

10 Challenges Facing Today's Applied Sport Scientist

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Applied Science | High-performance | Opinion Paper

Introduction

The role of the sport scientist in high-performance sport organisations is currently very diverse internationally. Countries like Australia or the United Kingdom have long histories of placing sport scientists in professional teams and federations; these countries have been pioneers in this area via/through the English Institute of Sport (EIS), the Australian Institute of Sport (AIS) or professional team clubs (e.g. Australian Football League, Rugby League or the Premier League). There, the figure of the sport scientist is well integrated in the organisational chart, playing a key role in the overall performance and the staff are completely familiar with the role, in the same way they are with fitness coaches or physiotherapists. However, this situation is not common in other countries like Spain, France, or the United States (US), to mention but a few. For example, in the US only about a third of the National Basketball Association (NBA) organisations (30 franchises in total) have a full-time sport scientist on their performance staff. In another example, in France, where the French 1st division in football is growing yearly and the TV rights are currently exceeding 1 billion Euros per season, only two clubs (out of 20 Ligue 1 teams) have a sport scientist working full-time, to the best of our knowledge and at the time of writing. This situation is also similar in other professional or Olympic sports, which makes this job exciting but at the same time extremely challenging since, in most cases, everything still needs to be built.

Being aware of this challenging situation, we decided to write this opinion paper to share our experience in this area. Seen from the outside, being a sport scientist in a country (or a sport organisation) without tradition in this field could seem easy. Moreover, often the media reports how top-teams are building their success by taking advantage of the latest research or from novel technologies. People retain the sexiest aspects of the job: nice dashboards, 2.0 technologies or fluid communication, among others; but less is said or written about the *submerged part of the iceberg*, which involves complex human relationships, doubts, personalities, mistakes, resilience or educating the sporting community.

The main goal of this article is to expose some of the challenges that, in our opinion and experience, may involve the implementation of sport science in high-performance and professional sports lacking tradition in this role, and to discuss the concerns pertaining to the work of the sport scientist in those environments where such a position is new.

CHALLENGE 1: Understanding your (new) context and challenging yourself

In a country or an organisation where the implementation of sport science remains in its infancy, the general profile of a full-time sport scientist position is a male with 30-45 years of age, preferably with a PhD in sport sciences, although not

necessarily with previous experience in that particular sport, but presumably with previous experience as a strength and conditioning coach. *However, this is just a stereotype.*

The sport scientist is expected to provide support to the performance and medical staff, mainly through the implementation of monitoring strategies and readiness assessments. It is also common that they may be involved in the process of recovery, optimising injury prevention, nutritional strategies or even overseeing the strength and conditioning programs. Some of them can also have research and development responsibilities. On the other hand, some are not allowed by their institution or the league (1) to share or publish team data in order to maintain the research processes internally. *However, sometimes expectations may not be well defined or clear, at it is up to the sport scientist to define them him/herself.*

One of the first challenges is certainly to understand the context and the sport/club culture (the non-written codes), and probably the individual will have to adapt depending on their sport science background: academia versus "hands-on" (2). The path of the sport scientist generally starts in the academic environment (university, research laboratories, or alike), where after a sport science degree, he/she conducts a PhD in a specific field of knowledge (e.g. physiology, recovery, sports nutrition, etc.). In this context, there is time for reflection to address the research question, data collection can take several weeks (or months), and most of the time the deadlines for the different steps of the process or the final result are vague. The arguments of the conclusions are research-based (aka evidence-based), and the results are valued by a thesis committee or a peer-reviewed journal process, where the final reward is a dissertation and published paper(s).

For a sport scientist working in a high-level or professional sport organisation the situation is completely different. Unlike the academic environment, orientated towards a specialisation, the spectrum of topics to cover is large and does not always rely on the initial specialisation or area of expertise of the sport scientist. The scientific method should be the same, an orderly series of procedures to try to extend our knowledge and solve questions that include (but are not limited to): data collection, data analysis, drawing conclusions and, finally, communicating the results. However, the process is quite different compared to academia.

Firstly, questions can potentially come from very different areas related to performance, which pushes the sport scientist to develop a multifaceted/polyvalent profile instead of exacerbating the one specific area of expertise, although the need for specialisation can also occur. Secondly, the data collection needs to be time-efficient, easy to gather, as non-fatiguing / non-invasive as possible, and often completed by the whole team simultaneously (3). Additionally, the amount of time available for data analysis is short and in most cases a report must be delivered before the next training session, which usually means in the following minutes, hours or the next day. The data collection (e.g. training, game, physical assessments) and its analysis processes (i.e. reports) are usually established at the beginning of the season and remain stable during the

current season. On top of that, the new data tsunami (4) pushes the sport scientist to keep developing data analysis skills (not only basic statistical analysis, but data mining and programming) or to collaborate with other experts (e.g. data analysts, data scientist) to make the process as efficient as possible and the reports understandable and interpretable by the different *receivers* of the information. Related to this point, the way to communicate the results differs in both contexts too. In university, the sport scientist mainly has to teach students and/or to drive research, and he/she makes the decisions (in agreement with the university). On the contrary, in a high-performance organisation the situation is quite different. In this context, the role of the sport scientist is to facilitate the process of decision-making of others, from the head coach and his/her staff to the management personnel.

On the other hand, the same way Australia or the UK have a great tradition in sport science, individuals from these countries may be disadvantaged by their knowledge of the US major leagues' sports (NBA, NFL, NHL, or MLB) or other sports. *Hence, maybe one way or another, you can find yourself in a new context.*

Tips to handle challenge 1

- Understand your context.
- Understand the sport that you are working in.
- If your role is not well defined, it may be on you to define it yourself.
- Diversify your field of expertise; sport science is a multidisciplinary science.
- You will likely be expected to provide support to the performance and medical staff and even to report to management:
 - use clear and simple language to communicate with others. Adapt your way to communicate to the receiver.
 - be concise in your explanations; extend them when required.
 - focus on the practical implications, and on the potential underlying mechanisms when asked.
 - create a reporting system that includes different levels of communication:
 1. key information, concise and straight-to-point
 2. comprehensive reports with a deeper level of detail
 - build easy-to-digest sources of information for the staff and players, and more complex when appropriate.
- Develop processes to speed-up data analysis.
- Diversify the sources that you are using to learn: scientific journals, blogs, podcasts, YouTube channels, or contact experts in different fields (see Appendix for some recommendations).
- Demonstrate curiosity and be open to explore what is done in other areas rather than only sport sciences and sport performance.
- Collaborate with universities, industries and other organisations/clubs in the same or other sports with common challenges (5).

CHALLENGE 2: Building trust

The staff of a team is a complex social network in which people are interacting to achieve common goals (e.g. win a medal or a championship; improve the position in the standings; develop players), and in combination with personal interests (e.g. personally and/or professional growth, personal gratification or job security, to mention a few). In some contexts, depending on the department structure, the new sport scientist (or any

new addition) can be seen as a disruptive element, especially if it involves the redistribution of responsibilities and the dynamics between staff members. Some people will be pleased by this new addition, but others may be sceptical and even reluctant. To maximise how to be seen as a valuable role it is important to decipher the personality of the staff members (e.g. motivation, influences, etc.) and how the interactions in the club/staff are established.

Professional team sports are often composed of different groups (e.g. sport management, coaching staff, medical staff, analytics, etc.) and usually each party operates based on its own internal organisation, led by one or a few members, who typically are also responsible for the inter-group communication. We perceive that the role of sport scientist implies interaction with these different groups; building trust in each of them requires time, patience, and perseverance.

Depending on how well they understand your role, it can determine: i) the time you will need to implement your work, ii) your credibility, and iii) the financial resources and human power you might need to implement your ideas.

A first step could be to find the time and the way to interact with each of these groups, to understand their daily duties, responsibilities and relationships, interactions between the different groups and other staff members or potential needs and explain to them what a sport scientist can provide to the staff. The perception of the sport scientist's role might hugely differ between staff members depending on their previous experience. A second step could be to try to identify allies and start to work with people who have already successfully collaborated with such kind of support (6). In an unfavourable environment, where for example some staff members may have experienced poor collaboration with a sport scientist in the past, we will have to look for alternatives to build trust, either starting from a personal perspective or giving space and time to earn that professional trust both ways.

Optimising each opportunity to achieve this goal is probably one of the most important aspects to consider. In this sense, demonstrating emotional intelligence is key. In elite sport, credibility and confidence are crucial.

Tips to handle challenge 2

- Understand and respect the work of others.
- Learn from the expertise and experience of others. Share yours.
- Do your best to be viewed as a resource, not as a constraint. Ask how you could provide some help or if your work could complement theirs.
- Identify your best ambassadors in the staff and those who are less interested or reluctant. Drive projects with the first ones while remaining ready to collaborate with the others.
- Be empathic with other staff members when you want to implement something new and adjust your suggestions according to that. Understanding is the most important step for communication.
- Accept and support the staff decision, including when they do not follow your suggestions.
- Work on your patience and tolerance to frustration. The information that you provide is only one piece of the puzzle!
- Demonstrate emotional stability and keep smiling. Circumstances are never perfect, but your attitude can be.
- Be fair and reliable, including (especially) in the bad moments.
- Recognise your mistakes and that sometimes you don't have the answer.
- Share your reports quickly, but double check before sending them!

- Recognise that building trust requires time. Rome was not built in a day!

CHALLENGE 3: Maximise the athletes' buy-in

The athletes are the most important piece of the puzzle when it comes to sports performance. We can have the best facilities, the latest technology or the coolest wearables but if the players don't want to use these resources and we have the technology in a storage room or gathering dust, that will be of no help. Also, the program has to fit in the organisation's culture; understanding context is critical again.

When it comes to monitoring the players, we have to ensure that we are able to collect data; the type of data we want and the type of technology (and which one) we will use for that purpose will depend on the context and the needs. It helps to make things easy and comfortable for the athletes, for example, adopt some strategies like: they don't even notice that they are being measured (e.g. tracking loads with semi-automatic cameras), the process is minimally invasive (e.g. microsensors), the technology is an integral part of the equipment (e.g. VBT sensors), the assessment is just part of the session (e.g. a submaximal running test during a warm up), or simply, they don't have to go to a different building to do an assessment. Making things optional as a starting point can help too. Also, they have to know that the data belongs to them: it is their data. Make sure they know why we are collecting the data, give them feedback, explain to them why monitoring can help their performance, try to find the right arguments and deliver them at the right time or try to establish different channels of communication when you do not succeed with connecting with some athletes (leave your ego aside).

Tips to handle challenge 3

- Listen to the players.
- Maximise your emotional intelligence: watch their body language, be empathic and build strong relationships when possible.
- Provide individualised information and feedback. One size does not fit all. Individualise the way you interact with them according to their personality, needs, interests, etc., and target small changes over time, rather than the all-or-nothing approach.
- Create visual reports to facilitate your interactions with your athletes. Try to make them as eye-catching and easy-to-digest as you can.
- Adopt a positive attitude.
- Be flexible.

CHALLENGE 4: Making good use of the technology

There has been a sharp evolution of technology available in sports performance over the last decade. Based on both subjective and objective data collected with multiple tools (e.g. app, tracking systems, etc.), the sport scientist can now potentially provide much feedback to the coaches. The staff can rest a player, give the player more minutes in a training session or during a game, or modify task constraints during a practice to achieve certain individual goals for that particular session.

Since there is a plethora of tools to use and a potential multitude of parameters to track, the best solution is certainly to start with a question to address. Even if technology has the potential to revolutionise decision-making, training prescription, and injury management, it will never directly affect the outcome by itself. The people on the staff who use the data will always have that responsibility. For this reason, the

key always remains to address problems that we are facing. Especially when a sport scientist has just been hired by an organisation, the temptation can be to ask the organisation or club to buy new tools in order to show that (s)he is not left behind in comparison to other organisations, which are using the same technology or because of a willingness to make her/his work look sexy and sophisticated. Such a strategy may be protective in the short-term but is likely to be disastrous in the mid-to-long-term because time will reveal that such an investment is not improving the way staff are making their decisions or helping the athletes to get better. Creating virtual problems to justify the use of certain technology can turn against you in the long run.

To make technology your friend, the best option certainly remains to be highly selective and to invest in solutions that have high chances of success. To better understand how to maximise your probabilities of making a good investment, we encourage the reader to read the *Critical Process for the Implementation of Technology in Sport Organizations* (7). As a summary, it is possible to identify four steps in this process:

1. the identification of the priority problems to solve
2. the search for potential solutions. A potential mistake can be determining the solution before identifying the performance problem. Being innovators or early adopters of technology shouldn't be incompatible with investigating the product (e.g. accuracy, reliability, utility, cost: benefit ratio, accessibility to the data, integration with 3rd parties, to mention but a few) and the anticipation of all the potential barriers associated with the implementation of a given technology in the organisation
3. the identification of suitable innovations
4. proposing some for adoption

As a sport scientist, part of our job is to provide answers in regard to key performance indicators of the sport, profiling athletes/players, assessing fitness, readiness to perform and fatigue, programming and periodization, etc. Having a good understanding of the context of the problem to solve will be very helpful when it comes to deciding whether it is worth measuring (measure what matters!, 8), and how are we going to measure it and why (9). Technology should help to make our job more efficient and effective, as well as to support others in making informed decisions.

Last but not least, the people who are responsible for the daily implementation and use of the technology have to understand its benefits, the data (metrics), and how to use it to their benefit (7). It is critical to provide a constant message across the staff and the organisation about the technology since, as we mentioned earlier in this section, the people who use the data from technology will always have the responsibility of making decisions.

Tips to handle challenge 4

- Players are the primary focus: technology must be player friendly.
- Try to identify potential staff problems, observe how people work, and/or ask them if they have identified problems that certain technology potentially could help with.
- When you identify a potential solution (technology):
 - challenge the sellers, be sceptical about what they are claiming, ask for independent validation studies to see how robust their arguments about the technology are, and ask questions about the validity, the reliability and the sensibility of the technology. If they don't have it, but you think it is still worth giving it a try, do your own

validation studies, and ask them to develop their product if necessary; there are people willing to make their product better, and the collaboration between both parties can be mutually beneficial.

- read the scientific literature that includes this technology in the study, if available.
 - ask feedback from other practitioners using it or that have used it in the past. *“Learn from the mistakes of others. You can’t live long enough to make them all yourself”* (Eleanor Roosevelt).
 - sometimes you can present the technology to your colleagues before making the decision to buy it, in order to maximise your chances of getting their buy-in in the future.
 - anticipate the amount of data that this new resource will generate, and how you will store it, analyse it, include it in your reports or if you will need to build new ones, and how you will communicate the information with the other members of staff.
- We suggest making the best use of the budget; provide arguments for your decisions and provide feedback about the job completed using those resources.
 - Conduct a survey and identify the current and future trends. What is available today? If the technology is not ready yet, is there potential to be better in the short-, mid- or long-term?
 - Stay up-to-date.

CHALLENGE 5: Handling the data tsunami

“There are things that can be measured. There are things that are worth measuring. But what can be measured is not always what is always worth measuring” (10).

As mentioned above, the evolution of more affordable and accessible technology is intrinsically associated with the explosion of the quantity of data that can be collected on a daily basis to monitor workloads, game demands, athletes’ wellness, fitness levels or recovery, among others. This phenomenon is common across sports and can potentially revolutionise the way staff make decisions. Nevertheless, the transition from data collection to decision-making is a rocky road and sometimes people are not completely aware of it.

This *relatively* new scenario makes data handling considerably challenging, especially when the volume of data and/or the number of players to monitor is large. The higher the volume of data, the greater the need to have capacity to filter, clean, organise, analyse, and present the information.

It can happen that people rush the filtering and cleaning data processes, which could compromise the final conclusions. We recommend spending time making sure that the data is correct and trustworthy (data quality).

If the quantity of data that you are collecting is large, we suggest building a robust database from the beginning, trying to minimise missing data, and being able to have a historical database over time.

We have to keep in mind that although we might work in a team sport, recommendations are frequently based on individual needs. Thereby, we should be able to have individual reports, and not only delivering team reports. Also, the statistical or data analysis that we might use should have two levels: i) individual level, ii) group level (team, league, etc.). It is beyond the scope of this text to discuss statistical analysis techniques, however, we suggest being open-minded, since

neither classical statistical analysis nor trendy solutions may always fit your needs.

Remain open to collaborate with data science experts. If they are doing the analysis, you must ensure that the results make sense, meaning they are going to provide useful information for the performance and coaching staff. Using machine learning algorithms will not do you any service if results can’t be interpreted and used by the coaches or staff. On the other hand, remain open to learn about/from these techniques too, since they might help in the progress of development and innovation.

When delivering the information, it must frequently be provided as soon as possible to the people, so they can adjust their decisions. For example, there will be cases where the staff or coaches will need to make a quick decision based on availability status and it will be critical to edit and share the reports fast, after each training session or match. If the report is delivered late, the potential impact will be substantially reduced. To do so, we might have to have different levels of reports, one with few metrics (the most relevant information that we can quickly share), and a more detailed report in which we can spend more time on its analysis and the interpretation for those receiving it.

Tips to handle challenge 5

- Measure what matters most and evolve and improve the process from there.
- Develop your skills using resources that help to make the data analysis more time-efficient and its presentation effective. Some examples,
 - reports based on spreadsheets
 - software or environments based on programming language, focus on statistical analysis
 - platforms for analysis and visual presentation (dashboards), to make them interactive and easy to share on different tools (PC, tablets, smartphones).
- Have discussion with the people who will receive the information and make sure that the reports are easy-to-digest and eye-catching for them.
- If you have the possibility, ask support from a data scientist to help you with this challenge.
- Use machine learning to explore your data and try to provide insights into how to interpret it.

CHALLENGE 6: Keeping things simple

As mentioned above, the more data you collect, the harder the challenge to keep information straight-to-the point and easy-to-digest. The phenomena that we want to explore and better understand as sport scientists are complex and multifaceted (e.g. fatigue, injury prevention). We stress again that we provide information to the members of the coaching and the medical staff to optimise their decision-making, but not to make the decisions for them, unless a particular decision is part of our responsibilities. We have to keep in mind that workloads, as an example, can be our primary concern, but the medical staff will have other things in mind like an injured starting player, and the coaches a game to prepare; thus, we have to reconsider how to simplify the reports and the key information we shared during both meetings and informal discussions. Concentrate on the information your audience needs to know.

Tips to handle challenge 6

- Constantly challenge the reports that you're sharing with the staff members: are they using it? If they are not or only partially, push yourself to try to understand why. Keep challenging yourself as long as the response is not satisfying. Finding the optimal option is often a rocky road requiring setting up a trial-and-error approach.
- Be aware that compiling simple reports can become... complex. To solve this, consider building interactive dashboards telling a story, rather than rigid reports (11).
- Frequently, less is more. Even if you are collecting a great amount of data, focus on reporting what is really relevant.
- Keep learning about metrics and potential new metrics, and about how to you use them in your reports.
- Bullet-points: have 3-4 key points highlighting the main information you want to share, since some people may not take the time to read the report in full.
- You can use machine learning to identify the parameters you should highlight in your reports, without losing too much information (e.g. principal component analysis, clustering).
- Data communication checklist (for a more complete review, 12):
 - The context:
 - * Who is your audience?
 - Narrow your target audience. Create different communication for different audiences. The more you know about your audience, the better.
 - * What do you need them to know or do?
 - Live communication: you have more control
 - Written communication: you have less control
 - Considering how much control you have over how your audience consumes the information and the level of the detail needed is important when you start to generate content.
 - * Communication mechanism
 - * Desired tone
 - Visualisation: Gestalt principles of visual perception for data visualisation:
 - * Proximity
 - * Similarity
 - * Enclosure
 - * Closure
 - * Continuity
 - * Connection

CHALLENGE 7: Not putting the cart before the horse

Protocols from scientific studies are often a simplification of the reality. *“Past science tended to look at events as individual occurrences that seemingly happened in isolation (...) and many times the different fields of science would concentrate on the event without trying to see how it fit into the bigger picture. We are still concerned with carefully examining individual events, but the shift has now become toward making the whole picture”* (13).

In our context, the *whole picture* would be the equivalent of the applied world. We have to use research-based principles when appropriate, but we also should be critical and sceptical about some literature conclusions we read; be aware that the context of a scientific study may differ from our environment, and that evidence-based is not research-based.

Sometimes as young sport scientists recently certificated we can err on over-confidence: “I’ve studied it; this article confirms it, so it has to be true; I’m right and we should do it this

way”. But the experience that you accumulate working with athletes in a professional ecosystem helps you to realise how complex things can be and that there are always many ways to approach a given situation. Without detracting from the importance of studying, reading or applying protocols coming from scientific research, experience allows you to become aware of how difficult it sometimes is to apply all your knowledge, and forces you to frequently reinvent yourself. Today’s solution may differ from tomorrow’s solution. The complexity of the problems that we try to apprehend in sport science should always encourage us to decipher the uniqueness of the situation that we are facing before formulating any recommendation (14).

Tips to handle challenge 7

- Keep things simple at the beginning.
- You can save time by learning from others’ experience, especially from people sharing the mistakes that they have made in the past.
- You may not have all the answers, and that is fine. Do your best to try to solve questions, be honest if you can’t right now, seek assistance or guidance if possible.
- The fact that an article has been published in a high-impact factor journal does not imply that you can systemically transfer what you read to your environment. “Content is king, but context is God” (15).
- We discourage self-promotion, when it is out of place.
- Do not commit to predict things if you are not able to predict them (16-17).
- Building a methodology of work takes time; be always ready to challenge your own processes.
- Implement projects with the academy or university, where we can provide a more controlled environment and try new things before implementing them with our main athletes or team.

CHALLENGE 8: Contribute to the vision of the organisation

Building and strengthening a culture driven by sport science in a club or a federation takes time. When you start from scratch it is critical to gain the buy-in and trust of the players, the staff and/or management.

Rather than proclaiming that sport science will be a game changer, we believe that humility, honesty, hard work, quality in your job and patience are paramount. Implementing sport science in elite sport is about how you can contribute to strengthening your institution with the process of maximising performance and helping people to optimise their decision-making on a daily basis.

It remains important to be proactive, update different groups from time to time about what you are doing, which projects you are working on and the steps you identify that will keep reinforcing the institution.

Tips to handle challenge 8

- Understand your context.
- Clarify the expectations of the club about your role and make sure that they fit with what you can bring.
- Embrace the club’s vision and culture.
- Be proactive, defend your ideas with assertiveness, and with humility.
- When you talk to people without experience or background in sport science, try to adopt simple and concise explanations, based on practical cases.

CHALLENGE 9: Managing your pace

The moment you are hired by a professional club or a federation to support high-level athletes is probably an exciting time and a tremendous joy. At the highest level only a few positions are available, so the enthusiasm and motivation for such a great opportunity are justifiably immense, if/when it becomes real. Nonetheless, we suggest taking time to check your priorities, your principles and how you are going to manage your pace. Having the eagerness to prove to people that they made the right choice selecting you, to meet their expectations and to try to provide solutions and answers to their questions is understandable. Yet, we recommend *spacing* yourself, by taking a bit of time to observe and then, when appropriate, take actionable steps.

It is good practice to help the organisation understand the importance of having time for fast thinking to solve today's needs, and for slow thinking to solve all our needs, investing time to make the right steps and the right decisions for the mid- and long-term success (18).

Tips to handle challenge 9

- Make a plan; design a framework for short-, mid- and long-term goals and how you envisage its implementation.
- Pace yourself; differentiate your doable goals and more those more challenging.
- Keep in mind what you have already accomplished, to help you keep a positive attitude.
- Identify your weaknesses and do your best to work on them.
- Consider your errors as opportunities to progress (resilience).
- Regulate your expectations and push yourself when you feel it is the right moment.
- Habits and routines can help.

CHALLENGE 10: Keeping the balance right

In the high-performance environment, it is not uncommon to work 7 days a week and to spend a lot of time away from family and friends. This can be especially challenging when you have kids and you can't spend as much time as you would like with them. Your lifestyle is atypical, very often we don't have weekends, we might have to keep working when you go back home, we can't plan vacations ahead of time, and they are usually very short!

Managing the balance between an exciting job and your private life is important, since high-performance sport jobs are often unstable, unpredictable and emotionally challenging. Elite sport consists of wins, defeats, joys and deceptions, that may all occur in short periods of time. Having a social and personal life outside the work environment and some alternative projects outside your main job are probably good ways to strengthen your emotional balance, mental serenity, your resilience and your chances of success in the long run.

Even if your job is very demanding and even if you feel you lack time, we recommend having a physically active lifestyle. There is always a way to find time for exercise: go to work by cycling, plan gym sessions at lunchtime, take advantage of the days spent at the hotel when the team is playing away, or practice sport with your kids. It will benefit your health, creativity and your productivity at work. Likewise, in some contexts, there will be low activity periods. Optimise these opportunities to rest or charge your batteries, since it may be some time until the next break.

If you have a family, and it's your priority, consider each job opportunity as a team project rather than a personal op-

portunity. Try to anticipate how your life will look like and if everybody will benefit from this experience. Sometimes it may be worth it to take opportunities which at first glance may not be optimal for everybody, but keep in mind that - if it is the case - it may not be sustainable in the long-term. Always pay attention to the wellbeing of your *family* and make it your priority.

Tips to handle challenge 10

- Keep in mind how lucky you are to work in elite sports. Putting aside the challenges, remember all the efforts you have made to get here and that many people would like to have your job!
- You can be in a strong position in a great institution today but remember that in elite sport things can change very quickly. Be aware of this reality and be prepared if you get sacked, especially if your position is linked to other people (e.g. a head coach). If you demonstrate strong skills, a good personality and honesty you will get other opportunities. Keep believing in yourself.
- Be positive. The toughest moments often represent the best opportunities to test yourself outside of your comfort zone.
- Be optimistic. Try to find an opportunity in every difficulty.
- When possible, have a project outside of your job, something that can help you to be a better professional or a project with close colleagues/friends who motivate you, and make it fun!
- Enjoy your breaks, and if possible let your computer and your smartphone rest during these important moments of the year!
- Devote time to yourself.
- Exercise regularly.
- Mindfulness may be of interest. Meditation facilitates patience, self-control and being in the 'here and now' (19)
- Have social support: family, friends, mentors...
- Put things into perspective.

Conclusions

The challenges that we can face as a sport scientist in a high-level sport environment are abundant and diverse. Thus, the actions needed to tackle them are likely also diverse and may require a multidimensional approach. We are aware that it is difficult to cover all the potential challenges you might face, because every organisation/club/team represents a different context. We are also aware that we don't have all the answers and potential solutions. We wanted to present here some of those challenges that we consider most common. We do not intend to provide recipes or a manual on the best way to address them, we simply wanted to share some of the situations that we or close colleagues have dealt with, what we have learned from our experience, how we could manage things better and helping others who may expect to do a similar job. We believe that values such as adaptability, hard work and dedication, curiosity, collaboration and resilience are important to succeed when you become a sport scientist in a new environment, or in an institution with no tradition in this field. However, we encourage you to identify your challenges and share with the community which tips, values and principles help you to overcome them and achieve your goals.

Feel free to share your own thoughts by commenting on this opinion paper directly on *Sport Performance and Science Reports*.

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Acknowledgments

The authors would like to thank Jo Clubb (@JoClubbSportSci) for English editing assistance.

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