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Treating the Football Athlete: Coaches' perspective from the University of Michigan

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Synopsis

Although football is one of the most popular sports in America, its high injury incidence places concern on the injury prevention and safety of its players. This article investigates the perspectives of two National Collegiate Athletic Association (NCAA) Division 1 football coaches on promoting injury management and player safety while maintaining a highly competitive team. Through obtaining their coaching philosophy on a wide range of team management topics, effective strategies that contribute to a team culture prioritizing player well-being were identified. Furthermore, the interactions of football coaches with physicians and medical specialists are explored to highlight collaborative strengths that can be used to optimize the care and treatment of football athletes.

Keywords

football injuries; concussion; sports medicine; coach philosophy; athletes

Introduction

It is undisputed that football is one of the most popular sports in the United States, with approximately 3 million youth, 1 million high school, and 100,000 college participants annually¹. The sport is known for its competitive emphasis on physicality and toughness,

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which contributes to the creation of the nation's most dynamic and specialized athletes. However, sports medicine research has demonstrated that football has one of the highest risks of overall injury of all American sports, and that this risk increases with the level of competition¹⁻⁴. Epidemiological studies evaluating injury rates at both collegiate and professional levels have shown that the majority of injuries are sustained as a result of high-energy player-to-player contact. The demonstrated high incidences of musculoskeletal and concussive injuries sustained by football players suggests that optimal injury management is of public health concern, especially in athletes at the highest levels of competition⁵.

From a medical standpoint, the football player is a unique patient. In addition to maintaining traditional patient-physician communication, a physician treating a highly competitive football player must balance communication within a wider network of stakeholders, which may include coaches, trainers, and other team-related staff. Research suggests that the roles of assistant and head coaches can extend beyond technical instruction, and if an athlete perceives that their coach is supportive of responsible injury recognition and rehabilitation, they may be more likely to report an injury⁶. However, a coach's perspective on establishing a team culture valuing injury prevention is largely unexplored. This article aims to obtain the perspectives of Jim Harbaugh and Jedd Fisch (Figure 1A and B), head and assistant coaches of the University of Michigan football program, on the injury management of a highly competitive Division 1 football team within the National Collegiate Athletic Association (NCAA). We intend to identify successful components of a competitive football team in relation to policy enforcement, coaching philosophy, and medical communication and investigate how these components can maximize the well-being of student-athletes (Figure 2).

Policy Evolution

Policy administration is one of the most effective methods of protecting and advocating for the health and safety of football players. The majority of recent policy modifications and additions provide guidelines for the management of concussions and injuries to the head (Figure 3), which consist of roughly 7–10% of all football injuries^{1,3,5}. Concussions pose significant challenges to medical staff, in that they do not present with consistent symptoms. Although sideline tools such as the Sport Concussion Assessment Tool (SCAT) have been developed, an objective and universal diagnostic tool does not exist⁷. Furthermore, concussion diagnosis strongly relies on the athlete's accurate reporting of symptoms, which can be hindered by factors such as inadequate understanding of concussion symptoms or concerns about losing playing time^{5,8}. For these reasons, current trends in football research focus on the study of concussions in an effort to create management policies, playing rules, and practice guidelines that advocate for optimal player safety without sacrificing the physicality of the sport.

Football management associations at all levels have addressed the growing concern of concussion management through the development of a wide range of policies. In April 2010, the NCAA created the NCAA Concussion Policy and Legislation, which mandates implementation of a concussion management plan at each participating institution. This policy requires management plans to detail provisions of concussion education for all

student athletes, promptly removing athletes experiencing head trauma from competition, and prohibiting return-to-play for at least 24 hours⁹. Additionally, the policy mandates that all players diagnosed with a concussion are medically cleared by a physician before returning to athletic activities⁹. Jedd Fisch indicated that concussion awareness is a large component of the health policy evolution he has witnessed throughout his coaching experiences, and stated, “I could think of 2008, when we had some pretty significant concussions when I was at Denver, to now currently, and the concussion protocol has changed substantially. The return-to-play has also changed substantially, in regards to involving the independent neurologist, not the team doctor. If an athlete [after prior diagnosis of concussion] comes in with a headache, the return-to-play time is extended another few days or another week. It is important to trust the information that you’re getting.” Studies evaluating the effectiveness of the 2010 policy and similar policies enacted throughout all levels of play have indicated a consistent increase of concussion incidence, which is likely a result of improved concussion reporting and policy introduction increasing concussion diagnosis^{1,10,11}. Research exploring institutional and trainer compliance with concussion education programs have demonstrated that players are being provided with concussion information; however, player internalization of the information requires further exploration^{12,13}. Fisch’s response indicates that within the rapidly evolving concussion landscape, a coach’s role requires trusting information provided by developing research and adjusting return-to-play in concordance with the advice of medical specialists.

In addition to shaping policy creation, sports medicine research and injury awareness have contributed to the modification and development of both football league- and conference-level playing rules. In the NCAA, the most recent rule modifications and additions involve prohibiting players from “targeting” or leading with the helmet when blocking or tackling and removing a player from the game for one play for medical evaluation if the player’s helmet becomes dislodged during play¹⁴. Additionally, some conferences have implemented the use of a medical spotter positioned in the instant replay booth with direct communication to the field to alert the officials in the case of an unnoticed injured player¹⁵. Modifications of existing rules include expanding the definition of a “defenseless player”, moving the kickoff line to encourage touchbacks, and increasing the penalty for targeting violations¹⁴. One study evaluated the effects of moving the kickoff line on injury rates and found that after rule establishment, the incidence of injuries occurring during kickoff plays decreased significantly¹⁶. Results of this study suggest that the increasing development of rules and amendments for player protection can have a positive impact on injury reduction. When asked about the evolving rules of the game and increasing regulation, head coach Harbaugh responded, “Good officiating is critical to help protect the player. An official’s first role is to protect the player, and their second role is to officiate the game.” Harbaugh’s responses suggest that with the expansive landscape of football rules and interpretations reflected in game officiating, it can be important for coaches to recognize the emphasis on player safety that underlies rule creation.

Athletic medicine research related to concussion risk factors and epidemiology continues to fuel policy-making at all levels of football. In 2014, the NCAA released the “Inter-Association Guidelines” in which best practices for concussion diagnosis and management are detailed and expanded upon through the incorporation of recent study results⁹. Although

the high intensity and physicality of football heightens an athlete's risk for a concussion, studies have found that more than half of concussions occur in practices, particularly those in which athletes are fully padded^{3,17–19}. Although the NCAA does not regulate weekly frequencies of live contact practices, the association released “Practice Contact Guidelines” in 2014 that recommend limiting live contact practices to two per week²⁰. When asked how these guidelines affect preparation for the physicality and live contact of a football game, Fisch insisted, “We do not need to hit as often to still have successful games and be a physical football team. I think that as long as everybody knows that a practice is live, and everybody is on the same page if a practice is not live, our risk of injury diminishes. When people are playing at different tempos or, for instance, playing at 100% speed and it's an 80% speed practice, that's when an injury can occur.” Fisch's ideology not only stresses the importance of widespread communication in limited contact practices, but also demonstrates that quality practices can still be conducted in scenarios adjusted for injury prevention.

Coaches' Philosophy

At the most competitive level of play in a sport centered on tenacity and grit, it is often difficult for football players to remove themselves from competition when injured. An athlete's hesitation to report an injury has been linked to a variety of factors, such as fear of losing playing time, competitive pressure to win the game, reluctance to appear weak in front of coaches and teammates, or improper understanding of injuries²¹. Sociological relationships that the player engages in are key factors in shaping perception of injury, and one of the most important is the athlete's relationship with their coaches²². Sports medicine research has indicated that an athlete's likelihood of reporting an injury, particularly serious injuries such as concussions, depends significantly on the coaching outlook and the value that the coaches place on injury prevention and rehabilitation^{6,22}. Thereby, a coach's principles can play a large role in their athlete's well-being, and the creation of a team that values injury prevention; management may start at the level of the coach.

In managing his team, Harbaugh described his injury-reporting philosophy by saying “we encourage our players to report any possible injury immediately so we can stop it from developing further. The athletes know that they have a duty to the team to report any injury because it affects the team.” From being a former University of Michigan and NFL quarterback, Harbaugh understands the competitive drive that heavily influences a player's injury decisions, and explained that in his own injury occurrences, he “always wanted to know from doctors and trainers that, if I continued to play, would it just hurt, or would the injury get worse? If it just hurt, but I knew it wasn't going to get worse, then I wanted to find a way to still be able to play, which usually involved protecting the injury using taping or padding. Of course I always felt that with anything to do with the head, neck, spine, or heart; never keep playing through an injury in those particular areas. And others, for instance, particular soft tissue injuries such as pulled muscles, without a doubt if you keep playing you will injure it worse.” These firsthand experiences are translated into Harbaugh's coaching philosophies emphasizing persistent athlete-trainer communication. Fisch added that a large part of integrating these ideals involves “discussion of the difference between being hurt and being injured. Our whole philosophy has always been that if you are injured, your job is to communicate that to the trainer to assess what type of injury it is and what

type of medical treatment is needed.” The role of athletic trainers can be impactful for injury management, as one study investigating the health education of athletes indicated that education about concussions and other injuries are most frequently provided by athletic trainers²³. Fisch suggests that a main component of establishing a team culture of injury prevention starts with the coach’s support of the trainer and the trust that the coach-trainer relationship entails. He added, “Our players feel that there’s a confidentiality that occurs with the athletic trainers, and I hope that they can go to the trainers about everything so that they don’t hide injuries. They do not have to go to the coach first; they can communicate player-to-trainer and trainer-to-player, which lets the trainer decide how substantial an injury is and whether the coaches need to be informed.” This coaching outlook, in which coaches encourage frequent communication with athletic trainers and establish a route of direct trainer-coach communication for injuries, allows the football coach to place value on safe injury reporting practices and shape healthy team attitudes.

Coaches maintain an additional level of control in promoting health of their athletes through managing the participation of injured players during both practices and games. The large amount of high-energy collisions in football practices and games places a mild or moderately injured athlete at risk of sustaining a more serious injury. With evidence suggesting a high prevalence of football injuries in practices, the process of the coaching staff in deciding whether previously injured athletes should contribute to practices falls under question^{3,17,24}. When asked about the practice philosophy of head coach Harbaugh, Fisch stated, “One thing that I’ve noticed about Jim is that if an athlete feels as if they have an injury, they are out of [full contact] practice. He does not push the injured to become more injured, and instead encourages the injured to go get treatment. He would rather have a practice of 57 completely healthy athletes than a practice of 85 athletes in which 28 are hurt or injured.” Harbaugh’s insistence on practice participation of only healthy athletes protects those who are mildly injured from exacerbating their current injury. Further addressing the dangers of injured player participation, Fisch emphasized that “without a doubt, a player that cannot protect themselves is far more vulnerable than a player that at least has the ability to get out of harm’s way”. Harbaugh expanded on the roles of injured athletes during practices and explained, “We want to win every day, injured or not injured. Players who are rehabbing an injury or managing a limitation in practice want to win at what they’re doing. Our players place a competitive mindset on coming back from an injury faster and better than anyone else, and an injury is looked at as an opportunity to come back better at techniques or fundamentals and stronger than one was before. The athlete is definitely not shut down when injured.” The tenets of Harbaugh’s philosophy aim to use his athletes’ competitive drive as a positive gateway to injury rehabilitation rather than a barrier to injury reporting, which is exemplified by his daily practice values. Despite the pressures imposed on athletes by the competitive nature of football, these principles demonstrate that coaches can have a large role in steering the attitudes and responses of injured athletes in a direction that promotes healthy practices.

Although data suggest a higher incidence of practice-related injury in football, the intensity of football has been shown to produce a six-fold increase in the risk of player injury^{3,24}. This elevated risk highlights the health benefits of coaches prioritizing game participation only to athletes who are healthy and able to remain healthy during live contact. In the

University of Michigan football program, the protocol for assessing game readiness relies largely on the coaching staff's attentiveness to athletes' abilities and is achieved through Harbaugh's meritocracy principles, in which only athletes who perform the best in practices leading up to games are permitted to participate. Fisch stated, "The meritocracy philosophy comes into play in that we monitor everything. We monitor how many reps an athlete takes in practice and how many reps are taken in the weight room, and keep a running tally. Our athletes get rewarded for being able to participate and we do not put athletes on the field that give us the best chances to win, but did not participate all week. Athletes have to show that they're healthy, and that's another reason why our injury rates are so low." The outlook of Harbaugh and Fisch exemplify the benefits of strict health evaluation of football players, which in turn can reduce injury rate and protect injured players that may be at higher risk of sustaining further injury.

A football coach's leadership is far-reaching and can affect not only the instruction of a team, but also the ideology of the players and their attitudes towards seeking medical care. The ideals of the UM football coaching staff, implemented in both practices and games, prioritize the health of the athlete through promoting injury reporting, restricting injured athlete participation, and conducting quantitative assessments of weekly capabilities. These actions contribute to the development of a team culture that values injury management and athlete-trainer communication in an effort to maximize player safety without sacrificing highly competitive gameplay.

Medical Communication

As the public awareness of football injuries such as concussions or ACL tears is increasing, the involvement of both team physicians and specialists in athletic medical care mirror the same trend. In addition to incorporating team physician and specialist opinions into policy creation and return-to-play clearance⁹, football teams are expanding the role of medical professionals in the everyday treatment of athletic injuries. When asked about the greatest change witnessed in his own experiences of football, Fisch expressed, "Without a doubt, in the twenty years that I have been involved in collegiate and pro athletics, there has been a huge adjustment in terms of how much attention is being given to injuries. The communication between the training staff, medical staff, and coaches has been quadrupled, if not more." Fisch anecdotally described an example in which a quarterback suffered a significant laceration to the hand while scrambling in a game. When the injury occurred, the team orthopedic surgeon and trainer performed initial wound management, and within two hours a hand surgeon was called in to examine the injury. The athlete's surgery took place one day later and in the 3–4 postoperative weeks, the hand surgeon made weekly visits to monitor the injury, and even traveled with the team until the stitches were removed. Increasing the physician's role in athletic treatment undoubtedly improves the quality of care administered to football players, although it may also add an additional level of communication in the multifactorial approach to athletic healthcare. For this reason, it is important to explore how physicians fit into the decision-making process, communication structure, and resource availability of football programs at the top levels of play.

At collegiate and professional levels, a football players health and injury status can often be a defining component of administration decisions concerning recruiting, eligibility, and career continuation. For these reasons, Fisch described the role of medical professionals in decision-making as integral, and stated that in recruiting players with injuries “we consult with an orthopedic surgeon and ask them questions regarding risk of injury, risk of repeating the same injury, risk of repeating an ACL injury if the player has already had two ACL injuries; It is a process similar to risk management.” Harbaugh insists the same technique occurs for career-and season-ending injuries, and said that “those [decisions] are made with the doctors, families, and the player themselves. There’s not much that I can bring to the table in terms of advice that can supersede a doctor. The decisions we make need to be beneficial for the individual, their career, or for the morale of the team. The health and welfare of our student athletes is above the strong desire to win games.” In both seeking out the opinion of medical experts and quantitative research, decision-making metrics can be provided to coaches, training staff, and athletes in order to make informed decisions that prioritize the athlete’s well-being. Harbaugh’s response suggests that although coaches do not have the expertise to make tough medical decisions, they can play a role in focusing decision-making on player wellness instead of the competitive pressures of football.

Although a physician’s involvement in athletics advances the level of care provided to football players, team physicians can frequently encounter challenges when navigating football injuries. Fisch described the ideal team physician as “someone who recognizes the importance of concierge medicine and understands that being a team physician is not a 9–5 job. Being a physician includes dealing with the paranoia of coaches, players, and parents, all constantly wanting to know when the athlete will be ready to play again. It is also important for team physicians to understand that player’s livelihoods are based heavily on the decisions that are being made.” The expectations of the many people involved in a player’s medical treatment can impose immense pressures on team physicians, and in some cases have been shown to result in making unhealthy decisions for athletes²⁵. In order to balance the high expectations and ensure the health of the athlete is always the first priority, Fisch stated that when choosing a team physician, “the number one most important quality is the delivery of a consistent message to player and to coach. Flaws and problems are sometimes a result of the player hearing one thing and the coach hearing another from the team physician, causing a player-coach disconnect. The best team physicians are the ones that can be objective and say ‘Here is what I see, here is what I believe, let’s make sure we’re all on the same page.’” Harbaugh expressed similar views and stressed the importance of “open and direct communication. We operate a very open and direct culture here, good or bad news, I want to hear it.” Harbaugh added, “As a coach, I didn’t go to medical school, I don’t have the expertise. So we try to surround our players with doctors that we trust, that are respected on boards and leaders in their field. We need to trust that our team is getting the best medical care possible.” A physician’s skill and expertise in their field are undoubtedly predictors of success in football team physicians; however, Fisch and Harbaugh’s responses indicate that open and objective communicative strengths may be of similar importance.

Despite similarities in health policies and injury regulation between the NCAA and NFL, the resources available to athletes at the different levels of play are drastically different. Fisch

suggests that the two largest observed differences in injury management and prevention in the professional league are characterized by the involvement of agents in medical care and treatment guidance obtained from experienced teammates. He explained that on a professional football team, an athlete sustaining an injury has “at least one of two teammates that have sustained the same injury as well, so the injured player can talk to them and they might make recommendations of which physicians provided the best care. Each athlete also has an agent that is extremely involved in the medical decision-making for their client.” At the professional level, it is easier for athletes to maximize the quality of the healthcare they receive, because of the extensive network of medical resources that exists within the players on a team.

In contrast, NCAA athletes rely on the trainers and medical staff provided for them at the university they attend. Instead of agents, collegiate athletes have parents who trust in the decisions of the collegiate level medical care. In order for collegiate student-athletes to maximize healthcare resources, Fisch insisted that they should “communicate and ask questions. Athletes should use all of the resources of the university they attend and need to understand that if they are at a program with a top medical school, then the program is likely to do a lot of research and they can ask the tough questions. The athlete should always be able to ask if there is a more experienced physician at their university that would be better in performing an operation or visiting for a second opinion.” These opinions suggest that the medical environment of the university a football athlete attends can significantly affect the quality of care that the player receives. In commenting on the environment offered at his institution, Harbaugh emphasized, “We are very fortunate at the University of Michigan that we feel like we have the best in the country, it’s hard to find better than what we have here.”

Summary

The highly publicized and competitive nature of football places a large importance on injury management for football players, particularly at collegiate and professional levels. Injuries are inevitable in contact sports, highlighting the necessity for a dynamic, integrative response prompted by coaches, trainers and medical staff. Improvements in this response are reflected through evolving policies that are strongly rooted in sports medicine research and epidemiological studies, with the most successful programs having flexible coaches that are able to adapt to policy evolution. Additionally, a coach’s philosophy serves as a starting point for making significant advancements in the injury management of a competitive team, illustrated in how the coaches teach their players to report injury, seek rehabilitation, and manage a player’s game readiness. Furthermore, this collaborative approach to medical treatment of football injuries flourishes at a university that can utilize top medical resources in order to support the health needs of the nation’s most competitive athletes.

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Key Points

- The management of player safety and injury prevention in collision sports is of public health concern.
- A football coach may have a large role in advocating for player safety and creating a team culture emphasizing healthy injury management.
- An athlete's well-being can be influenced by a coach's practice, game and decision-making philosophy.
- Healthy football injury management can be maximized through optimal collaboration with medical professionals and utilization of resources.

Figure 1.

Figure 1. (A) Jim Harbaugh, University of Michigan Football Head Coach with Dr. Kevin Chung. (B) Jedd Fisch, University of Michigan Football Passing Game Coordinator/Quarterbacks/Wide Receivers Coach.

Figure 1B: *Courtesy of* University of Michigan Football, Ann Arbor, MI; with permission.

Figure 2.

Conceptual framework detailing multiple facets of the policy evolution, coaching philosophy, and medical communication involving a football team and how they contribute to prioritizing athlete well-being.

Figure 3.

Timeline of recent NCAA Division 1 rule changes promoting player safety. These events serve as a representation of some of the most significant changes that have been made regarding concussion and musculoskeletal injuries since 2008.