Clinical Features," 306.
- 9. Montenigro, Bernick, and Cantu, "Clinical Features," 311.
- 10. Brian Resnick, "What a lifetime of playing football can do to the human brain," Vox, February 1, 2020, accessed December 5, 2021, https://www.vox.com/science-and-health/2018/2/2/16956440/super-bowl-2020-concussion-symptoms-cte-football-nfl-brain-damage-youth
- 11. Resnick, "What a lifetime."
- 12. Ibid.
- 13. Ibid.
- 14. Montenigro, Bernick, and Cantu, "Clinical Features," 309.
- 15. Ibid.
- 16. Ibid.

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- 19. Ibid.
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- 24. Tom Schad, "Brett Favre would rather see grandsons play golf over football, talks concussions," *USA Today*, January 11, 2018, NFL, accessed December 5, 2021, https://www.usatoday.com/story/sports/nfl/2018/01/11/brett-favre-prefers-grandsons-golf-over-football-concussions-documentary/1023588001/.
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26. Resnick, "What a lifetime."

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