

AN INTEGRATIVE APPROACH TO DEVELOPING SPORTING EXCELLENCE

INSIGHTS FROM FC BARCELONA'S 'LA MASIA'

– *Written by Lex Rees, United Kingdom*

'La Masia', the FC Barcelona (FCB) youth academy, translates into English, simply as 'the farmhouse'. The FCB motto is 'més que un club', and as one of the most successful sporting teams in the world² FCB is definitely more than a club, and La Masia is without doubt more than just a farmhouse.

Using typical Catalan simplicity, employees refer to it as "Masia", a brief nickname that almost downplays the alumni who have come through the ranks; those whose fame reaches such an echelon that names in their entirety aren't even needed: Guardiola, Messi, Iniesta, Fabregas, Xavi.

Masia's reputation equals that of its protégés. The news media have described it as "the fame academy" and a "conveyor belt of excellence"³. Masia entered a new generation in 2011, when in October of that year they opened a £9 million facility to complement the over 300-year-old original 'farmhouse' (Figures 1 and 2). But facilities – farmhouses or state-of-the-art – are more than the sum of their parts in bricks and mortar. The recruitment, development and care of the players are what really shroud Masia in excellence.

For this issue of the *Aspetar Sports Medicine Journal*, La Masia has provided

an exclusive behind-the-scenes look into their integrative approach to maximising sporting talent. We spoke with Dr David Domínguez (responsible for player health) Andres Martin (Physical Trainer) and Dr Ricard Pruna (Head of Medical Services for all FCB teams) (Figure 3).

Masia is considered the global leader in academy football. How does your approach to recruiting young talented players start?

We have developed a health and fitness screening process that incorporates the recruitment department and the technical experts – strength and conditioning,



Figure 1: The original 'Masia' (farmhouse) (copyright: FCB.cat).

Figure 2: La Masia in 2017 (farmhouse) (copyright: FCB.cat).



for them, according to their strengths and weaknesses. We screen for potential future pathologies to identify the weak points of each player and do specific work to prevent injuries given the impact they could have on a player's development.

We have implemented a new plan called 'Masia 360°', which is an interdisciplinary group of professionals who work together to take care of whatever the players need. We look at everything holistically. Different specialists give support to the athlete: physiotherapists, psychologists, doctors etc. There are different approaches depending on the needs of each player. Doctors look after health and injuries with a physiotherapist and they are linked with the nutritionists to create habits for good diet and hydration that best suit each individual player. This can involve vitamin supplements and performing a blood test to screen for something like risk factors for chronic fatigue syndrome and, if that could develop in the player, we take steps from a holistic perspective to ensure that the athlete is kept healthy.

So does 'Masia 360°' incorporate the sports science programme or is 'Masia 360°' the name for the sports science programme?

This is interesting as perhaps it isn't the same as other places. There is a big area of the organisation that is about sports science. We have 12 doctors, 16 physiotherapists, 26 physical trainers and within our technology department; video analysts, GPS analysts and more. All of us work together and come

and physical trainers – who advise on recruitment based on the outcomes of our battery of screening tests as guidance of how to best service each talent. If we detect a potential issue that we feel is going to influence the future health of an athlete, we use an integrated approach to see how much of a problem it may be. Our focus is to address the problem and use a blended approach (education, psychology, physical training, medical) to help.

'Integrated approach' is a widely-used phrase. Can you explain Masia's interpretation and application of integration?

First of all, Masia actually takes care of the academy teams of five professional sports: football, basketball, handball, futsal and roller hockey (Figures 4 and 5). Looking after the teams are a group of 26 physical trainers who do strength and conditioning work with all the athletes, in a variety of ways, starting at 15 years old. At 16 years old, they progress to the specific technical and functional movements of their sport. For example, in football, we have four areas of work: shoot, fight, jump and run/move. All the players have their body composition assessed with DEXA and then an individual programme is developed



Figure 3: Dr David Domínguez and Dr Ricard Pruna.

Figure 4: Youth football (copyright: FCB.cat).

Figure 5: Youth Basketball (copyright: FCB.cat).



under the banner of ‘sports science’. And of course within this are the various youth team sports (Figure 6)

We have a responsibility for a sports discipline (such as football or basketball), there is an assigned doctor, coach, physical trainer and a physiotherapist within each sport. But then all the doctors (the Medical Department) have one meeting a week, and the physical trainers etc., the same. There are also regular meetings and consistent communication between the medical practitioners, the physiotherapists and the physical trainers. Every day, each team has a meeting to discuss any problems, the efficacy of the programmes, specific needs of one player; really anything that needs to be discussed as a group is talked about in one of the meetings. Communication is a key aspect in our organisation and our care of young players.



Our structure is like this: our overarching department is the Departamento Científico (sports science) because it involves all the sciences that can potentially help a player. Medical, Performance, and Technology departments sit under the Sports Science Department. In the Medical Department, we focus on what doctors can do, but we also work alongside physiotherapists, physical trainers and sports technology scientists. All the areas of work link very closely and overlap. The facilities, devices and techniques that we have for each area (e.g. medical or physiotherapy) are joined up to improve the fitness or health of a player.

Established 2 years ago, our sports technology/analysis department is the newest addition to the sports science team.



Figure 6: Overview of Masia 360° (copyright: FCB.cat).

Previously, each area of expertise acted separately, like small islands. But after we became aware the player needed a different approach, data drove this holistic vision, which meant all the departments started to interact and we built solid bridges between these islands. That project really created the Sports Science Department. When we are all linked together and have meetings as a group, we help each other and give the very best to the player. Nowadays, for example, when we try to find out what is the major risk in chronic fatigue syndrome, we pay attention to the technical analysis and strength and conditioning as well, not just health from a doctor's perspective. This way, we get a much better understanding of the player, the atmosphere surrounding them and how to develop it positively.

How important is technology to the Sports Science Department at Masia?

Everything is 100 per cent data driven. No paper! We have a central online database that holds all the information on the programmes and the players. No one person holds all the information on one area; it's all shared. If we look at an athlete's file, it's possible to see the medical appointments, notes, player information, MRI, ultrasound,

treadmill test, everything. Each area of expertise has their own homepage, so the physical trainers have one area to populate, the physiotherapists another and so on for each profession for each file on each individual player. So for one player, there's an access point and area for population by the physical trainers, doctors, physiotherapists and psychologists, and it builds a complete picture. You can see what everyone else has written and it means every member of staff has a complete picture of what is going on. However, actual communication within and between departments remains key when interpreting information.

We partner with Toshiba and travel to Japan to deal with them directly in order to provide the best MRI and scanning equipment. We work with WIMU for our GPS. We have created an entirely bespoke programme called COR, reflecting the centralised approach to our work. COR stands for Coneixement (knowledge), Organització (organisation) and Rendiment (performance). It allows us to gather all data on all aspects of player care. The technology department analyse the content that has been entered and using our own 'big data', we are able to answer questions we have. We can ask questions or look for specific

information, such as injury data on all proximal rectus femoris during the last 3 seasons.

Adding each player's GPS data to COR allows us to have a history of all their movement, everything they have done, all the characteristics of each player's movement patterns. We have information on maximum speed, velocity, metabolic load, distance and high-speed running – which is updated as players progress in biological age, category, qualities etc., everything from the whole session from the very first minute of work. So we don't just have information for the player, but for the position they play in. Position is taken into account and the different values are used to assess the athlete- and player-specific fitness profile.

How open is Masia about sharing best practice?

We are open-minded about sharing. We want to share what we are doing with other teams and universities. We have linked our departments and created this integrated approach, as we know we need constant feedback. Connecting with universities in Spain, the USA and around the world gives us more feedback and enhances our

knowledge and competencies. We truly want to encourage open-mindedness to improve our big data and better our objectives and results for future athletes. We hold congresses and conferences on sports medicine, strength and conditioning, and sports technology and we invite different technicians and engineers from different clubs to come and share information. We aim for this to be a two-way street with our experiences and knowledge also helping those that we collaborate and share with. We believe sharing is the future and how we will truly progress.

We also encourage our staff to study and complete their PhDs in areas of work with Masia. In the Sports Science Department, we have five members of staff with an MSc and PhD, and four more employees are working towards their PhD. For example, the current topics we are focusing on with PhD study are muscle and tendon pathologies. Our staff studying this and applying it to their work and propagating this knowledge within all the different areas.

Working with youth athletes poses a unique set of challenges. How does the team at Masia ensure that young players are properly cared for?

We have a timetable where those under 16 train in the afternoon for 90 minutes, 4 days a week plus a game. Those 16 to 19 years old train every morning at 8.30 am (for 90 minutes) and then during the season again at 1.00 pm for another 90 minutes.

We don't have a general protocol to manage load. With our COR programme, we use the individual profile of a player to analyse their specific values. With youth athletes, we look at overall load: if there is overloading, where is it coming from? For example, we completed a study analysing the behaviour of RPE on internal load in athletes compared with injury profiles. If we detect an increase in injuries, we have a meeting with everyone to analyse the relationships between GPS, RPE and rate and type of injury, and we identify patterns and potential reasons why, so we can action a plan. The outcomes of the study and the treatment were fed back into COR for future reference.

Obviously, older more skilled athletes in the first team are more technical and

play smarter compared to the youth. Youth athletes are technically inferior and therefore more data is needed to understand where the overload is coming from, for example, is it from their high-speed running? This is the reason that we collect data specifically on each youth athlete, to gain intelligence within each category. Throughout the player's time at Masia, as a medical and science team we focus on monitoring and developing the physical and mental qualities of the players while the technical/tactical coaches teach them to use these physical qualities at the right time.

The life of a professional athlete/player is psychologically very demanding. How does Masia's holistic approach ensure this aspect of young athlete development is taken as seriously as physical development?

All the players living in Masia have a mentor and access to a psychologist. Upon joining us, every athlete has an interview so we get to talk and learn about their family, their studies, what they are scared of, etc. – everything is covered. If we detect a problem, we can address it immediately and implement an ongoing strategy, just like we would if it was a physical issue. If a problem arises in the future, we have all the background information stored on our database from this interview. When a player gets injured, we know that monitoring their psychological health is very important. With a long-term injury, we work very closely with our psychologists to help the player better resolve the issue.

We have a philosophy that the atmosphere in Masia, creates a mental strength that allows athletes to cope when facing challenges. There are a lot of new players joining the first team, coming from different places, who find it difficult to adapt to the very large team that is FCB. It's easier to adapt quickly at Masia. They are younger, they are growing and they adopt our habits and develop understanding about the way things are done here.

In addition to technical football skills, players can learn to adapt to the life of a professional athlete: homesickness, self-confidence, adapting to your environment. Messi, who grew up in La Masia needs less support than others who have come

from outside. Masia and the 360 approach protects the athletes and creates a family environment. Youth athletes feel a lot of pressure and pressure causes a drop in performance. Sometimes parents try their best but become over-protective which has a negative effect on success. Masia is like a family who protect and look after the athlete in the best possible way.

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