Module 3. Management of the Sport Readaptation Process

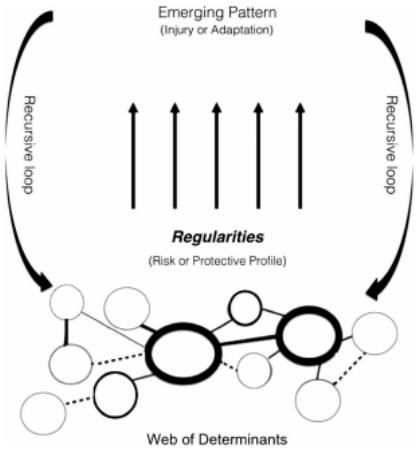
The following is a proposition of sport readaptation which highlights muscle pathology. Management of sport injuries is considered form an earliness approach (early intervention), without interrupting the biological processes it entails.

First of all, we outline that we will develop the theoretical and methodological production of this material according to our experiences, knowledge and professional contexts. This means that there might exist the possibility that the reader does not agree with our proposal or that the approach to the injury and the injured could be relatively different. In some cases, it is probable that you "will not agree" since the basis for the contexts of work are always different. In this way, you can be our guest not to question but to disagree and open a dialogue since each individual has their own theories, and, as a consequence, their own ways to undertake an injured player.

Thus, this modality of work is presented not as a mandate but as a possibility among others. Even, as we move forward in the text, we will see that the individual differences create modifications in the professional or *staff* of professionals model of work. In this respect, it is important to highlight that it would be not ideal for sports that the readaptation methodologies and the approaches to the different kinds of injuries were the same when the contexts and individuals are not.

Aligned with and based on the complex systems perspective, Bittencourt, Meeuwisse, Mendonça et al. (2016) suggest an injury representation model (figure 1). In it, we can distinguish the multifactorial nature of injuries, which drives us to take into account the importance of the optimization of the cognitive and socio-emotional structures of the player in the reaptation process, and not only to focus on the approach to readapt the conditioning and coordinative structures.

Figure 1: Sport Injuries Complex Model



Source: Bittencourt et al., 2016, p. 4.

From the proposal made in the second module, it is essential to highlight the difference between working on an injury and managing the injured. The individual characteristics, not only conditioning but also cognitive and socio-emotional, among other aspects, are determinant factors for the result of the readaptation process. From the point of view of the structured model, the socio-emotional structure of the injured player has to be stimulated during their recovery to ensure that the self-organization of the athlete is complete, opposed to a recovery focusing only on the injured structure.

In view of the above, the readaptation process should be closely linked to the role of the player and playing model of the team. From a socio-emotional and optimization perspective, Seirul·lo (2017) proposes that each task in the training session and participation in the game, should have an immediate self-assessment on the part of the player. This self-assessment will have different dimensions and will include the player's perception of the judgments of their mates and coaches. The conclusions drawn by this analysis will directly influence the performance, and thus the result in coming participations.

Players analyze the situations from these dimensions:

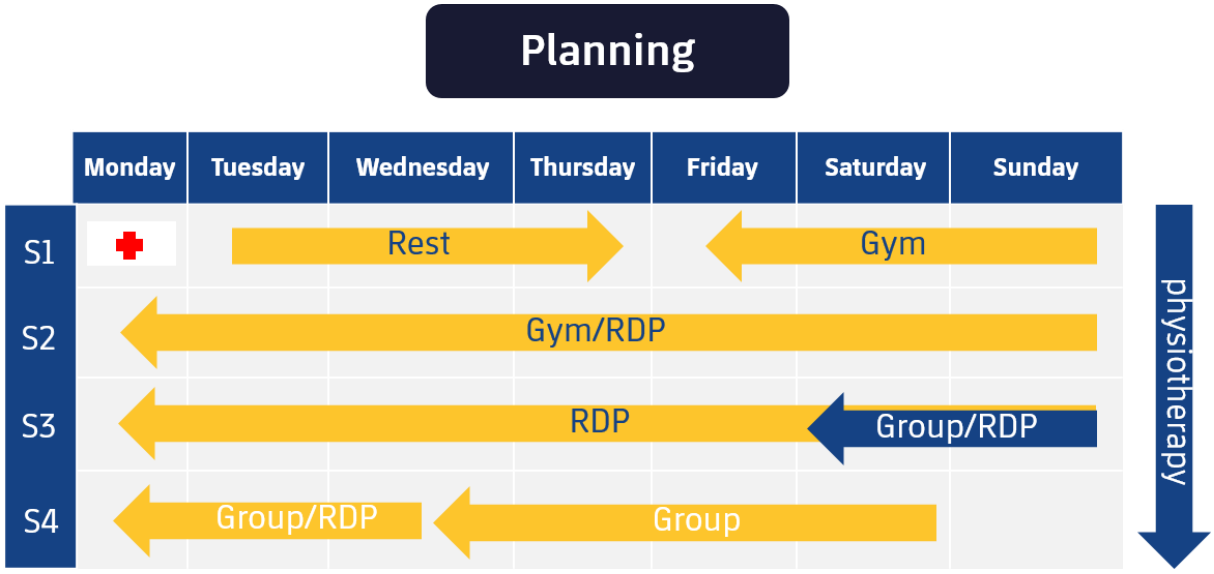
- The knowledge of the game as an event identified by the previous experiences in competitions and training sessions.
- The expectation level of the group for the event.
- The individual's commitment to the team to take actions in the event.
- The level of confidence between the individual and the rest of the team.
- The acceptance of judgments made by mates, opponents, spectators (feeling judged).
- Level of satisfaction in the immediately prior event.
- The player's desires and interests in that participation.

- The concept the player has about their competition level in that event. (Seirul-lo, 2017, p. 266)

In this respect, Daniel Romero-Rodríguez (2005) defines the readaptation process as a work methodology that plans the return to competition of an athlete who suffered an injury. We can see that this definition does not refer to anatomical structures, tissues or exclusively biological processes, but on the contrary, it puts the player in the first place as an individual who a plan of action is established with to return them to the competition. Even, it suggests that the readaptation process will occur from the moment in which the player is considered as someone "biologically healthy" from the injury suffered. The readaptation process has the objective of accompanying the athlete on the progressive return to their specific sporting activity. This objective should be closely attached to the premise of avoiding musculoskeletal compensations and possible relapses. This will be possible only if the planning is correct and flexible enough to adapt to the evolution of the football player.

Thus, it is key to know how to manage the injury. For example, if we have an injured player (diagnosed by the practitioner as injured on Sunday), the next Monday all the tests are run and then the assessment starts. This allow us to know, for instance, that the injury will take 4 weeks of recovery work. The planning (figure 2) suggests that the three first days there will exist absolute respect for the injury and its biological processes. The acute phase cannot be skipped. During the inflammation process, which will last those three days, nothing is done except for applying ice in compression (normally using pressotherapy boots). From this perspective, compression is very important and besides it is done applying cold. Cold without compression does not have the same effect.

Figure 2: Readaptation Process Planning



Source: Prepared by authors.

At the beginning, it could be felt that in these first days we are doing nothing. This means, the player got injured and we ask them only to be at rest. However, letting the biological process perform its function, we are actively working a lot on the recovery. This is the best that can happen in this injured process at first step. Once this first period is over, the injury will be quiet and from the fourth or fifth day, if necessary, we will start working according to the concepts described above.

Earliness. Having 72 to 96 hours of rest does not mean we should start to work slowly. We will do it depending on the symptoms. What we mean is that it is the pain which will preferably define the progress during the work.

Let's imagine a case in which the athlete has to return to play in four weeks. A good way to plan the work is to see the calendar from the moment of their return to play and plan backwards. There, we consider that the player should take part in at least 4 days of group training, the previous days (between three and five) they should do a shared work of readaptation. This means that if the planned loads for this player and the ones for the team training session are similar, we can design an individualized work for this player to take part in some group activities, as long as they endure the proposed loads. So, the third week of readaptation will be combined with the group/team.

Week two (figure 2) will be designed almost completely to do readaptation work only in the gym and not on the playing field at this time.

As regards the days after the rest (inflammation process) until the first week of management of the injured is over (figure 2), the proposal is to work under a perspective functional to movement; for instance, we can work on the rehabilitation table or the floor. This indicates that from the very first moment, we should work on functionality. The injured structure must be moved in all the ways possible.

The important thing here will be to seize all the possibilities of movement and execution that the athlete has without neglecting the **load**. The success will be in load control. Especially, once the athlete reaches absolute movement conditions. It will be key to correctly decide what intensity and volume the athlete will bear in each type of movement. To do this, all the tools that we trust and we have at hand will be essential to control the load. However, and especially in injury processes in which we have doubts about the possibilities of work, the key tool is pain and the athlete's tolerance to it. In this way, if the discomforts are functional to the work, this can be performed. But if the pain is incapacitating, that kind of work cannot be done and it is in this moment when me need to rethink the proposal.

A useful point of reference to assess the progress is that a work that can be done with a bearable functional discomfort, the following day should be done without such

discomfort. If we have worked with some kind of discomfort, and the next day the player has sensations of pain as a result of the work done the previous day, this means that we have exceeded the load in relation with the capacity of the athlete in that specific moment. This does not tells us that the complete process is wrongly implemented or designed. Most of the readaptation processes suggest ups and downs in pain as well as in functionality. We have just to have clear that the trend line (performance, functionality) must go up. There will surely be setbacks as a result of a rejection of the load the athlete is expected to bear. It can happen that in correspondence with the principle of the adaptation, the recovery processes are not the correct ones or they are not enough, and the accumulation of load results in fatigue expressed as pain or discomfort. The best way to deal with this is to see it as a step back to get an impulse and not as a setback. This suggests adaptation to the work.

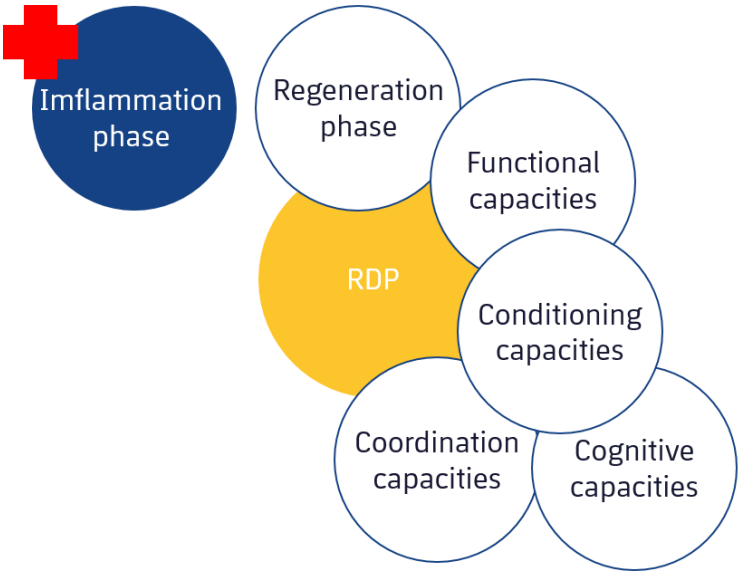
For this same reason the injury should be **managed** since it supposes to correctly place pieces of a *puzzle*.

Going back to the 4-week readaptation process (figure 2), we should not forget the daily physiotherapy work. Normally, we can assign a day of rest every week (generally on Sundays), however if necessary, and depending on the symptoms, we call the player to do a physiotherapy work alone. In this way, we turn the rest into **active rest**.

Let's Go Back to the Readaptation Process

As we have mentioned before, we should respect the inflammation phase.

Figure 3: Sport Readaptation in Football



Source: Prepared by authors.

A posteriori, we find the regeneration phase. In this phase, we start to work on the functional capacities. This means that as we repair the tissue we make it functional to the movements we will later need for sport performance. This also makes sense form the point of view that the movement injures the player, and thus, we should prepare them for that, and this involves all the structures that take part in the movement, even the injured one. Once the movement capacity is developed we will worry about making it efficient.
From here the conditioning structure appears together with the cognitive and coordinative. Take into account that, in the case of football, the conditioning capacities are never isolated from each other, or from the cognitive and coordinative structures.

In summary:

- **Inflammation Phase**
  - Rest, compression.
- **Regenerative Phase**
  - Isometry (if functionality allows it, move forward to concentric and eccentric activities).
  - Active motion.
  - Functional strength.
  - Active functional stretching.
- **Functional Capacities**
  - Global flexibility.
  - Eccentric stimuli.
  - Cyclic speed movements.
- **Conditioning Capacities**
  - Analytic strength.
  - Acyclic speed movements.
  - Strength and speed resistance.
- **Coordinative Capacities**
  - Dynamic coordination.
  - Sprint technique.
  - Perceptual movements.
- **Cognitive Capacities**
  - Perception.
  - Decision.
  - Execution.

During the readaptation process, the thresholds of the players will determine the work to be done.

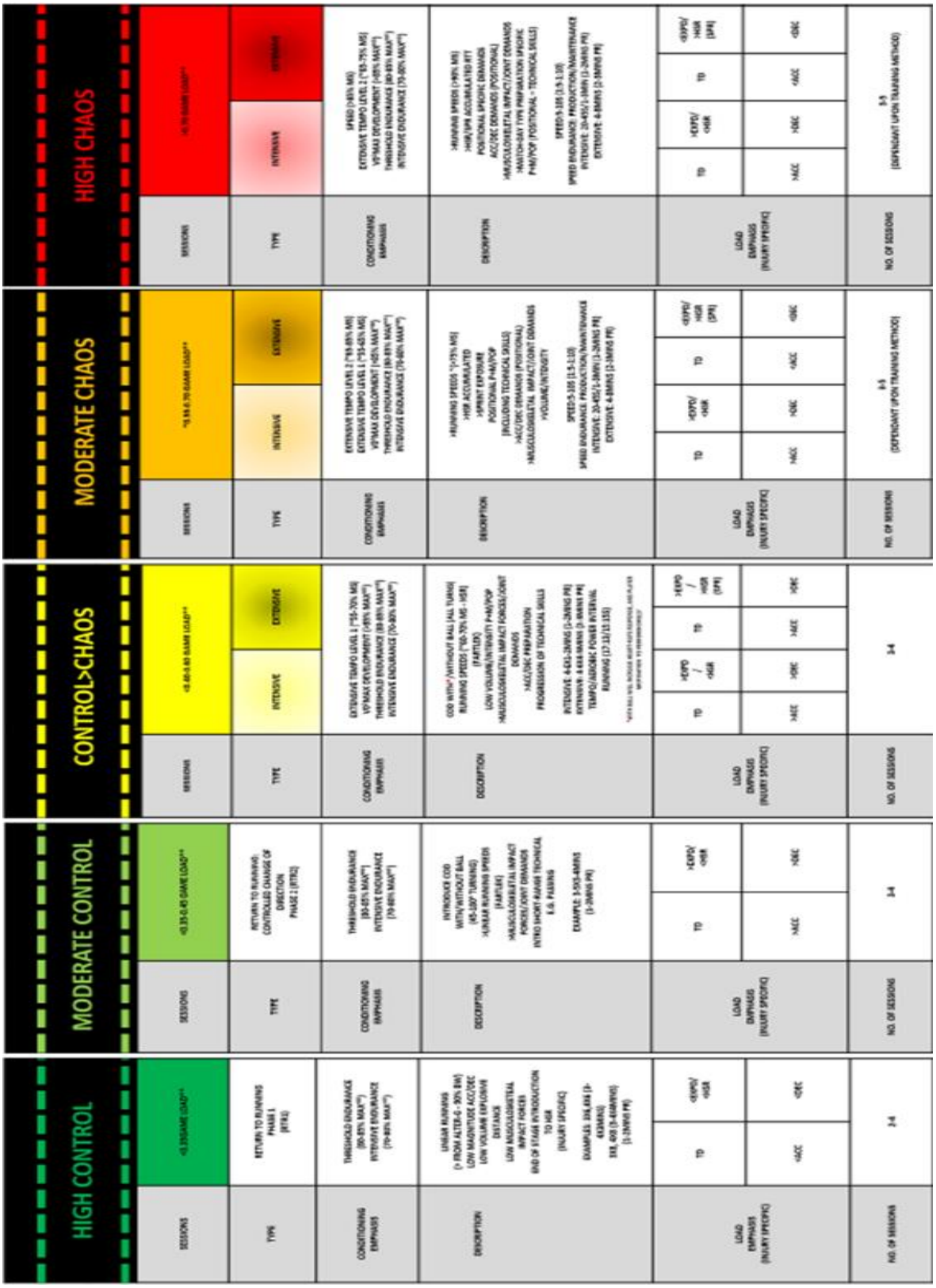
In the regeneration phase, in the case of eccentric action, we should consider that because of its tension and load nature in stretching, it is a damaging action. Thus, it will only be used taking care of the load and range of movements. This implies working only on the joint angles in which the player does not have pain symptoms. It is important to ensure that there are not inhibitions, even emotional ones. This is, if the player, as a result of insecurity, creates an inhibition in any angle of movement or joint range, we will avoid that movement. Especially, when considering the importance given to quality over quantity of work.

Once in what is considered a second phase of readaptation, this is, the one about **conditioning capacities**, we can start to work on the acyclic speed, understanding that football uses it. Strength and speed resistance should be involved. The analytic strength will focus on specific isolated segments to do a functional strength work later, which will adapt to the specific movements for each sport, playing position on the field, and of course, the individual characteristics of the athlete. This strength expression should be as specific as possible according to the game demands for each individual. The coordinative capacities are fully integrated in the previous ones. The same happens with the perceptual movements.

What we mentioned before supposes the increase of the specificity level, not only in the movement, but also in the incorporation of external stimuli, such as the ones that occur in football with a constant demand of unanticipated movements. From here, we can involve the decision making in competition and training sessions conditions.

In this respect, the proposal of Tabern, Allen y Cohen (2018) becomes interesting. This proposal states that the tasks for the training sessions in readaptation processes are studied depending on the control-chaos relation. This suggests that for each activity proposed the player, while performing it, will have a certain level of control on the action, and at the same time, there will be a chaotic element, typical of football. In this way, we could consider linear running as a **high control** activity. Once changes in direction and the ball have been incorporated, we can consider it a level of **moderate control**. For the **control/chaos** case we include situations that require unanticipated responses specific to the game. Once the fatigue component has been integrated to the control/chaos via ***High Speed Running***, we will be witnessing a **moderate chaos**. Finally, for the **high chaos** case, it is suggested to train the maximum demand scenarios specific to the game.

Figure 4: Chaos-control Continuum in Reaptation Process



Source: Taberner et al., 2019, p. 2.

Here there is an essential factor to take into account. The readaptation process, mostly in the closer phases to ***return to play***, should be functional to how the team trains and plays.

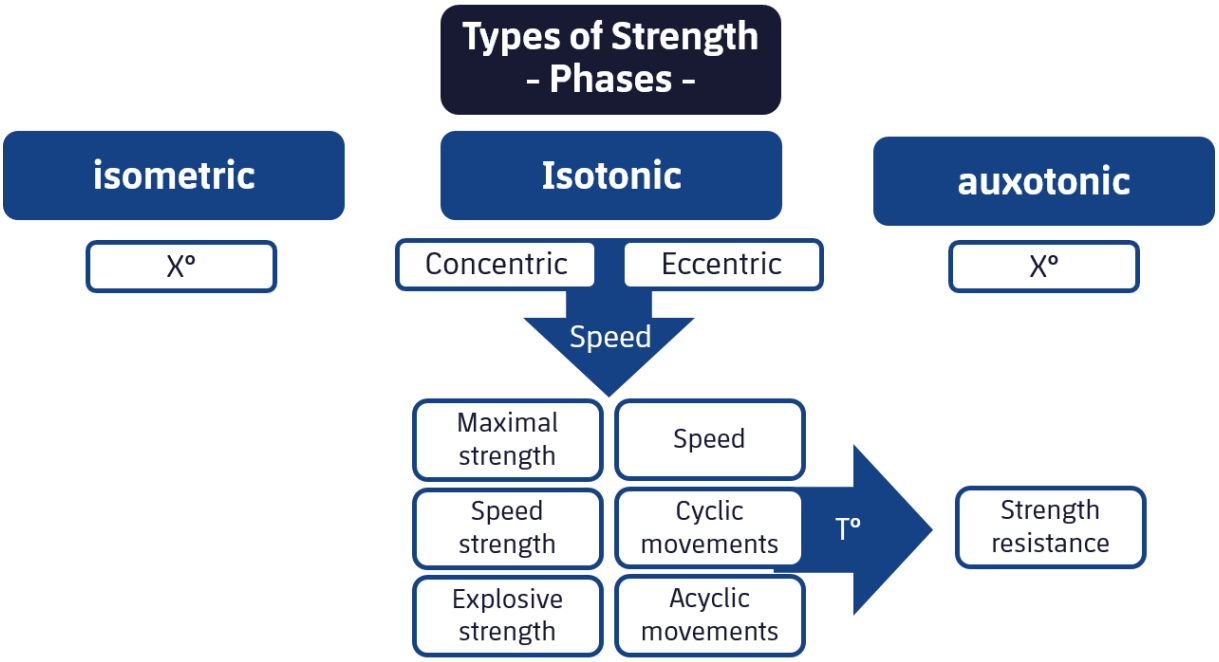
In this respect, the possession of the ball is the essence of the game model of FC Barcelona. This means, the longer is the possession of the ball as a team, the closer to the objective you are. For this reason, the ball is an essential factor in the stimuli of the cognitive capacity during the readaptation process, increasing the difficulty when making decisions. This is due to the fact that the decisions involve the precision factor to avoid the loss of the ball (FC Barcelona game model). The structured model created by Seirul·lo promotes a permanent inclusion of ball possession in the training session (via rondos, possession and position plays).

So, if the play and training sessions of my team are based om this premise, the reaptation process will have to do the same, always progressing from simple to complex, and from general to specific.

Types of Strengths

The expressions of strength performed during the readaptation process are isometric, isotonic and heterometric. The latter refers to the moving strength where there is no isotonia in the whole distance covered.

Figure 5: Type of Strength



Source: Prepared by authors.

Isometric strength is used to work different joint angles, depending on what the injury allows. The proposal is to modify the angles of training of the isometric strength (according to the stretching caused in the muscle) depending on what the pain and symptoms allow. According to the earliness philosophy in the functional injury process approach, it is set to always work so far the injury allows it.

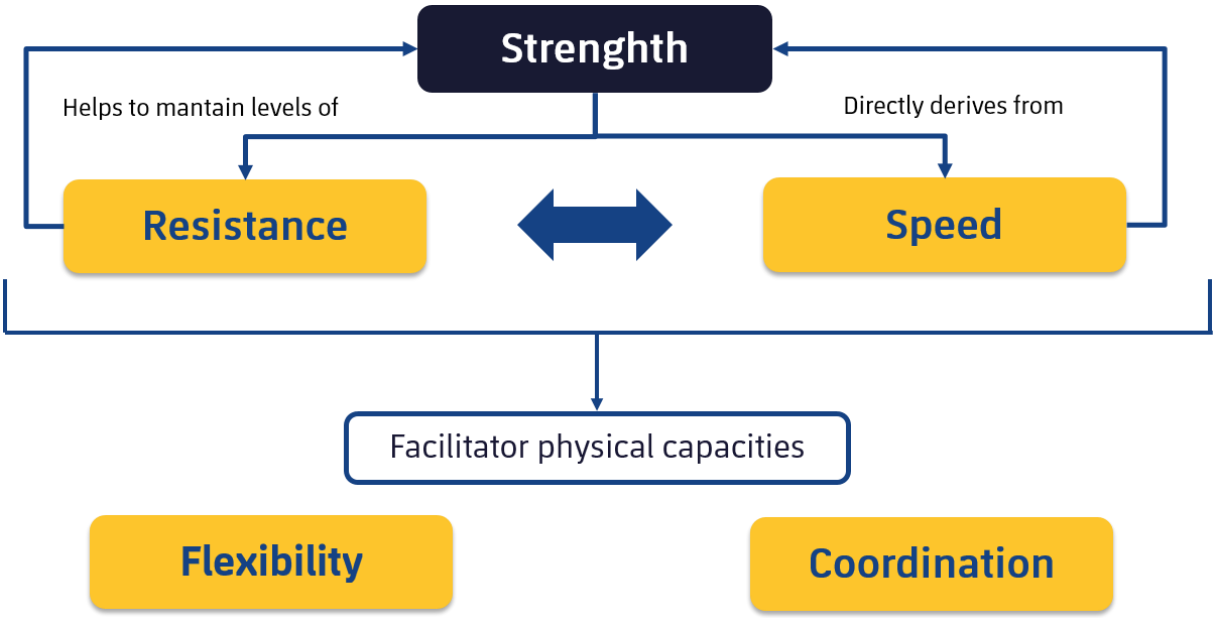
The heterometric phase (concentric and eccentric) will constantly be evaluated depending on the speed of execution, aiming at the maximal strength, the speed strength and the explosive strength. The possibility to give velocity and intensity to the movement is essential when creating the works during the readaptation. This means that the heterometry in strength training at low velocities and intensities is only useful when functionalizing the movement, but we should keep in mind that we need to prepare the athlete for high performance. Readapting a player suggests execution speed which are typical of the competition.

As rehabilitation specialist it is desirable to consider the team training session as a competition. The most important objective for the readaptation process is that the player returns to the team training sessions. This can be considered, in some way, as the "competition" of the rehabilitation specialist. Once this is reached, the physical trainer and the coach will be the ones who take the player to compete the day of the game.

To ensure the successful participation of the player in the group training session we should consider the stimuli of the explosive strength, the elastic reactive strength, the maximal strength and speed. If we value this depending on the time, we refer to the resistance strength.

Julio Tous (2007) refers to the appearance of strength as the essential capacity for functionality to exist. Without strength we cannot readapt. Strength is the mother of all the capacities. Thus, strength and functional strength works will be key in the readaptation processes.

Figure 6: The Strength



Source: adapted from Tous, 2007.

From this capacity, others, such as resistance and speed, are derived, as well as the facilitators, which are coordination and flexibility. Without the latter speed cannot be developed.

Continuing with strength and its importance from the conditioning structure to the performance in team sports, FC Bacelona, trhough Coadjuvant Training (CT) (Gómez, Roqueta, Tarragó, Seirul·lo y Cos, 2019), takes as reference the proposition that the specific qualities are developed according to the degree of similarity the exercises have compared to the competition. Thus, the training proposal will be planned from the orientation (Shelling and Torres 2016) and from the different approaching levels (Mora, 1994).

General orientation covers all these player's needs in which different strengths are manifested, in different speeds and distance covered which are not football specific. In the general orientation we find levels of approaching according the proposal of Mora (1994):

> • Level 0 (not oriented). Muscle work which does not have sports specific movement patterns (antagonists, stabilizers and fasteners). Exercises can be complementary and/or compensatory.
> • Level 0 (oriented). Exercises that work the main muscles for sports specific movement patterns (antagonists, and muscle groups that assist movement) but in an unspecific way and at different speeds, distance covered and loads.
> • Level 1. It is associated with the typical strength exercises but that have certain similarities with the sports specific movements of the sport we are training. (in Gómez et al., 2019, https://www.redalyc.org/jatsRepo/5516/551661240002/html/index.html)

On the other hand, we have

> the "directed orientation" exercises which include exercises closely related to actual specific movements of the sport. Moras (1994) associates approaching levels 2 and 3 with the directed orientation:
>
> • Level 2. Exercises should replicate sports specific movement patterns but with a slight overload.
> • Level 3. Technical exercises where there is cooperation-opposition without decision making or with very simple non conditioning decision making. (Gómez et al., 2019, https://www.redalyc.org/jatsRepo/5516/551661240002/html/index.html)

Resistance for Strength Training

- **Manual** resistance is really useful to perceive the inhibitions of any joint range of the injured player. This can be considered as a subjective assessment, however, it is an effective way to detect this kind of inhibitions.
- **Self-loads.**
- **Elastic.** This gives the player great confidence because they start with a low resistance and finish with an isometric with high resistance. It allows a higher volume of training in early stages of the injury thanks to its adaptability to low working loads and to different joint ranges.
- **Pulleys and Fee Weights.** It is essential to consider the speed of work for the development of functional strength. It allows the optimization of football specific actions through an improvement of the conditioning structure.
- **Pneumatic.** They allow to work power and high speeds in free movement.
- **Inertial.** Devices with conical and cylindrical axis focused on eccentric actions.

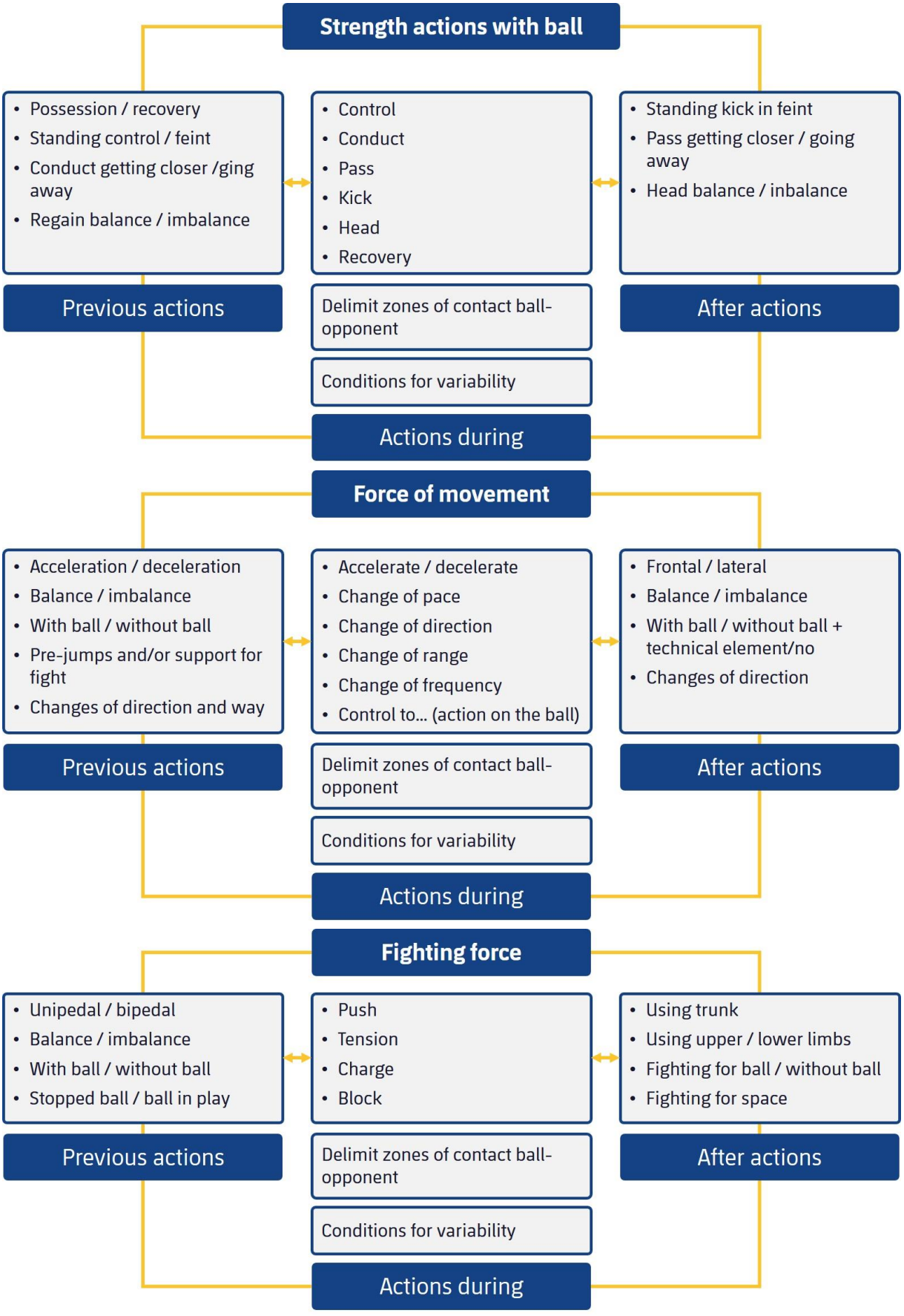
Figure 7: Strength Resistance

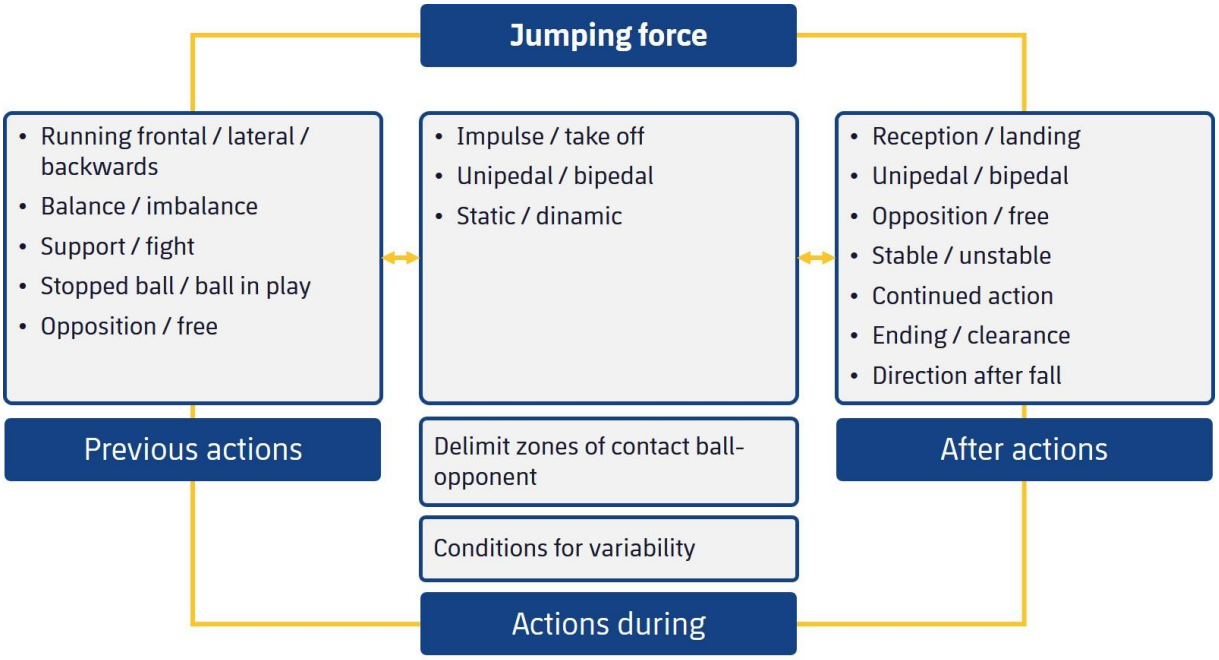
Source: prepared by authors.

Strength and Speed Movement Actions in Football

The different manifestations of strength, this is, the horizontal force of movement, the fighting force, the jumping force (with different vectors of force application) and all the strength expression in actions with the drive.

Figure 8: Conditions for the Variability of Strength Actions in Football





Source: adapted from Gómez et al., 2019.

All this has to be worked on in readaptation. Previously, we said that the injuries are produced in movement, thus, we should readapt and train in movement. Here we should use the same concept. The strength manifestations mentioned in this paragraph have a high injury rate. Thus, these actions are the ones that should be trained in the optimization as well as in readaptation.

Figure 9: Strength Manifestations in Football

Source: Prepared by authors.

The values of strength application on the field rule in football, and they are obtained through GPS. These are expressed in the following parameters:

- *Sprints*: sprint higher than 1 second at + 21 km/h.
- Accelerations: + 3 m/s2.
- Decelerations: + 3 m/s2.
- *High speed running* (HSR): total distance at + de 21 km/h.

Figure 10: Strength, Speed and Movement

Source: Prepared by authors.

For the latter parameter, we find two variables: general and individual. When we have a higher training load we have an individual HSR. It is obtained when calculating the distance the player covers at a speed higher than 75% of their maximum speed. This parameter will be classified as a much higher training load.

Then, we find the tasks with mixed orientation, which will take place the day of the game when all the contents converge: maximum acceleration, maximum decelerartion, HSR, speed, *sprints*. This could be valued via the GPS.

What is interesting and, at the same time, challenging when planning a training is the sum and overlay of this kind of actions. The playing situations are made up of a series of this kind of actions, in the ball possession phase (attack) as well as in the recovery phase (defense) with the addition of the unanticipated that characterizes acyclic sports. Here lays the complexity of the readaptation processes, especially in the final phases of these. Thus, sport in itself is detrimental, depending on the actions we perform. If during the readaptation process we do not take into account the quick and unexpected efforts, the changes of direction, the spins, the pivots and jumps, we are not preparing the player for competition. These are the stimuli that make up a football game, a myriad of strength, speed and resistance actions.

Taking into account what we have expressed previously, we can confirm that injury prevention does not exist as such, as an isolated agent. Prevention is a net of stimuli that prepare the player for the complex demands of the game.

The playing situations will determine which movements we are going to chain. The base of the player's abilities to perform these complex actions successfully, will be the strength and cognitive works. The latter, based on the premise that perception and decision making are trainable.

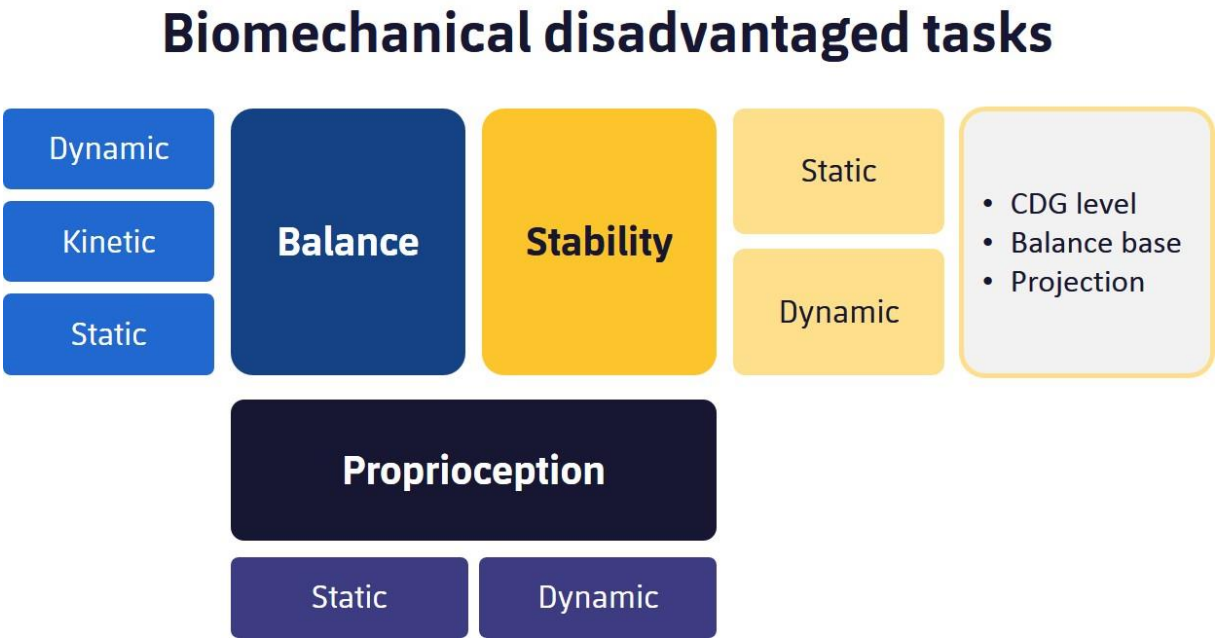
Circuits are an excellent way to combine and link these efforts. The work design for this kind of tasks allows the rehabilitation specialist to use the resources specific to the sport played, and even direct them to the game model of each team and to the individual characteristics of the athlete (including their role in the team). Different from the real game or training situations of the team, here the conditions are of maximum control since the component of opposition is absent. If this component appears, it will do it in a passive way or with certain limits in order not to risk the physical health of the athlete in readaptation. These isolation conditions give the player an ideal security and control feeling to boost the readaptation process in a specific way in relation to the game. In this way, training unexpected situations will have a desirable degree of security in the expected context. In opposition, and as result of these isolation conditions in the readaptation work, the professional should design the tasks that allow the highest simulation in relation to the game and to reaching its physical demands levels.

This is why we highlight the importance of not offering recipes when sharing knowledge or methodologies of work. Each training situation is a mixture of design and execution.

Tasks in Biomechanical Disadvantages

As we have already mentioned, it is essential to work in high injury actions specific to the game that are, at the same time, game determinant. As proprioceptive capacity, balance and stability.

Figure 11: Biomechanical Disadvantage



Source: Prepared by authors.

If we have the chance to put into images the actions of greatest importance in the game, we will observe that all of them have a high injury risk component due to the biomechanical disadvantages produced in them. Thus, these situations have to be trained, especially from the strength training approach. For this, the elastic resistances could be a great resource. Besides, if we add a drive to make a technical action, depending on the task, we will be facing works that will reduce risks. This is why optimizing training is an essential component when minimizing injury risk (not to prevent it).

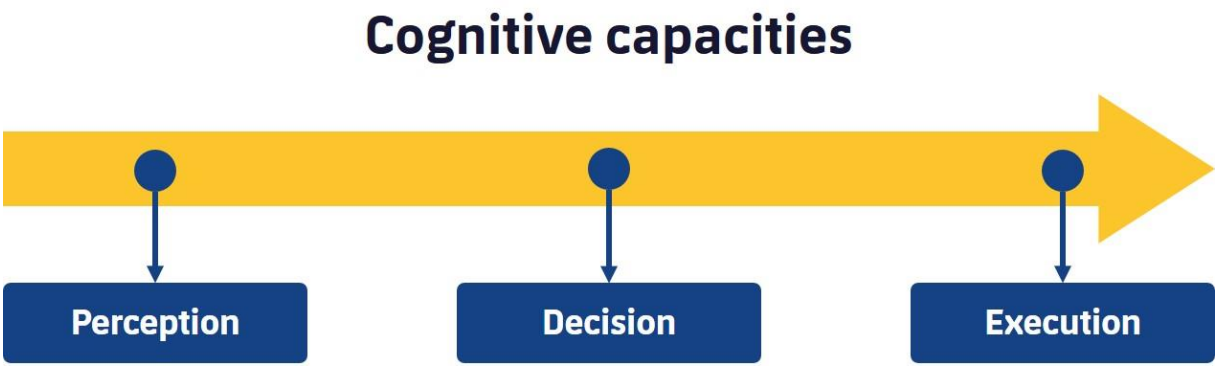
However, when we talk about prevention, there are more injuries every time. This is the result of busy competition calendars and the teams barely having time to train and recover. A team that takes part in two competitions, plays two games a week. Probably, the team has only one day to train in an optimal way. Although, at the same time, it is probable that the players need rest, since in occasions this could be the best training. Together with this, diet, hydration and general recovery strategies play a key role when boosting performance.

Going back to the biomechanical disadvantages, there are playing situations that are impossible to foresee, as the loss or recovery of a ball. It is in these situations that the actions of loss of balance occur and put the player at injury risk. What needs to be done is to train these kinds of situations so the player is prepared to bear them.

For this, we need to train movement under concrete orders and then exercises in which the athlete has to make the decision to act really quickly in a series of tasks and assignments that put them in the situation of making a decision in a very short time (and other limitations). The aim with these works is not to give the player so many orders, but that the task context takes the player to feel the urgency to act at high speeds and precisely. Thus, task that are similar to the specificity of the game should be designed.

The cognitive capacities are closely related to what we have previously proposed. The presence of decision making, when and how to act, should be considered when designing the tasks.

Figure 12: Cognitive Capacity



Source: Prepared by authors.

A valid resource for cognitive capacities training are the lights that provoke a reaction to a visual stimulus. In a task, it could be proposed that every time a light turns on, the player should turn it off with the pass, and if the technical action is imprecise, this will turn into a ball loss. The loss of the ball possession is actually a component of the game that could be stimulated through this system. It is essential to stimulate the automatic response to recover right after the ball loss. For this, response is a key factor. The stress factor has to be stimulated and involved in the readaptation tasks. Let's consider that the number of stimuli perceived by the player will be proportional to the amount of stress that work creates.

According to the GPS data, a series of 20 seconds of this kind of work, where the conditioning, coordinative and cognitive structures are stimulated and game components involved, could mean a relatively bigger effort compared to the works where a specific single capacity is isolated. It could be even more effort-demanding than when participating in the group training session.

However, apart from the values given by the GPS, the readaptation work takes place in solitude, which is considered a great limit when involving the player in situations similar to the ones in game and competition. For this reason, even before sport clearance, this is, during the readaptation process, the player should participate, to the extent possible, in the greater number of group activities, where the opposition and confrontation for the ball are constant.

Let's move now to works in sandbanks. It is an excellent resource to promote earliness at the beginning of movement during the readaptation process. It allows accelerations and decelerations with a low impact load. In relation to this values above 8G are considered as high intensity. The sand surface allows to perform actions that on the grass will mean a higher intensity impact, such as jumps and spins among others.

This creates an excellent combination between a low mechanical load and a high strength component at muscle level. Training in the sand will not extend in time, thus, there is no risk in creating readaptations that are not desirable for football or any other surface sport like grass. What is sought here is an increase in the metabolic rate to the cost of a moderate or low mechanical load.

Adding to this, in the soleus injuries, the sand surface boosts the stimulus of the toe flexor and the intrinsic muscles of the foot, which optimizes footstep. The latter can also be achieved doing barefoot tasks on a surface other than sand. It is extremely important for the muscles of the foot to be strong enough.

In the case of injuries in the soleus and Achilles tendon, the work on the toes flexors is essential. Mainly of the flexors of the first toe since it is the driver.

Readaptation is an open and flexible process, but most of all quantifiable. We should be able to quantify what we do, since whatever we do not quantify, we cannot manage, and thus, improve. This does not mean that those who have GPS technology can give a number value to their readaptation process. On the contrary, only with a chronometer and a pedometer we can measure a great number of useful variables when managing the readaptation process.

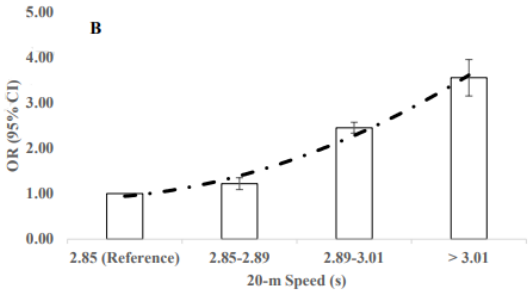
Adding to this, the values of internal load as the PE (perceived exertion) are really useful. We should start from the premise that the player is telling the truth, and thus, this tool has an irrefutable objective value.

To put a player into competition again (***return to play***), we should consider, among other variables, the conditional values, to reduce the odds of a reinjury. To do this, we need to have a detailed record about the external load, the internal load, the training conditions, the game conditions and the perception the player has of the objective.

As it was previously expressed, rehabilitation specialists should lead the process and accompany the player in every moment. They are the ones who accept the objective, since they have to take the control of this process and make it theirs for it to be successful.

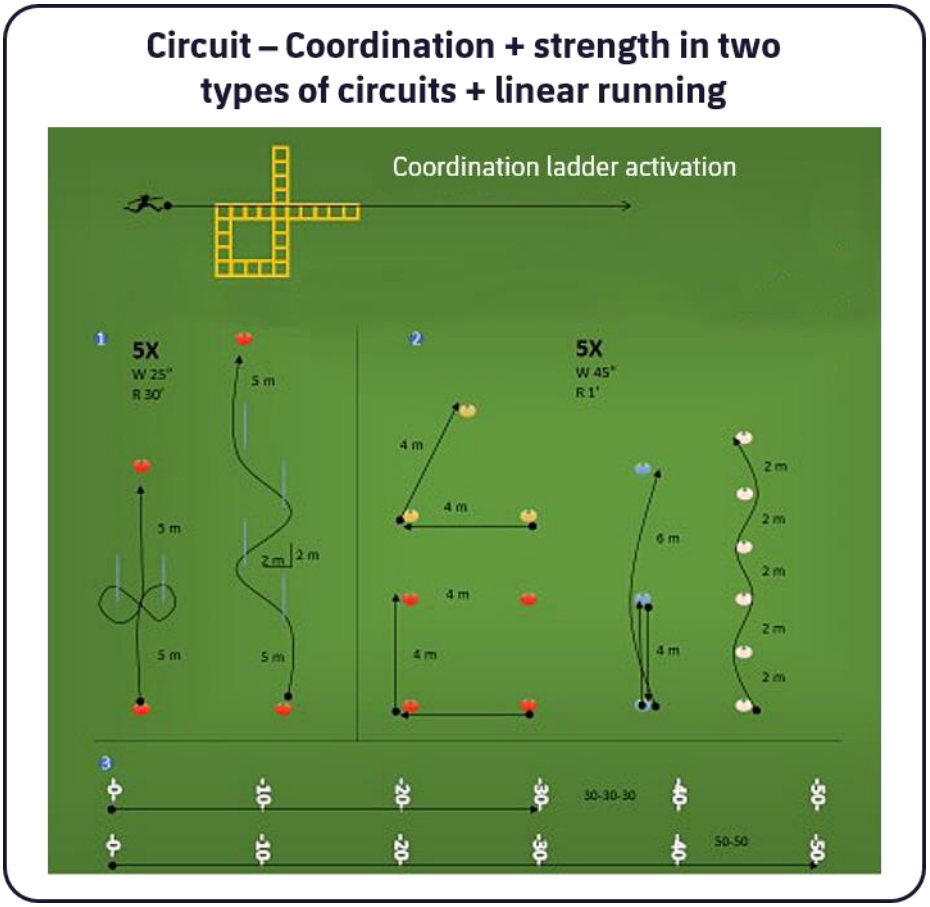
Below, a series of exercises in a circuit model are presented. These value the different structures of the athlete. In them specificity is given priority, in this case, strength, speed and distances no longer than 30-40 meters of movement. Malone, Hughes, Doran, Collins y Gabbett (2019) found a great influence of the conditioning structure in the injury risk. Specifically, higher strength levels in lower limbs, speed and capacity of repeating *sprints* (RSA), have a high level of correspondence with a reduction of suffering muscle injuries due to overuse.

Figure 13: Relation between Speed for 20m Sprints and Injury Risk



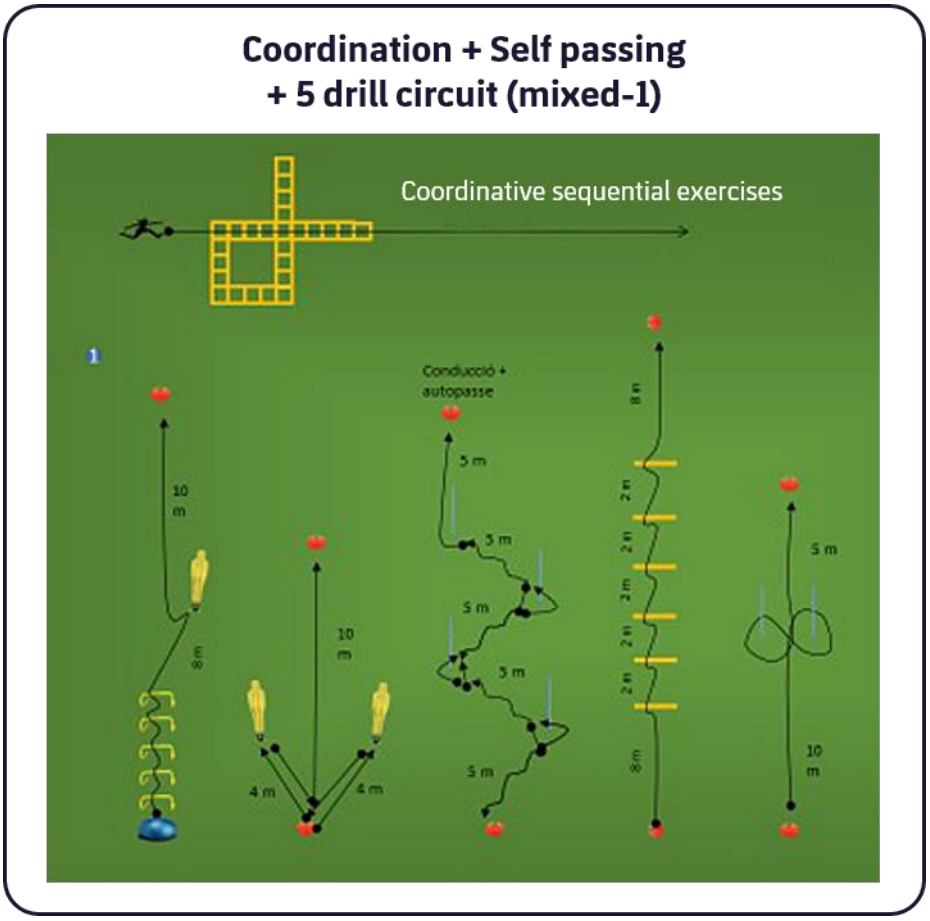
Source: adapted from Malone et al., 2019.

Figure 14: Specific Exercises 1



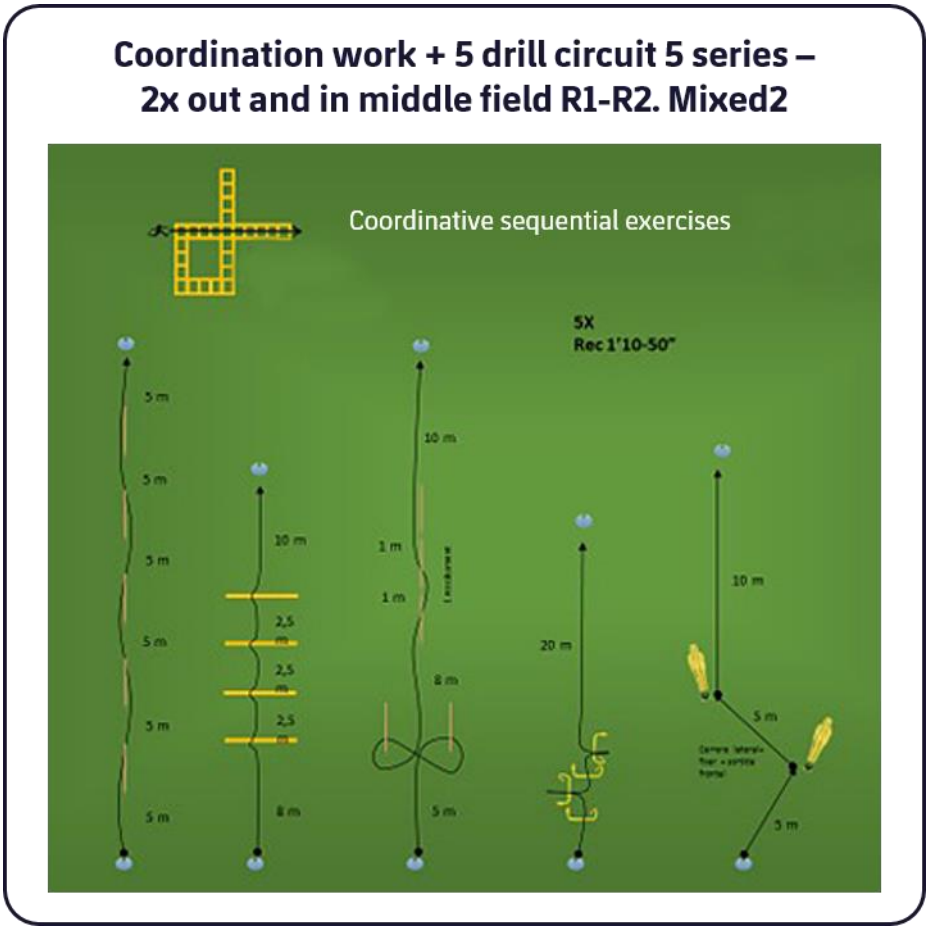
Source: Prepared by authors.

Figure 15: Specific Exercises 2



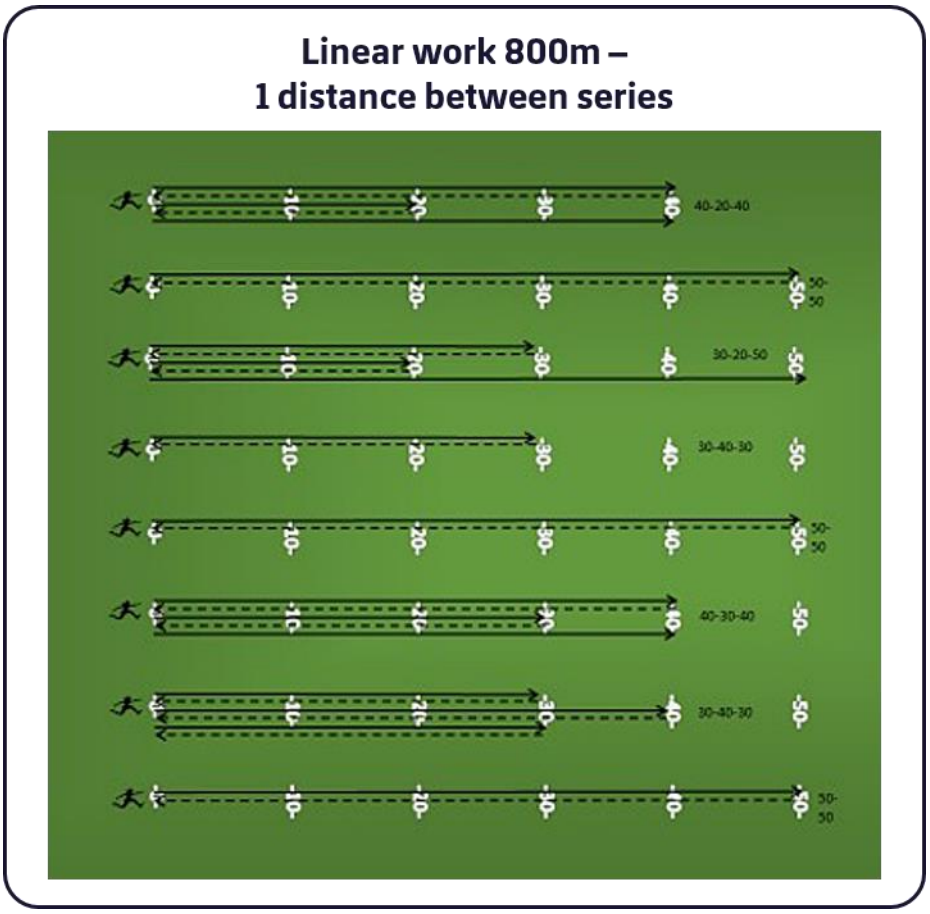
Source: Prepared by authors.

Figure 16: Specific Exercises 3



Source: Prepared by authors.

Figure 17: Specific Exercises 4

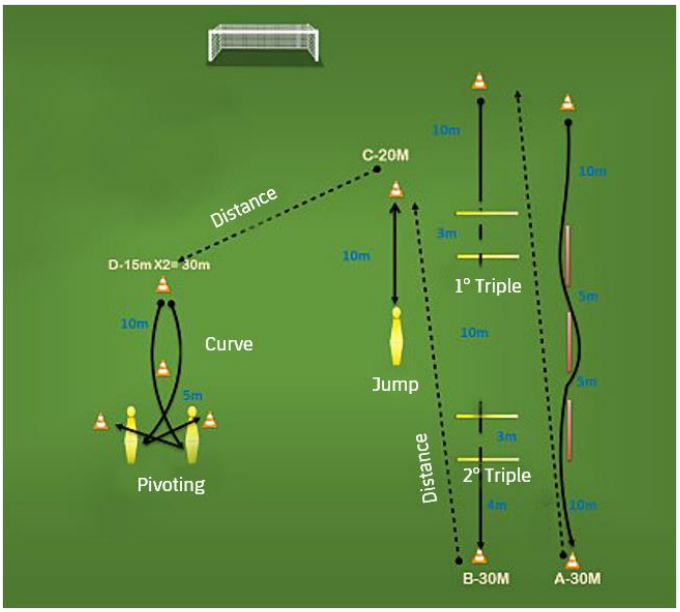


Source: Prepared by authors.

Figure 18: Specific Exercises 5

A. Acceleration with curve HSR-SP.
B. Acceleration with 2 of triple HSR-SP.
C. Acceleration/Deceleration. Jump + Spin-Sprint.
D – C. Acceleration/Deceleration + Spin-Sprint.

40% Distance > 21 Km/h
+/- 110 m x serie



Source: Prepared by authors.

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