SHARED DECISION-MAKING IN THE RETURN TO PLAY PROCESS AND RISK MANAGEMENT IN FOOTBALL MEDICINE

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INTRODUCTION

The primary role of the sports medicine physician in competitive sport is the comprehensive health management of the elite athlete to facilitate optimal performance – the diagnosis and treatment of injuries and illnesses associated with exercise to improve athlete performance. Despite a young medical specialty, Sport and Exercise Medicine is rapidly maturing. Sports medicine and science teams in professional football, with vast financial resources at their disposal, have access to a highly qualitfied workforce and cutting-edge technology and systems. This advantage might allow the medical team (often led by a sports physician or club doctor) the opportunity to quantify injury risk and enhance players' performance on the pitch.

Football players are at risk of illness and injuries during training and games. Many have the inner drive to continue playing and competing without the skills of proper risk management when ill or injured. This urge to perform might compromise their short- or long-term health, sometimes ending a playing career prematurely or even put their lives in danger. From an institutional point of view, after questionable (medical and/or managerial) decisions, the club cannot only lose a championship, but also its assets and risk significant investment losses. In the English Premier League, the financial cost of an injury can be as much as $60 million per season, 80% due to the unavailability of (expensive) injured players and 20% for the salaries of injured players[1].

When joining a new club, it is important for the club doctor to appreciate the club's medical culture, especially how coaches and/or team management deal with medical conditions. When not optimal, the club doctor should implement systems, processes and procedures to assist players, medical and technical staff to continuously monitor and manage athletes' health and performance[2]. Education on injury and illness prevention and criteria to return to train (RTT) and return to play (RTP) are key elements of the football club medical team's toolbox. Another important and growing tool in football medicine is the use of artificial intelligence (AI) with application of algorithms to better understand the complexity and multidimensionality of injuries[3].

A highly qualified and respected club medical team is an important asset to players, coaches and the club's board of directors, informing and applying best evidence when managing players' medical conditions and health. In many cases, a shared decision-making process will be important. The process of sharing decisions is facilitated by a knowledgeable and skilled

Photo 1 and 2: Different medical conditions affecting players in official game. On 1) a player suffering of cerebral concussion. On 2) a musculoskeletal injury. Both players left the game and were managed differently regarding to RTP and shared decision-making process.

club doctor, based not only on their sports background and professional experience, but mainly on current best evidence. Risk management is a key component of the RTP decision, and in a shared decision-making model the player's opinion and preferences must be considered. The coach (and often team manager) have an important 'contextual' voice, informing, for example, on the player's current ability to perform.

Shared decision-making is complicated and often challenged by the lack of high-quality scientific evidence. Football doctors should, where possible, rely on clinical guidelines and not only use clinical judgements. It is recommended to use a informed consent, basic legal requirement for all medical interventions and treatments, about the possible risks of RTP in the short and long term, using language and terms that the athlete can fully understand everything that is being asked and answered, so that he has recovered from your injury and have full legal capacity for a decision[4].

The shared decision-making process can be based on the three-talk model: (1) TEAM TALK - working together so that decision-making is a two-way; (2) OPTION TALK - discuss and analyze all possible alternatives; (3) DECISION TALK - decisions based on individual preferences. This model is guided by active listening and deliberation, that is, listening carefully to the information transmitted, thinking carefully about all viable options, and responding with precision[5].

Nonetheless, not all athlete health conditions are suitable for shared decision-making. The athlete's mental capability to understand their condition is key. Conditions like cerebral concussion, and cardiovascular disorders, challenge athlete's participation (Photo 1). Other cases like musculoskeletal injuries, and non-severe illnesses conditions are better suited for shared decision-making (Photo 2).

This paper aims to provide an understanding of the share decision-making process in football. It can help the football club doctor to prepare for challenging RTP decisions and possible controversies, while respecting the principles of medical ethics.

BUILDING A TRUSTFULL ENVIRONMENT

Sports physicians should invest time to earn the trust of players and coaching staff in an environment where each player's health condition demands an individualized approach. Strong professional relationships and patience are key. It is important to supplement clinician knowledge and skills with simple communication, using non-medical terms, to help the football player to understand their condition. Simple questions can guide the player to talk about their perspectives and concerns.

Trust increases players' compliance to prescribed treatments and their satisfaction with the proposed medical plans. It is important for the medical team to work in unity, with simple and consistent health messages to the injured player during their rehabilitation process.

COMMUNICATION TOWARD RTP

Good communication skills, especially by football club department leaders, are key to a professional work environment. Effective information exchange and communication between the sports medicine and science department, athletes and technical staff is the most important factor guiding the RTP process. We include the football manager or club director in RTP discussions.

Although they will not necessarily directly influence a medical decision, their

Photo 3: End of the season's photo representing the football club staff members. Good interaction between professionals from all departments likely improved club performances.

participation is more informative. We believe it is important to share information regarding the player and their future in the club. The football manager or club director might contribute important information relevant to the RTP process (e.g., contract termination or extension, at a specific moment of the season). In some sports, or even some countries, football clubs are a subsidiary of a company. The board of directors and investors want to be informed about a player's situation and possible risks. The football manager will usually communicate to the board and investors regarding the doctor, athlete and coach's decisions.

Football is a multicultural sport with multiple nationalities amongst players, head coaches, technical staff, sports science staff, and medical teams. This may create communication barriers—a real Tower of Babel situation! Other differences include head coaches' philosophies, styles of play, training methodology, and different medical staff training, skills and background. The team doctor is often the bridge in this multicultural world, connecting sectors and people. A skillful club doctor-communicator is a huge asset!

However, poor internal communication might compromise healthcare decisions, and potentially players' health. Teams with poor overall communication quality have higher injury rates, and a higher incidence of serious injuries. Furthermore, more players are available for training and games in teams with better internal communication[6].

Simple strategies for effective quantitative and qualitative injury data collection and sharing (e.g., epidemiological data, training load data, past injuries and medical conditions), promote interdepartmental collaboration with a positive impact on club outcomes and performance on the pitch. In our practice, we believe that weekly inter-, trans-, and multidisciplinary meetings with head of departments,with periodical updated about players conditions with an effective dialogue between staffs can minimize the risk of injuries.

Prioritising interprofessional health education involving medical and science teams, players, technical staff and management will help to prepare the team for challenging health conditions (e.g., concussion). Training of sports science and other staff members to manage health emergencies, to preparing players, technical staff, head coach and team management to manage concussion on the pitch (and other conditions where shared decision will not be possible) will facilitate better quality decision-making processes[7]. Players should also be educated regarding to doping, recovery time and health lifestyle. A better interaction between professionals in the club can lead the team to better results in the field (Photo 3).

SHARED DECISION PROCESS

The shared decision-making process involves the player, medical staff (club doctor and physiotherapist), technical staff (usually the head coach), football manager . We consider ourselves the football manager and the club's analyst as important pieces of the SDM process, delivering significant information concerning to the player (Figure 1). This process is complex and depends on the context and several factors

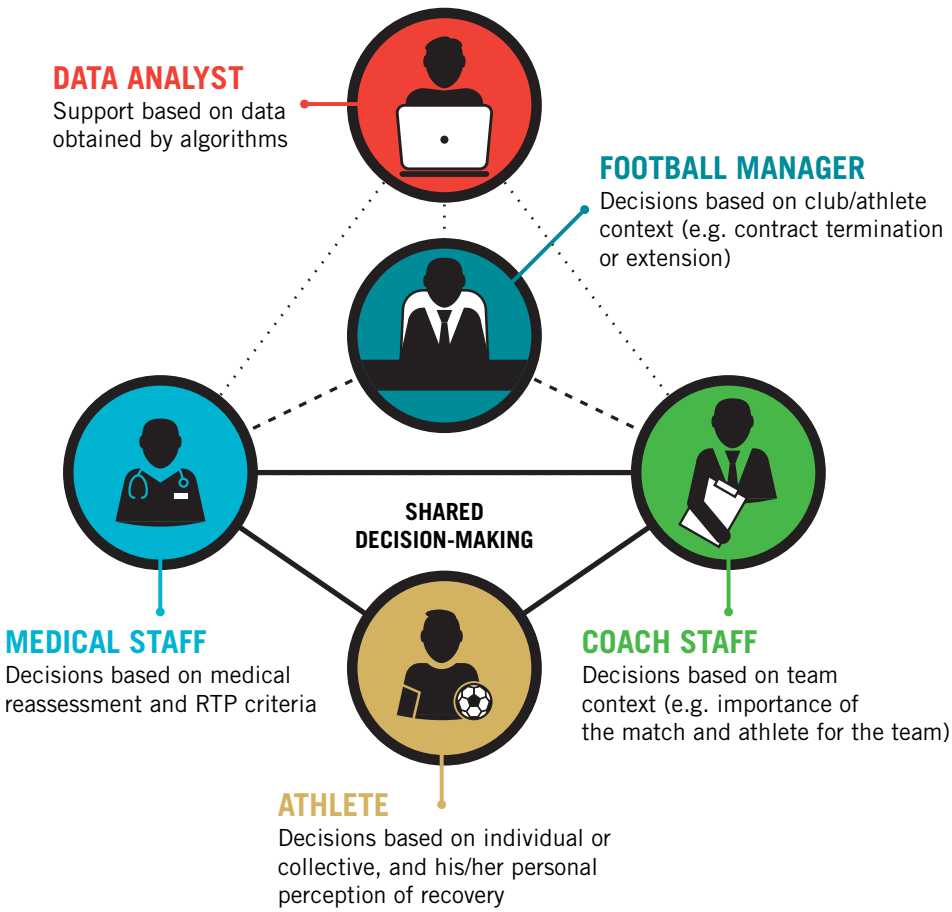

Figure 1: Shared Decision-Making individuals in professional football.

like the moment in the season, importance of the event – game and competition, and importance of the player to the team and to the club, among others.

Club doctor

The club doctor, often in close collaboration with the club physiotherapist, is usually in the best position to assess the health of the player and provide medical advice on different management approaches. The primary role of the sports medicine physician in competitive sport is the comprehensive health management of the elite athlete to facilitate optimal performance – the diagnosis and treatment of injuries and illnesses associated with exercise to improve athlete performance[8]. In a sharing decision-making process, they will work in partnership with the coach and other members of the medical team. The doctor needs to balance bioethics, comprehensive health management of the player health and enhancing their performance on the field[2].

Physicians working in professional sport—including football—face unique ethical challenges, many of which center around conflicts of interest (players/coaches/clubs/sponsors). One of their tasks is to prepare a consent form for the athlete to sign before any sharing of medical information. Club directors should also be informed that not all health information can be disclosed, respecting the principle of patient confidentiality. Even when agreed by an employment contract between parties, the principle of patient confidentiality is paramount, elite athlete or not.

Regardless of the RTP process, the club doctor must inform players about the risk of an early RTP decision and properly document such a conversation. All instructions and restrictions given to the player should be registered in case of future discussions[4]. The risk management process is not to reduce risk to zero, but to control them within acceptable levels and then to ensure that all members of the shared decision-making team are made aware of the residual risks.

Athlete

Athletes tend to choose to play, even if they are not yet fully recovered. This might compromise their performance and their future health. Coaches and sports physicians need to understand, when considering the athlete's opinion, that they are easily persuaded, both to play and to recover for longer[9].

Head coach

Coaches differ from players in relation to RTP decision-making. Players usually want to decide themselves when to return to the game, while coaches are more inclined to consider medical opinion. However, although considering the club doctor vital to the RTP process, coaches often disregard their decisions or opinions[10].

Other factors might also guide the coach's decision, for example: time of the season, importance of the competition or the game, impact on the continuity of the season and performance context. Regular, clear and consistent, communication is vital to foster trust among the key decision-makers, and ultimately for the qualityof the RTP decision[11].

Sports physiotherapist

In the final phase of the injury rehabilitation, physiotherapists (often in close collaboration with the strength- and conditioning coach and other members of the sports science team) use evidence-based criteria to inform the return to sport decision (Photo 4). Despite using well-defined (gold-standard) scientific criteria to guide RTP decision-making, injuries can still recur. One of the reasons might be failure to respect the tissue healing process and time, especially for muscle injuries[12].

In most musculoskeletal disorders, the RTP criteria adopted include absence of pain on palpation, strength and stretching/flexibility; maximum strength tests; functional tests and psychological readiness through scientifically validated questionnaires. However, some lesions, because of their intrinsic characteristics and complexity, do not present a consensus of criteria based on scientific evidence[13,14].

It is vital that decision-making is shared for these type of injuries—the club doctor has a key responsibility in this process[13]. Best-practice injury rehabilitation criteria guide this process and the medical team take into account the club context, as well as player and coach's expectations. In addition to these criteria, physiological and biomechanical knowledge are key. One can

Photo 4: Physiotherapist assessment in the Return to Play process in football.

argue that RTP decisions are better when all professionals in the physiotherapy unit, the club doctor, and physical trainers reach consensus.

Data analyst

Technological advances have brought significant changes to society. These advances can also be seen in sports medicine field with a growing amount of data being collected by different gadgets. The figure of the data analyst plays an important role delivering information which will support the coach, technical and medical staffs in the decision-making process.

We envision, in a near future, that the role of the data analyst (or statistician) trained to use artificial intelligence (AI) and its algorithms will be the development and implementation of machine learning (ML) in the club's daily basis practice, helping to predict injuries and improve player's performance.

He / She will centralize the data obtained by the health and performance teams, carry out a pre-processing of the data (e.g., cleaning and normalization), separation between training and test data, validation and testing of the machine ML model. For example, the classification approach, within the supervised machine learning task, using the decision tree and random forest technique, could better assist the clinician in decision making in the RTP after an injury[15].

Club director or football manager

One of the football manager essential responsibilities is to build bridges, facilitating transparent communication between club medical teams and coaches, improving interdepartmental relationships and morale.

In the shared decision-making process, the manager will provide important information to the club doctor (e.g., player contract situation or possibility of hiring for another club). In these instances, the player should benefit from a very conservative RTP process to reduce the risk of new or recurrent injuries.

Managers should not decide or influence any medical decision regarding to RTP. Ideally, their role is informative. They provide information that assist the club doctor to prepare a better player injury management plan, reducing the risk of a coach pushing the athlete for an earlier RTP.

Finally, player's individual risk factors should be communicated in an appropriate way to the manager and possibly also to the board of directors or stakeholders[16]. The manager will help to provide a coherent and transparent explanation to club management concerning a specific treatment approach, further protecting the health of the involved player.

ETHICS IN FOOTBALL MEDICINE

Physicians often face considerable ethical challenges when providing care to high level athletes. Football is no exception—failure to appreciate potential conflicts of interest compromises players' health especially when 'forced' to return to play when not fully recovered from an injury. Regardless of the final shared decision outcome, the sports medicine clinician should always be guided by the principles of ethics when deliberating with the athlete, head coach and football manager.

The football club doctor must be aware of special aspects of the doctor-patient relationship, informed consent, player autonomy, and patient confidentiality[17], medical records, data protection and sports law. When it is necessary to share confidential medical information with team administrators or coaches, the football player must be informed in advance by the club doctor, who must be aware that disclosure of the athlete's condition should be restricted to "specific responsible persons and for the expressed purpose of determining the fitness of the athlete for participation", according to the FIMS International Federation of Sports Medicine code of ethics[18,19]. The player - in close collaboration with the club doctor, should decide if any information about his/her health condition can be released to the media and general public[18]. It is always better to the players themselves release information about their own health.

It is challenging to consider multiple interests and perform ethical decision-making in professional football. The club doctor should always advocate for the player, being responsible for his health and a safe return to play.

CONCLUSION

The consistent application of best evidence guidelines (based on high-level science or experience where little/no empirical scientific evidence exists) combined with a strong football background are important skills for any football club doctor. Trust, transparency and good communication between departments and athletes improve shared decision-making and adherence to the RTP phases.

The shared decision-making process is complex and shaped by many important factors. It should always be guided by ethical principles. In treatment deliberations between the player, the club's medical staff, head-coach, sport science department and club football manager, each party brings their own knowledge, relevant information and perspectives. A trustful environment, with ego-free communication, is vital for effective and efficient player health management, including shared decision-making and the health and performance outcomes of RTP decisions.

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