Module 4. Return to play

Introduction

The main objective of a physiotherapist and/or a physical readapter is helping the athlete who has undergone an injury process to recover in order to return to competition in the shortest time possible and when risk of recurrence (re-injury) is minimized. Besides, another key objective is to prepare the player to meet the competition demands which require a specific physical condition that, occasionally, is influenced by the club's "philosophy or model"; in this case, FC Barcelona's.

Figure 1: Objective and Challenge of a player's return to play after an injury

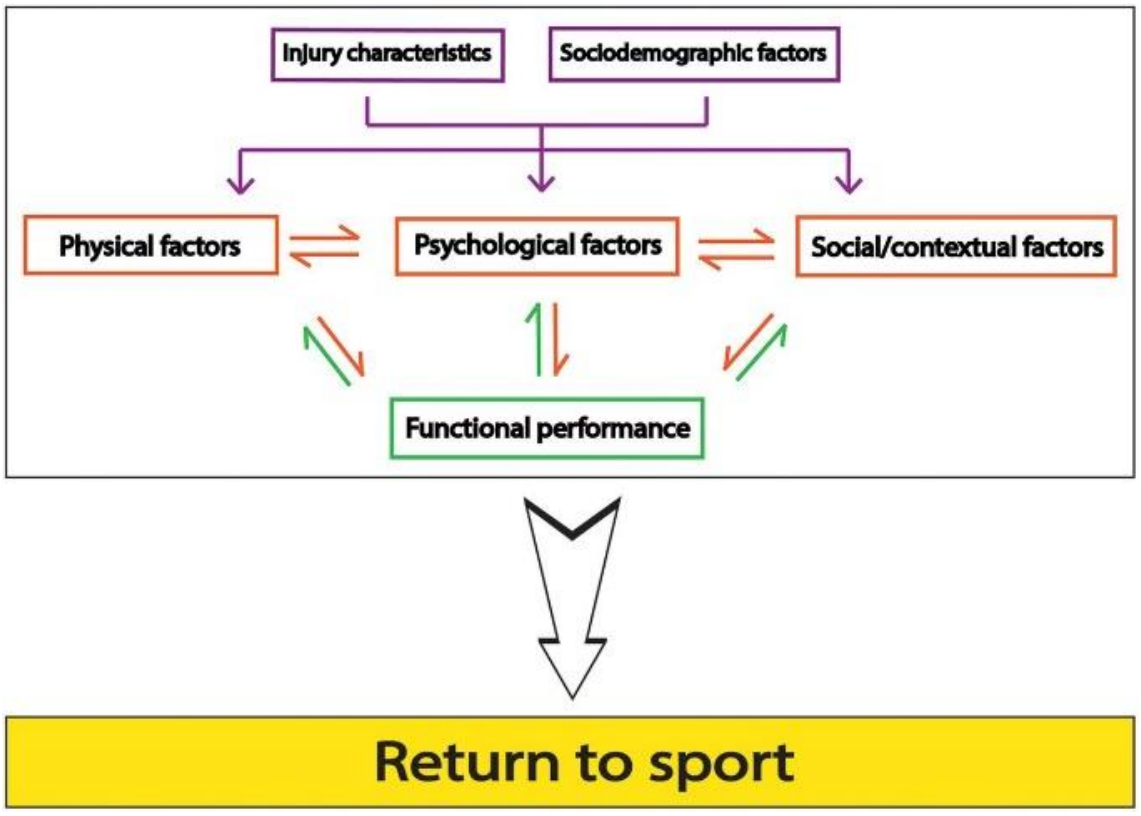
Source: Pruna, Andersen, Clarsen and McCall, 2018. p. 7.

It is true that, in many cases, when trying to have the shortest possible recovery processes, time is tight and pressures increase. (Ekstrand, Krutsch, Spreco, Van Zoest, Roberts, Meyer and Bengtsson, 2019). This is because of various factors such as, for example, the proximity of important games that can define the competition or the qualification to a new stage, the participation in the national team, the dispute of a starting line up in the team, the economic losses for the club (Fernández Cuevas, Carmona, Quintana, Salces, Arnaiz-Lastras and Barrón, 2010), among others. None of this should influence the management of the injured since their health is above any kind of interest it may arise.

The American Academy of Orthopaedic Surgeons and the American College of Sports Medicine define the term return to play (RTP) as "the decision-making process of returning an injured athlete back to training sessions or to competition" (in Bisciotti, Volpi,

Alberti et al., 2019, p.3). RTP is the readaptation moment in which the functional recovery workout in the gym and the specific work on the pitch are introduced, and the specific sporting movements as well as the physical and cognitive demands of such sport, in this case football, are trained. This is, the return to sporting activity (training sessions and competitions included) implies that the player is considered fully rehabilitated after an injury (Hagglund, 2005). The decision-making process that determines if the player returns or not to competition is extremely complex and dynamic. In professional football, this process involves the player, the medical sports team, the coaching staff, and the performance and conditioning staff. All of them should work together to enable a successful process (Bisciotti et al., 2019). At the same time, the injury characteristic, sociodemographic features, physical, functional, psychological and contextual factors should be considered in the decision-making process (McCall, Lewin, O'Driscoll, Witvrouw, and Ardern, 2016).

Figure 2: RTP Bipsychosocial Model



Source: Ardern, Glasgow, Schneiders et al., 2016, p. 856.

In professional football, the athlete has a certain capacity to make a decision about their return to play. At this stage, in which the athlete has a major role in decision making, it is crucial to generate a shared recovery process. In a way, the football player is the one who makes the final decision to return to competition. If the athlete does not feel ready to return to play, it is not recommended to force their return even though it is clear, at a conditional and clinical level, that they are ready to come back.

As it was mentioned before, physiotherapists and physical readapter should lead the process and accompany the player. It is the athlete the one that accepts the objective since they should take hold of the process and make it theirs to be successful.

The approach proposed by Dijkstra, Pollock, Chakraverty and Ardern (2016) helps to obtain good results in the treatment management and satisfaction. Three key steps in this shared process are:

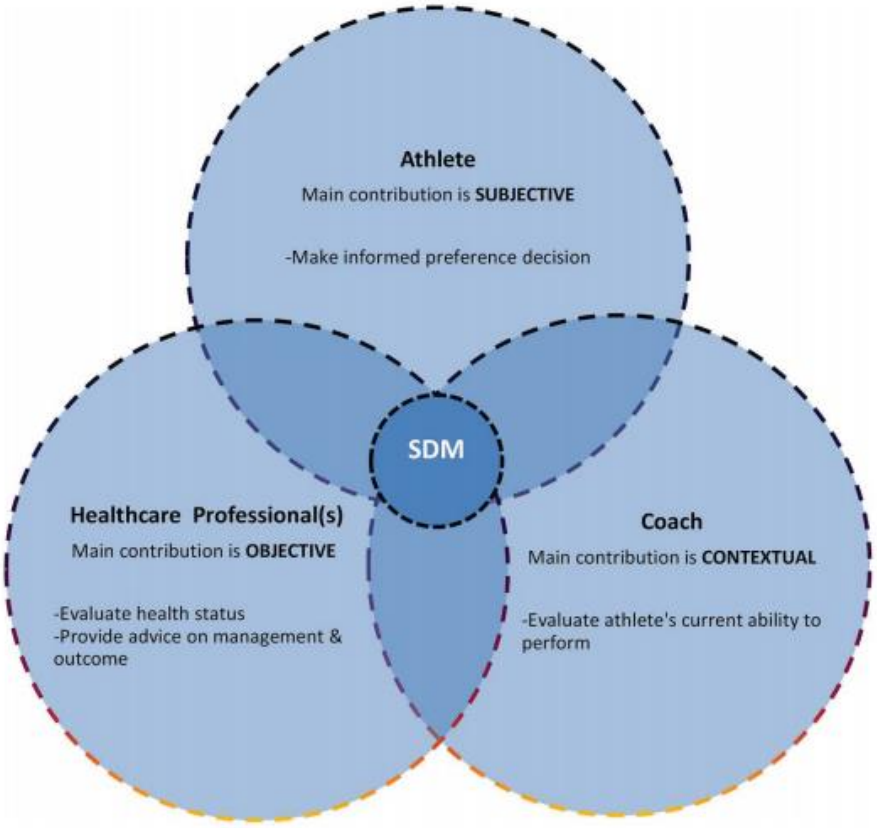
1. **Choice:** making the athlete and coach aware that reasonable options to train as usual exist.
2. **Option:** providing detailed information about the different alternatives that can help in the process.
3. **Decision:** guiding the athlete and coach to consider their preference and/or needs, and decide altogether what is best.

This shared decision-making process will be formed by three key people who will work homogeneously to reach the objectives set. These three people are:

- **Healthcare professional:** in general, this will be the sports physician and/or physiotherapist who are the most appropriate people to evaluate the health status of the athlete and provide possible short and long-term risk scenarios once the athlete is recovered.
- **Athlete they should make an informed and professional decision about their desire to RTP.** This decision will be influenced by personal circumstances, their experience, intrinsic view on risk and performance, among others.
- **Coach:** the informed coach evaluates the current ability of the athlete to perform to a specific required standard. To do so, it will be of great help to know the athlete, the training missed, the athlete's functional progression in rehabilitation and the information provided by the healthcare professional staff.

Thus, we can observe (figure 3) the synergies among the three people involved in the shared decision-making process.

Figure 3: Shared Decision-Making Process



Source: Dijkstra et al., 2016, p. 420.

The success of an injury recovery process can have very different meanings for each member of the team that works on the process. For the athlete, success may mean returning to competition in the shortest time possible. On the other hand, for the coach as well as the other athletes, success may be related to the player's performance when returning to the sport practice. This means, a clear focus on performance. Finally, for the medical staff, success may be connected to the prevention of new injuries and/or recurrences. Thus, it is important for the whole team involved in the recovery process to decide on which will be the expected success in order to work in a coordinated and effective way throughout the process (Ardern et al., 2016).

In football, deciding and defining an athlete's RTP moment is really complex. Besides, the integration to the team will not be that sudden. Instead, it will be progressive and focusing on factors such as the type of injury and the total amount of time the player was absent from the sport practice. Besides, the player will be limited to perform certain tasks. All this aims at carrying out the process in the most secure way possible (Bisciotti et al., 2019). The decision of a player's readiness to compete is not made out of context. In this respect, we agree with Ardern et al. (2016) proposal to understand the RTP as a parallel continuum of recovery and rehabilitation. Elements in gradual progression and aligned with the proposed RTP objectives are distinguished (figure 4).

These elements can be divided into three groups:

1. Return to participation: the first elements of the continuum can be included here. The initial diagnosis (in which the athlete starts their rehabilitation), and the first trainings adapted to their condition but at a lower level compared to the final RTP objective.
2. Return to sport: two elements are included here. The athlete starts the specific training of their sport without reaching the expected performance levels. The athlete will have higher levels of motivation as they get closer to the final objective that will help them in the recovery process.
3. Return to performance: the last two elements are included here. The athlete gradually returns to full sport practice with similar or higher conditional levels than ones before the injury.

Figure 4: RTP Continuum Elements

Source: Pruna et al., 2018, p. 8.

Minimizing Recurrences (Re-injury)

Recurrence (re-injury) is understood as an injury of the same type and at the same site as an index injury and which occurs after a player's return to full participation in competition (Fuller, Ekstrand, Junge, Andersen, Bahr, Dvorak, Hägglund, McCrory and Meeuwisse, 2006). This situation causes high level of physical and emotional stress in the athlete (Ramirez, 2000).

In amateur sports, the RTP process is usually shorter and does not respect the time needed for a proper healing and recovery. Moreover, this mistake usually leads to injury recurrence. Having between 72 to 96 hours of rest at the beginning of the management of an injured player does not mean that the progress and work is slow, just the opposite. It is vital to advance according to the symptoms since the pain will preferably mark the progress of the work.

If we take as an argument that injuries may cause deficits due to structural damages and alterations in the proprioception (Hagglund, 2005), we could classify re-injuries according to the recurrence time from the index injury (Fuller et al., 2006):

- Early recurrence: a recurrent injury occurring within 2 months of a player's return to competition.
- Late recurrence: a recurrent injury occurring 2 to 12 months after a player's return to competition.
- Delayed recurrence: a recurrent injury occurring more than 12 months after a player's return to competition.

In football, the decision of moving forward or delaying the player's return to competition after a muscle injury could be the difference between having a player back 2 games before expected with the consequence of possibly obtaining good results (for example, winning both games), versus keeping the player out for two more weeks and, thus, minimizing the injury risk but having the risk of losing points in those games. Consequently, this implies making decisions according to the level of risk they have and bearing the costs in case a new injury or a worsening of an existing one occur (Pruna et al., 2018).

When making these decisions, we face possible risks. We consider the athlete as a dynamic and complex system in which the units (parts) that form it interact with each other (Bittencourt, Meeuwisse, Mendonça, Nettel-Aguirre, Ocarino and Fonseca, 2016). This condition requires paying attention to each stage and decision taken. It is necessary that the player has trained enough, with appropriate and controlled loads before the RTP since it has been proved that sudden peaks in workload ratio increase the risk of recurrence (Zambaldi, Beasley, and Rushton, 2017). In Zambaldi et al. (2017) study, a complete recovery of hamstrings strength and flexibility is considered to be vital for a safe return to play. Moreover, the risk is reduced when high levels of eccentric strength in such muscle is reached. What was mentioned before shows, in turn, that there is a significant increase in the risk of recurrence within 12 months due to an incomplete recovery of the hamstrings muscle strength (Hickey, Timmins, Maniar, Williams, and Opar, 2016). Another study (Van der Horst, Backx, Goedhart, and Huisstede, 2017) shows that the high rate of hamstrings injury recurrence may be due to a deficient rehabilitation/readaptation and/or an early return to play. In addition, it states that more than a half of these recurrences occur within the first month after the player's RTP.

Recurrence in football is connected to an inappropriate or incomplete rehabilitation process. At the same time, a recurrent injury of the same type and at the same anatomic site usually results in a more serious injury compared to the one suffered. Similarly, the highest rate injuries are ligament injuries such as ankle and thigh myofibrillar tearing (Romero, 2005).

It is relevant to highlight and understand the importance of recurrence prevention not only for the athlete's health but also because their absence will be longer, as proved by Ekstrand et al. (2019) in their study. They stated that the length of absence after a recurrence is significantly higher than after index injuries (non-recurrent injuries) in different injury diagnosis.

- This difference was statistically significant for six diagnoses (Achilles tendon pain, calf muscle injury [structural], groin adductor pain, hamstrings muscle injury [functional], hamstring muscle injury [structural], and quadriceps muscle injury [structural]). (Ekstrand et al., 2019, p. 5)
- In these six injury diagnoses, the average days of absences was higher for recurrent injuries than for index ones. We can observe in the following table that the difference ranges from 3.3 to 10.6 days of absence.

Table 1: Differences in Days Absence between Index and Re-injuries

Injury	Mean difference (95 % CI)	P value
Achilles tendon pain	−10.6 (−20.6 to −0.6)	0.037*
Ankle joint capsular injury	−5.2 (−15.3 to 5.0)	0.307
Ankle joint synovitis	−10.4 (−28.3 to 7.6)	0.252
Ankle lateral ligament injury	1.9 (−1.3 to 5.2)	0.244
Ankle medial ligament injury	−1.6 (−8.1 to 5.0)	0.642
Calf muscle injury (functional)	−1.8 (−5.2 to 1.7)	0.304
Calf muscle injury (structural)	−3.3 (−6.6 to 0.0)	0.047*
Foot contusion	−5.0 (−16.4 to 6.3)	0.367
Groin adductor pain	−5.7 (−9.5 to −1.8)	0.004*
Groin pain	−7.7 (−18.7 to 3.3)	0.169
Hamstring muscle injury (functional)	−3.4 (−5.5 to −1.2)	0.003*
Hamstring muscle injury (structural)	−3.6 (−6.3 to −0.9)	0.010*
Hip flexor pain	−2.9 (−9.0 to 3.3)	0.360
Knee cartilage injury	−20.6 (−41.7 to 0.6)	0.056
Knee joint synovitis	−2.1 (−7.5 to 3.3)	0.435
Knee lateral meniscus injury	−10.5 (−30.3 to 9.2)	0.293
Knee MCL injury	−2.5 (−9.2 to 4.2)	0.472
Knee patellar tendinopathy	−4.2 (−14.0 to 5.5)	0.393
Low back pain	−4.4 (−11.3 to 2.5)	0.208
Quadriceps muscle injury (functional)	−1.5 (−3.6 to 0.6)	0.168
Quadriceps muscle injury (structural)	−4.2 (−8.0 to −0.4)	0.031*

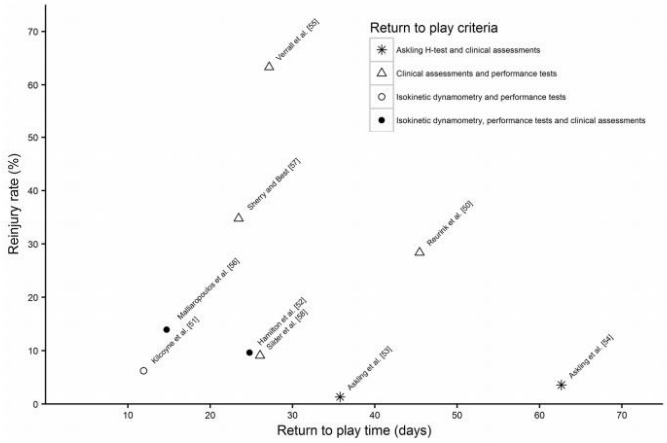
*Significant difference in days absence between index and re-injuries ($p<0.05$).
MCL, medial collateral ligament.

Source: Ekstrand et al., 2019, p. 5.

Askling's H-test helps us value the RTP since it allows the assessment, in a reliable and sensitive way, of the athlete's capacity to endure the dynamic hamstrings muscle enlargement without pain. In the revision carried out by Hickey et al. (2016) important

data related to the implementation of different assessment methods to value the RTP and the recurrence rate is provided. The combination of Askling's H-test and the clinical assessments as decision criteria in RTP seem to be associated with the lowest risk of recurrence (figure 5).

Figure 5: Mean RTP Times and Re-injury Rate for Each Individual Study

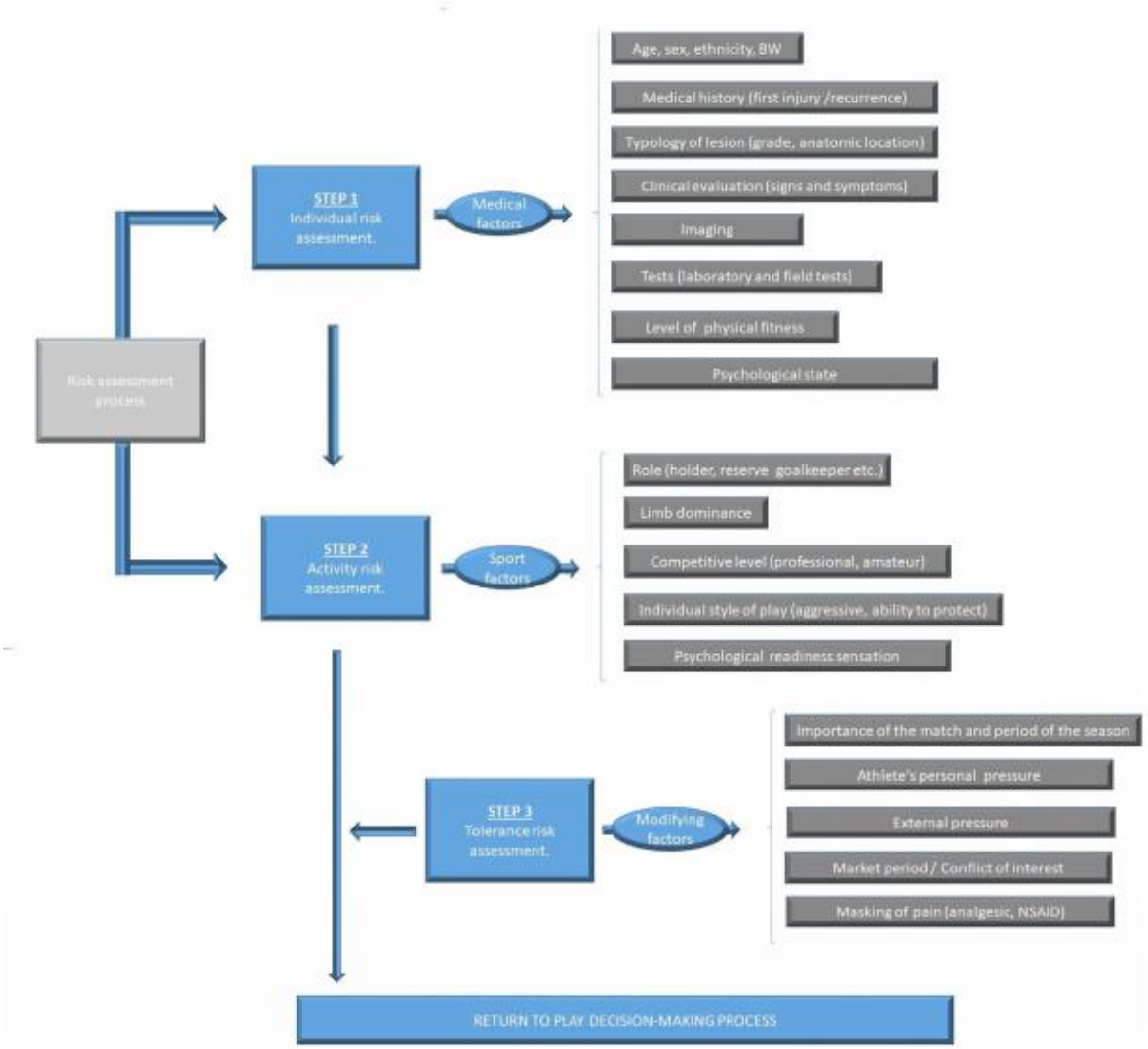


Source: Hickey et al., 2016, p. 1384.

When making decisions, potential risks will be faced. Thus, it is important to consider the maximum tolerable acceptable risk as regards the return-to-play decision. Consequently, the risk tolerance framework observed in figure 6 was proposed by Bisciotti et al. (2019) and it enables the analysis of 3 main steps in the decision-making process. These are:

- **Individual risk assessment:** medical factors such as age, gender, history of injuries, type of injuries, clinical evaluation, etc.
- **Activity risk assessment:** factors connected to the athlete's sporting activity such as position played, limb dominance, competitive level, individual playing style, etc.
- **Tolerance risk assessment:** modifying factors such as a game importance, stage of the season, personal pressure to compete, external pressure, masking the pain, etc.

Figure 6: Risk Tolerance Framework



Source: Bisciotti et al., 2019, p. 4.

The permanent control of each of these steps will help to minimize the risk of recurrence when the player returns to full participation. The aim is to recover the injury movement. This is, provoking and working on the mechanism or action that causes the injury in order to reduce the risk of recurrence. Before this, a good work basis should obviously be ensured. So, for instance, it is important to do an initially controlled stretching of an injured adductor in order to prevent a fibrotic scar and solve the problem since if it is not solved, it may appear later on, not necessarily at the same site because it might develop above or beneath the scar. This means that there is an influence of the preceding injury and the combination of a mishealed fibrotic scar with a movement which is still altered may result in recurrence. Therefore, it is necessary to try to adapt the muscle to its functionality, to the movement that caused the injury. In order to achieve this, exercises that help to assimilate the action that caused the injury are carried out taking proper care and controlling the load appropriately. It is important to understand that these movements will probably be repeated when the player returns to play and they should

not be underestimated; on the contrary, they should be permanently worked on by requesting muscle actions and observational analyses to evaluate if the motor actions are suitable enough to advance in the recovery process.

At the same time, the conditional values will be crucial to decide if the athlete can return to competition. Contrasting the external and internal loads of a player will allow us to check if the player's conditions are the best for their return. This subjective fact turned out to be really objective for the FC Barcelona rehabilitation staff. It is considered that the internal load obtained from the rating of perceived exertion (RPE) is subjective (Haddad, Stylianides, Djaoui, Dellal, and Chamari, 2017), and of course it is, apart from having a validated use. In this respect, FC Barcelona characterizes itself for generating a bond of trust with the athlete and, consequently, if the player knows themselves enough and is sincere in their feedback, the RPE will be objective. In the end, it is the player the one who really knows how to consider their current condition. In this respect, the player's condition and their sensations in the training sessions before a game are relevant when minimizing the risk of recurrence.

It is also important to consider the conditions of the game in which the injured athlete can return after the recovery process in order to minimize the risk of injury recurrence. Imagine the following case: a player finishes their readaptation of the injury on a Thursday and they are allowed to train with the team because The League classic is on Sunday. According to multiple factors, the safest decision will be not to play because, even though the athlete is physically able, the demand of that game, physically and emotionally, is really high and they have not had any other game before so as to test their recovery in competition under more favourable and less risky conditions. But, if apart from playing the classic, the next game is a Champions one on the following Wednesday, the context will change. In such case, it would be recommendable to send the player to the bench on the day of the League game. During the game, if conditions allow, the player could participate no longer than 10 or 15 minutes to see how the body is responding and to analyze if the player will be able to participate in the next Champions game. That is to say, actions are analyzed as they occur.

The decision of letting the player participate at the beginning or towards the end of the game will depend on the context and the needs of the team. This is, when observing that a player has reached a limit in their recovery process and that has been done in limit time because the game was really important, the player would participate from the beginning. if that player suffers from the injury 10 minutes after the start, they are replaced and the development of the game is not altered, but if the player enters 20 minutes before the end and gets injured 10 minutes after entering, the team would have lost an important change. Thus, the game conditions are very important since they are sometimes the ones that modify the prognosis. All the decision-making process related to the situations that have been developed in this module should be considered.

Training Tasks Orientation and Control of the Training Load in RTP

At FC Barcelona, a multifactorial assessment methodology is used in the daily planning process for each of the training sessions that are carried out. The whole readaptation staff prioritizes the development of the cognitive, technical and physical capacities. In this respect, the stimuli variability becomes essential in the readaptation process to enrich the player's kinematic possibilities to their fullest.

Thus, if we take as a premise that the objective is to recover the athlete and, consequently, ensure their total availability for training and competing in games (Müller, Krüger-Franke, Schmidt, and Rosemeyer, 2014), trying to make them reach a similar or even better physical level than before the injury, different tasks are designed depending on their orientation through a permanent control of the training loads so as to generate progressive stimuli that lead to reach the expected levels.

In this respect, tasks are divided in three types according to their orientation:

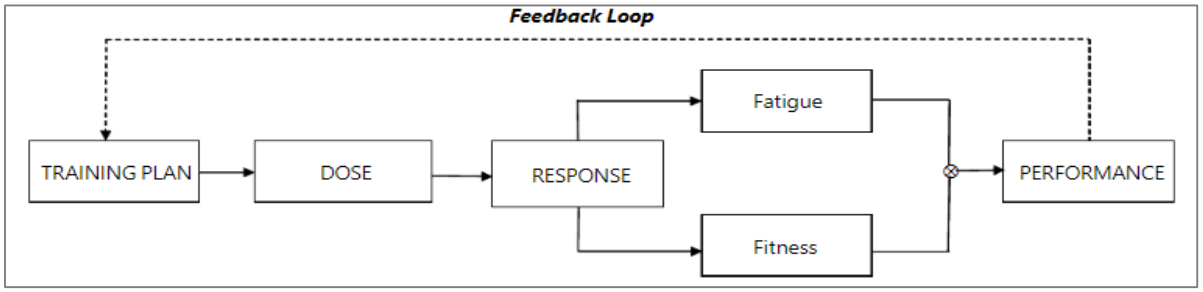
- **Strength-oriented tasks:** training sessions in which maximum accelerations and deceleration tasks are predominant.
- **Speed-resistance-oriented tasks:** training sessions in which sprinting actions, maximum and high-speed velocity both general and positional, are predominant. A very relevant variable is High Speed Running (HSR). At FC Barcelona it is analyzed from a general and positional perspective. The general HSR is the distance a player covers at more than 21 km/h while the individual HSR is the distance covered by the player at more than 75.5% of their maximum velocity (the recovery period is different for each of them).
- **Mixed-oriented tasks:** training sessions in which both strength-oriented and speed-resistance-oriented tasks are combined. Generally, they simulate what happens in a game so all the variables should be present.

Each of the training tasks should be monitored so as to be able to have an objective control of them and analyze the decisions to be made during and after the training session. The use of GPS devices makes it possible to analyze and measure all efforts made both in training sessions as well as competitions (Reche-Soto, Cardona-Nieto, Díaz-Suárez, Gómez-Carmona, and Pino-Ortega, 2019). In this respect, the use of GPS technology provides essential information for the readaptation phase. This enables the specific and detailed analysis of the data obtained from the physical demands met during a readaptation training session and continue with favourable evolution in the recovery process. Besides, by using GPS devices, it is possible not only to evaluate the player when returning to the group and competitive activity but also to record and analyze if data obtained from training sessions and competitions is similar to the data recorded before the injury occurred.

Monitoring athletes is a habitual action in high performance football that makes it possible to quantify the training load and the player's response to it. The constant monitoring of each variables provides key information to evaluate the training process. If data is collected correctly and its interpretation is effective, athletes and coaches could be offered clear and complete reports leading to a possible increase in predisposition to move forward in the readaptation process and, thus, reducing the risk of injuries or recurrences (Pruna et al., 2018). In FC Barcelona, response velocity and decision-making workflows are carried out from which the data is collected and analyzed by readaptation specialists who create an RTP own criteria individualizing each athlete.

From this perspective, the load control represents a predominant value throughout the football player's recovery process because once the sports specific demands are met, that athlete will be able to return to competition. It will be vital to wisely decide which intensity and volume the athlete will endure for each type of movement. For this reason, it will be important to count on all the tools available for controlling the load and in which we can trust thanks to the scientific evidence. In this respect, the athlete's monitoring conceptual model (figure 7) is a simple approach that can help us to quantify the dose-response relation of the training load proposed with the fitness, fatigue, and performance.

Figure 7: Athlete's Monitoring Conceptual Model



Source: Coutts, Kempton, and Crowcroft, 2018, p. 21.

However, and moreover during injury processes, the factor to be considered when doubting about the possibilities of work is the pain and the athlete tolerance to it. Consequently, if discomforts are functional, the work can be carried out. But when pain is disabling, this type of work cannot be carried out and a new proposal is needed. A useful reference point is that when a work is carried out but there are some bearable functional discomforts, the next day they should not appear. If the player has worked with any kind of discomfort and the next day, they have pain due to the previous day activity, this could mean that there was an excess on the load in relation to the athlete's capacity at that particular time. This should be taken into account since a planned and controlled load does not always mean that the work is adequate. We should always consider the qualitative analysis apart from the quantitative data. This does not mean that the whole process is wrongly executed or planned; instead, this means that most of the readaptation

processes have some ups and downs in both pain and functionality. We should only be clear that the trend curve (performance, functionality) must be upward. There will surely be setbacks as a result of a non-acceptance of the load that the athlete was expected to endure. It may happen that, in agreement with the adapatation principle, the recovery processes had not been adequate or enough and that the accumulation of the load turns into fatigue expressed by pain and discomfort. Consequently, the best way to understand this is not as a process setback but as a step that requires work adaptation.

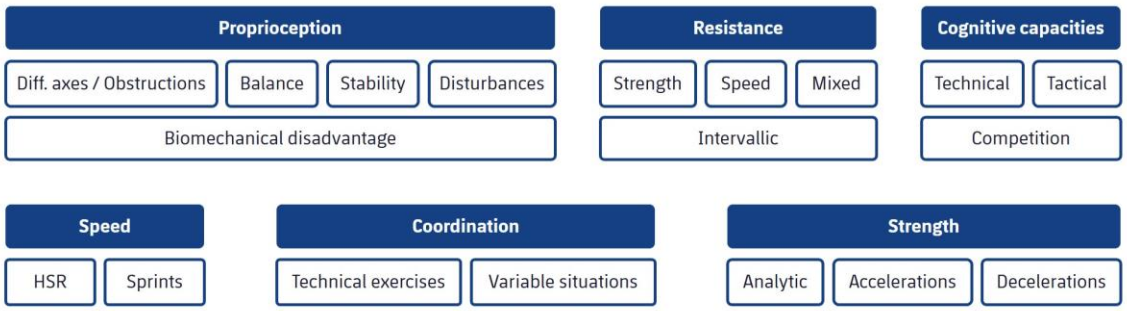
It is fundamental to quantify the amount of explosive effort carried out by football players in the training session in order to control the recovery process since the covered sprint distance in training sessions is a muscle injury factor of risk to be considered. According to what Colby, Dawson, Heasman, Rogalski, and Gabbett (2014) demonstrated in their paper, players with a higher training overload in covered sprint distance were the ones with higher injury rate. For that reason, it is vital to take players to optimum levels of their physical condition and monitor the external and internal load as well as their musculoskeletal evolution so as when starting the sporting practice, the player can do it to their fullest potential.

Return to Play Training Programme

The training programme in the RTP process is of relevant importance for reaching the objectives set and for the "process that follows the biologic healing of a tissue so as the athlete's condition is close to the optimal one for competition" (Romero, 2017, p. 321). It allows to organize and distribute the training loads. In combination with stimuli, it makes it possible to work in relation to different variables that could influence the recovery process such as the number of competitions per week, among other aspects.

When planning the training programme in football players' readaptation processes, it is important to distribute the work in micro cycles that involve the proprioception training, stability exercises variability, balances, disturbances in biomechanical disadvantage, speed (HSR and sprints), coordination work (through technical exercises and contextualized variable situations), strength and speed work resistance, analytic strength, decelerations, accelerations, changes of direction, and the cognitive capacities that are practically all the individual techniques and decision-making activities that rule the competition.

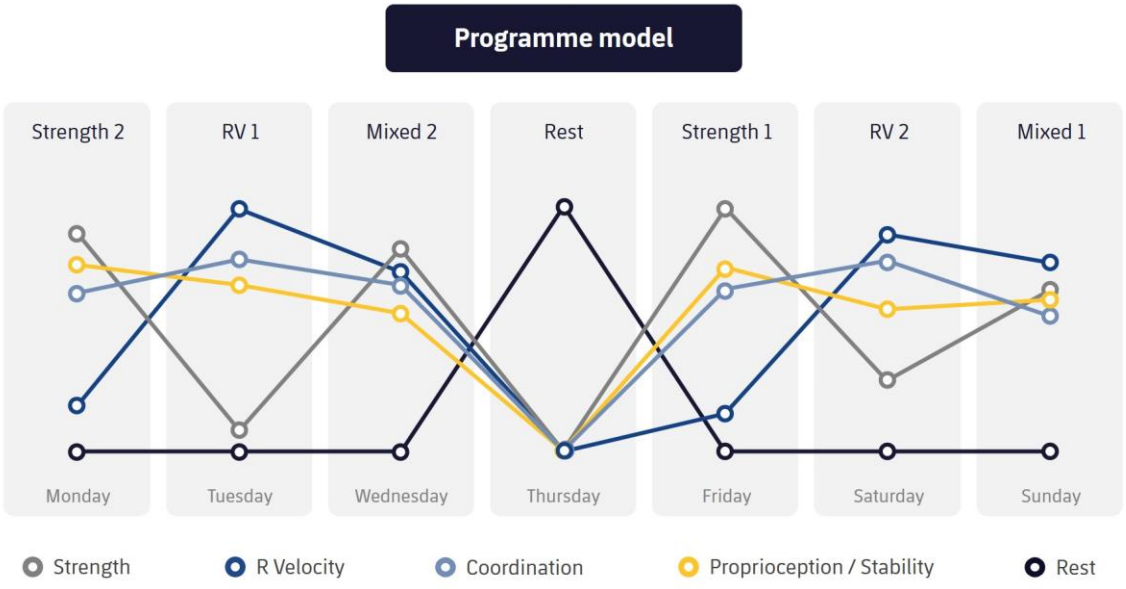
Figure 8: Stimuli to be Considered in Football Players' Readaptation Programmes



Source: prepared by the authors.

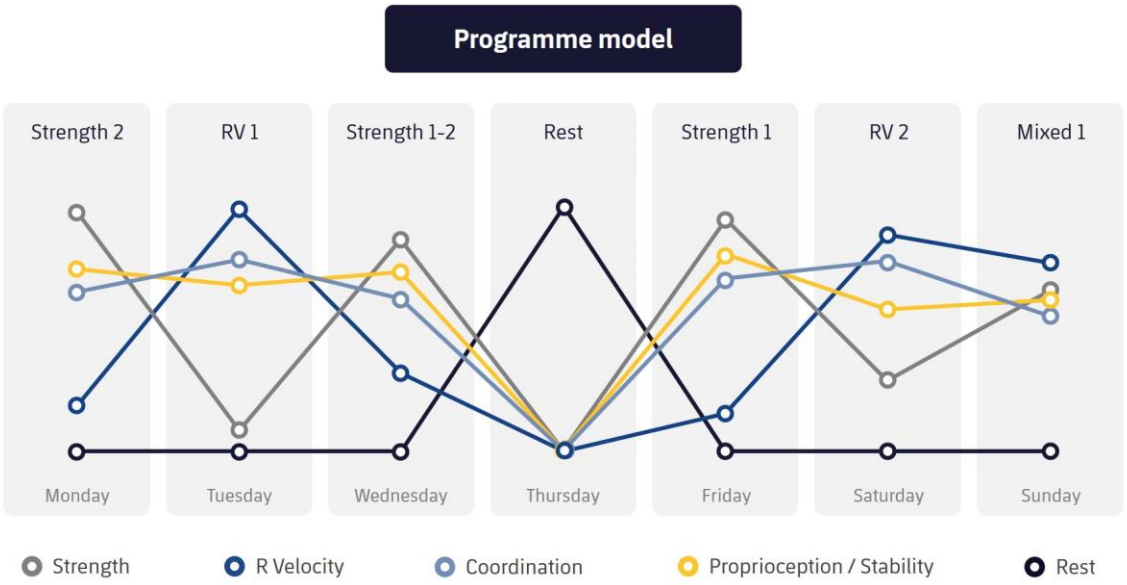
Below, an example of a readaptation model of optimizing and prevention training is introduced in which the different capacities are distributed in different training days along one week. These models can be adapted to weeks with 1 or 2 games (figures 9 and 10) and they should be developed individually, evaluating the needs of each athlete. At the same time, these models are taken as guidance to establish a progression that will not always be able to be put into practice as planned. Do not forget that the process will also be adapted to the player's sensations within certain parameters. From there, different types of work will be assessed as planned taking into account that the most important thing is to properly manage the injured player. Many times, there might be an injury that requires a reduction in the training load or a modification of the type of work. This problem could be solved by modifying the training towards a proposal that complements the optimizing training. This is the reason why it is important to be flexible with what has been planned.

Figure 9: Programme Model 1



Source: prepared by the authors.

Figure 10: Programme Model 2



Source: prepared by the authors.

The value 1 or 2 observed in the capacities (strength2, RV1, etc) indicates the training load the work will have that day which has to be shown in the daily planning. Here we try to show from a general perspective such distribution. It is important to highlight that in the planning of this programme there will be specific and individual considerations for each athlete depending on the management carried out. We can observe that the only variables that will be worked on separate days will be strength and speed, but there will be coordination and proprioception-stability exercises every day. For example, if an athlete has had a serious injury which requires a recovery programme from seven to eight weeks long, one could start working on this programme model in the fifth or sixth week always taking into account and evaluating the injury progress. In this way, the player can be trained to reach optimal levels of physical performance that allow them to safely participate in competitions in case they are needed. One can choose and design the programme that considers appropriate for the player (even with or without professional level players) since each athlete has individual and specific characteristics not only physical but technical and tactical ones that depend, at the same time, on the role such player has in the team and their physical demands (Gómez-Díaz, Pallarés, Díaz, and Bradley, 2013).

Integration of the Player to Group and Collective Training

As it has been previously analyzed, the return to play decision-making process in professional football, after going through a rehabilitation and readaptation process, involves the individual player being recovered, the sports medicine team, the coaching

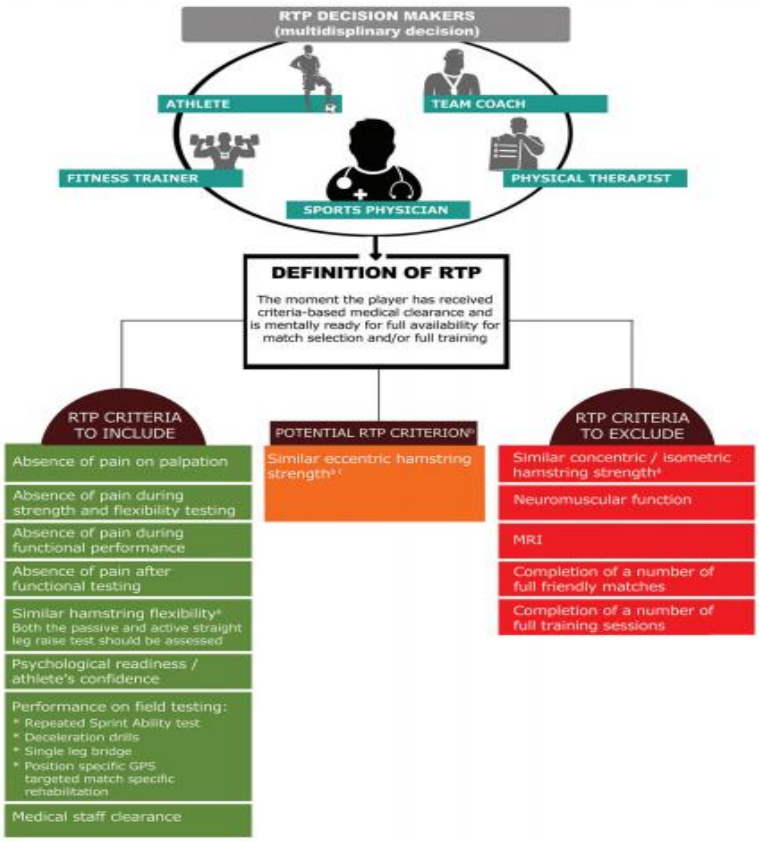
staff and the physical performance and conditioning teams. All must combine effectively to facilitate a successful RTP (Bisciotti et al., 2019). This decision-making process is clearly shown by Van der Horst et al. (2017) in the model illustrated in figure 11. An RTP model for hamstrings injury is taken as reference, but it can be adapted to other types of muscle injuries.

In this respect, there are different opinions as regards when a player is fully recovered and ready for the sports practice. Hagglund (2005) has published a series of definitions such as:

- The player is considered to be fully recovered when they can participate 100% in the team training programme.
- A player is considered injured until they can play a game or completely follow all of the coach's instructions.
- The player is considered injured until they receive the medical staff clearance.

It is essential that all the stakeholders involved in the recovery decision-making process can agree on a shared definition and meet the expectations and objectives that each one sets.

Figure 11: RTP Decision-Making Model for Hamstrings Injuries in Football



Source: Van der Horst et al., 2017, p. 1586.

A key aspect when integrating the player into the group and collective training is the optimizing training.

This "is in charge of the planning, design, execution and control of the training tasks, and its objective is to optimize the athlete's performance in all the competitions they take part throughout their sporting life" (Gómez et al., 2019, p. 13).

In the player's return to the group, it will be important to define markers that determine their adaptation and integration to the activity. FC Barcelona assesses this by using GPS devices. Each player has their own individual profile so as to facilitate the control.

The internal load is key in this moment, but there is an internal load of significant value: the motivation. We had the experience of players who suffered injuries due to their low state of mind but who were in optimal physical conditions according to quantitative parameters. There are situations in which a player, previous to an important game, is physically good, but all the same, he feels fatigued. This could be the result of emotional stress, the competitive stress generated by the situation. This means, there are a lot of variables we should control apart from the internal load. Thus, it is important to be able to evaluate the athlete's motivation and state of mind. A player with a high state of mind previous to a game, will probably have a higher pain threshold; this is, a player who has to take part in the Champions semi-final would be able to play the game with a discomfort about to get injured because their motivation is to participate. This is clearly complex and difficult to assess, but knowing the athlete and trusting them would be of much help in this sense. To understand this idea, for instance, four types of optimal training sessions to be carried out in one day could be proposed, and each player, when starting the activity, chooses which one to follow. Different reactions to this situation could be found since the player will not feel able to carry out some of the plans for different reasons.

In some occasions, it is possible to observe, from GPSs, optimal values in players who suffer a muscle injury. It is common to listen phrases such as "I got injured in my best moment", "I got re-injured when I was better". In this respect, it is important to be attentive and hear these statements since subjective information could be got from them. All the variables must be observed and contextualized. The daily assessment of these loads is very important. There are days on which it can be observed, through quantitative and qualitative records, that the player has an optimal performance when working, while other days this does not happen. This could mean that the proposed training in that particular session was not suitable for them. In the readaptation processes carried out in FC Barcelona, in some situations, training tasks are designed and the players are requested to decide how to execute them. This provides an important subjective feedback, a way of listening to the player and their proposal.

Another situation observed is that there are players who get fatigued if they do a lot of exercises without the ball; while there are others who can work high intensity with the ball without any problems. This subjective information is valuable for professionals who work with injured players but, do we know why an athlete can get injured? For example, our Latin American football players used to like a specific type of training, and that was probably due to the football culture of their place of origin. If our decision had been to suddenly modify their training culture without considering this situation, we could have probably generated a risk factor. Thus, it is not advisable to develop the player as we think they should be; instead, we should evaluate the complexity of the athlete we are working with and take into account all the structures that player is made of and adapt the training. If we do not do so, they could get injured.

Many variables should be considered when integrating a player to full sports practice with the team. The player may have a lot of motivation but lack of availability due to a discomfort. They might also have a great predisposition but lack of motivation. So, are we going to force this player to do high intensity exercises for 40 minutes? Or, should we give them the ball for a high intensity but more ludic work? These are very important readaptation factors for a player even during training sessions. It is difficult to do this in training sessions since there are 23 players, but it is possible to carry this out during the readaptation. It is vital because that internal load is the one, we are interested in knowing. This means prevention and caring the athlete after an injury process.

The process will be adapted to the player's sensations within certain parameters. Let's analyze the following example, it has been decided that a player returns to train with the team after a muscle injury since they will be able to perform and endure the first three tasks of the group without problems at all. However, as a fourth exercise, the player is required to do an individualized work with the readaptation specialist since this fourth task is consider to be too demanding and they will not endure it. What happens with a player who has perfectly endured the three tasks and wants to participate in the fourth one? We must be able to inform not only the staff but also the injured player that there is a design, a professional planning for each training session. It is important to inform the player what the training session each day will be about and align expectations. After that, it will be possible to evaluate the player's condition in order to increase the load.

At the beginning of the athlete's return to work with the team, it would not be good to expose them to many unexpected movements which are very common in football group practice. These unexpected movements are one of the factors which could lead to injury recurrence. Therefore, how could this be solved? Within the team optimizing training, for example, there are football-reduced tasks. If they are given these stimuli and they are contextualized in a specific task, they could be taken as wild cards. This means, having a role in the game which does not demand the player a great a number of unexpected movements. The player could also be proposed to always participate in the team who has

the ball possession, to avoid defending situations and to limit possible harmful and risky hits. Following the example, it can also be proposed that apart from playing as wild cards, they should not score goals since it is another way of avoiding unexpected movements. A player in a competitive situation and with a high emotive-volitional structure will try to dribble or attempt on goal. Moreover, there will be a defender who will increase the complexity of the task. Therefore, it is important to adapt the tasks through constraints depending on the moment of the injury and the sensations the player has during it.

Thus, it is vital to carry out an integrated work among all the members of the staff. The great challenge is how capable we are of managing the player, minimizing the risks during the whole process (even during the return to full participation), and evaluating the injured player globally.

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