Module 2. Relaying information to the performance staff. What to do and what not to do

Unit 2.1

This module begins to narrow from general principles to more towards case studies and context around shared decision-making models. This is geared towards a deeper understanding of 'what to do' and 'what not to do', with a chance to test your skills in scenarios you may face.

2.1.1. Who are the performance staff? Defining roles and implications – beyond unit 1.1

In the previous module, we explored some of the typical roles found on a professional sports performance team, and, in particular, the lens and expertise these roles provide. One role that was not mentioned or highlighted is that of a 'performance director'. Part of the reason for this is that the diversity of these teams is significant, both in how they are composed, the scale of these departments, and how they are organized and led; this organisation goes from a less typical, highly structured and interdisciplinary approach with a specialist performance director, to more traditional models that are driven by (non-expert in performance domains) assistant general managers (AGM), and often in practical terms led by the head athletic trainer. There is no right or wrong since many models have established 'successful' sport franchises; however, the organisational alignment to support and facilitate optimal decision making and support for players may be a much more accurate guide to measuring success. Creating a way to objectively measure the success of performance departments and comparing outcomes is extremely difficult and has yet to be done.

2.1.1.1. Summary of expert disciplines

Insight into each of the roles described below was previously shared in module 4.1. However, the emphasis here shifts to the themes that can emerge when communicating information and stakeholder perspectives from grouped disciplines, in this particular module, as members of the performance staff. As we explore scenarios and some common traps, pitfalls, as well as opportunities, the intent is to be aware of the

possibilities, and navigate this space with sensitivity, awareness and emphasis on the role communication can play. The aim is to make sure voices are heard, assumptions challenged, and ultimately alignment and more accurate information shared, for the benefit of the players and organisation.

2.1.1.1.1 Medical (physicians, PT, ATC, massage and other)

The medical team has one of the most challenging roles when it comes to communication. HIPAA itself presents a legal and ethical guideline to protect and limit communication. This can put the medical team in a juxtaposition of withholding information from others, that can make them seem uncooperative and difficult to work with. This is especially challenging with areas like return to play (RTP) progressions, that involve the medical and performance continuum to be aligned for player safety and progression.

While interdisciplinary work is often referred to as meaning between medical, strength and conditioning, coaches and other disciplines, it should not be forgotten that there is great diversity and interdisciplinary work done within the medical team alone. The differing skillsets and roles, between primary care physicians, orthopaedic surgeons, athletic trainers, massage therapists, chiropractors, physical therapists and others, all greatly benefit from close communication around player care, but they can also be destructive, confusing and error-prone when communication is not effective or efficient. For example, physicians hold the ultimate legal and ethical liability, but, in the case of a return to play progression, an orthopaedic surgeon may not hold the most qualified perspective on post-surgical care and progressions and recommendations for physical loading and soft tissue treatment and interventions, where the physical therapist may take the leading role. Philosophically, this area requires sensitivity around expertise and managing egos, as well as scope of practice and liability.

2.1.1.1.2 Strength and conditioning

For the strength and conditioning staff, the simplistic goals are to help athletes increase their capacity to be stronger, faster, and more durable competitors. The needs are driven by the sport, position and individual players, but essentially the remit is often to be 'more', and to last throughout the duration of the season. Where medical staff are often judged by player health metrics and number of days missed, strength coaches are often judged by the players' ability to gain strength, speed or other physical expressions of ability. Their ability to establish these goals alongside medical staff and nutritionists are at the forefront of collaboration, and sometimes the goals of medicine can be to avoid injury and stress, where the strength coach is often looking to add and manipulate stress to increase physical adaptations from the athlete. The communication and synergy between nutrition, body composition and fuelling the demands from strength and conditioning, are often in alignment; however, the communication between medicine mitigating risk, and

strength and conditioning modulating risk can be in more direct conflict and competition. This can involve a delicate balance of give and take, and articulating risks, for both the player and the potential job security of the staff members also involved.

2.1.1.1.3 Sport psychology (mental health and performance)

The continuum of care for the psychological aspects of a player can sometimes struggle when the mental illness of a player is in direct conflict with the mental performance. For example, a player suffering from depression, that is also dealing with a performance slump (that may or may not be related), can be exacerbated by so many factors. From lack of sleep, to withdrawal from cannabis, or family conflict and issues, stress of contract status and making a team roster, to poor recent performances, there are many factors that can be significant, and held privately and confidentially from anyone else in the organization. The sport psychologist, or mental performance professional that is licensed to manage mental illness, can often be in a difficult position of maintaining client confidentiality; he/she must know there may be specifically underlying medical conditions that should be managed, as well as information that may be helpful to share with coaching and performance staff. The mental performance professional should also know that these aspects need to be held with privacy due to the player's direct request for such sensitivity. Developing trust with a player to share this kind of information can sometimes take years to build, yet can be lost in a single conversation. Even if the relationship is sacred for these professionals to be able to do their work, maintaining trust with the organisation is also a priority, and must be carefully managed. Often, the best way to manage both is to help 'refer' in expertise, so that, for example, at minimum, medical professionals can help manage health questions. For example, including the team's primary care physician to support withdrawal from a substance (e.g., cannabis) that may exacerbate psychological as well as physical effects, can be an effective way of managing the trust of the player, while also supporting the organisational impact. Often, being as proactive as possible to establish—with a player and organisational stakeholders—the expectations around trusted conversations, and the limits of confidentiality—and how to manage this—is easier before there is something significant to raise.

2.1.1.1.4 Nutrition (nutritionist/dietitian and chef)

Communication for the nutrition team chiefly happens across a couple of plains. Between the nutritionist and the chef, they are often juggling meal planning and food service to deliver quality products, within budget and operational logistics. Delivering food that satisfies the taste demands of players and staff, with the goals of the nutritionist also, is not always easy; sometimes, the chef may be on the front lines receiving criticism and feedback, while the nutritionist is the one controlling the agenda for the quality of the

menu. Food is one of the hardest things to be in charge of when it comes to manage all opinions, since it is a source of joy and comfort in addition to fuel for performance.

Nutrition can also fall under more than one medical domain, and whether it is to aid the recovery of an injured player with supplements, calorific control, or to help assess blood draws and recommend follow-up testing, it can require consultation with the primary care physician or other medical specialists. Sometimes, there can be sensitivity on involving a nutritionist as part of the healthcare team; this happens since, occasionally, the type of information managed may seem primarily medical (like a blood test), but it does sit within the scope of a qualified dietitian. Being aware of the intersection between health and performance is a helpful lens to keep in place.

For both the chef and the nutritionist, behaviour change is often at the forefront of interactions and discussions. Whether players have the extreme end of goals for weight gain, or weight lost, the act of changing eating behaviours can be among the hardest ones to change; learning how to communicate and collaborate with sport psychology professionals, and thinking about communication in fostering behaviour change are also key aspects of their work.

2.1.1.1.5 Sport science and performance analysts

The lens of the sports scientist and performance analyst's roles are at the core of the case studies that follow in this module, with a view that they are bringing the data from each of the multiple disciplines discussed into a shared perspective. Knowing the lens with which each of the contributing stakeholders are coming from and may receive knowledge, may be helpful in navigating both the relationships and the default perspectives on, for example, the cross section between sensitivity and injury risk, while also trying to maximize performance and development. There is an equal amount of 'art' as there is of 'science', and so gaining awareness and working through some realistic scenarios can help prepare the considerations and ways to communicate to maximize the likelihood of delivering the intended content.

2.1.2. Case studies: decisions impacting key performance goals

2.1.2.1 Health/availability scenario

Injuries are inevitable in sport, but managing the risk/reward for sustainable success, and winning within the values' framework of an organization is paramount. One of the main objectives of a performance department is the health of players, and helping to make sure they are as durable as possible, and, when injured, able to return to play successfully as soon as possible. There are many challenges and decisions made in this process, and so

communicating through the grey and complex area is one of the most significant challenges you may face.

Consider the following example: the medical director comes to you, requesting your input and support in conducting an epidemiology report to review the injuries from the last season and present findings. He lets you know that there is not one been done in the organisation before, and that there is some fear and resistance.

(a) Who would you want to engage in the discussion and why?
(b) How would you organise the information to present it to stakeholders?
(c) What further considerations might you want to discuss and plan for?

- Potential approach

(a) The following list of stakeholders are listed in order of significance for conversation and further input about the process:

i. *Medical director* – The fact that this person comes to you and asks for help is significant. There are lots of messages being conveyed here: (1) she sees a need for conducting this; (2) she sees your involvement as important; (3) she recognises there are political and psychological risks to conducting this, and that (4) there is an implicit message that it is a collaborative effort. All of which means that listening and asking questions to support them in this will be important.

ii. *Head trainer/PT* – You will likely gain more context from the medical director about the sources of resistance. Often, the head trainer will have a good feel for how medical staff feel about an audit or epidemiology process across the staff. Regardless, they will have a significant role in the messaging and leadership of medical staff, and managing mental and emotional responses. Their support, insight and collaboration will be critical for any of the results to translate into actionable improvements of the system.

iii. *Head physician* – The role of the physician can vary significantly across teams with regard to their integration and utility. Some sports medicine trained physicians have experience with epidemiological research, and can provide helpful support; at minimum, getting visibility and involvement with them from the outset may help with resources and design.

iv. *Head of S&C* – Strength and conditioning can sometimes be seen as the antagonist of sports medicine, particularly when it comes to injury data. An ideal athlete management system (AMS) integrates S&C workload exposure into player records, but this may not always be the case. Getting the assistance and buy-in for how an

epidemiology process can capture the most accurate and useful feedback, and how S&C might think about the impact of this within programming, is helpful from the outset, so they become an invested and curious stakeholder—rather than this is nothing to do with them.

v. *Research and development analysts* – While you, as the sport scientist, in assistance with the medical data driver, may be primary researchers in this process, being able to leverage personnel and expertise from the R&D team may be helpful. For example, being able to pull performance metrics and data to cross reference exposure of players, can be highly efficient, as well as the indirect process of involving them to create insight into the potential needs and builds of a future AMS, or lines of data interrogation.

vi. *Coaching staff* – While S&C coaches are often seen as antagonists to medical staff and risk, it is almost without fail that the biggest risk to injury is often the sport itself. Involvement and insight from coaches, or representatives from coaching, are critical. Identifying exposure and workload across all domains of training and performance can be extremely hard without cooperation from coaches, who can also provide valuable insight and communication about assumptions made—that can impact the accuracy of data gathered, and conclusions or recommendations drawn. Their understanding and buy-in about why this is being done and how it is designed will likely pay dividends.

vii. *General manager* – At some point, the front office executive leadership holds the performance team accountable to their own performance and impact. This is often why this process is scary for providers, and why they may fear or avoid data stripped of context. This does not mean that there should not be data and feedback provided, with proper context, recommendations and discussion. This may come in the form of recommending staffing, budget or other philosophical shifts to improve the health and durability of players.

viii. *Players* – Ironically, players may be the last of this group for visibility, but, at some point, highlighting efforts to what we are learning, how we adjust our practices and rationale for doing some assessments and others, can lead to better understanding and buy-in.

(b) Organising the information is a challenge, but it is also one of the fundamental considerations around communication.

i. Summarise overall findings. Be good at giving the bottom-line up front (BLUF).
ii. Also, provide references to actual data, and depth of information in tables, or actual numbers and percentages, where possible.

iii. Provide key points. For example, specific notes on 'notable increases', as well as 'notable improvements.' Although this is a first report, there may be more relevance in sharing assumptions, and reality.
iv. Provide a section for conclusions and next steps.

(c) Further considerations might include the following aspects:

i. a project like this could take considerable time and effort to pull together. There should be an appreciation of the optimal timeline and resources given to conducting this.

ii. Given the sensitivity and fear that may surround blame and accountability of injury statistics, there should be ample consideration of the psychological safety of staff. For example, if this was to be presented shortly before staff contracts are communicated, the likelihood of cooperation or safety might be minimal.

iii. Discussion around the openness to using results and insights would be helpful to address in advance. For instance, 'are we willing to listen to the feedback and consider changing our practices based on what we find?'.

iv. It is worth discussing up front any unintended consequences, particularly those around the stakeholders that should be involved or be made aware of this process.

- Potential outcomes for each of the possible responses

(a) Hypothetical outcomes across the previously mentioned stakeholders include:

i. *Medical director* – Developing this relationship seems like it could be the biggest strategic win for someone in a sport science role. The medical director holds enormous influence that can be problematic if it is not a good relationship. Using data and evidence to drive discussion, decision making and innovation, could become significantly easier with an active working collaboration.

ii. *Head trainer/PT* – Beyond technical expertise, and development of respect, there is an opportunity to win trust with the medical group through the head trainer/PT role, which can extend the psychological safety and trust across a lot of sport science initiatives, and how they inter-relate with sports medicine.

iii. *Head physician* – As above, the opportunity to build respect and trust with the physician group can lead to greater collaboration. Although it is less impactful on a day-to-day level, the potential to tap into high leverage resources may be significant, including hospital and medical research assets.

iv. *Head of S&C* – As with the head trainer/PT, there is an opportunity to build trust and collaboration with this role, although the greatest opportunity is likely in creating synergy between sports medicine and S&C. This can be problematic in many pro-sport environments, but sport science and the relationships revealed by an epidemiology process can create rich veins of discussion around the role of workload, recovery, and risk. This can go several directions, but, if facilitated well, it can create a lot of trust and opportunity for productive discussion, respect, and understanding.

v. *Research & development analysts* – Integration of specialists in statistical modelling and data analysis can add significant expertise and bandwidth, bringing departments closer together, which all seem like benefits.

vi. *Coaching staff* – There are risks associated with coaches who are not bought into their role within epidemiology, or who get lost in the technical medical language. Allowing coaches to 'opt-in' this process may be wise, so that advocates can take information back to others with curiosity, and allow for a more organic push and integration across departments. If forced, there may be resentment or increased challenges and buy-in.

vii. *General manager* – Some of the fear shown by the performance department—and particularly by the medical staff—around the accountability of this process could well be warranted. There are risks of sharing this information and presenting it without context and checking for understanding. Talking with the GM or equivalent leader about their expectations and how they might like to use the information, is helpful to have up front. Yes, we should be accountable for our jobs, but getting clarity on how that should be done and how this report relates to that would be wise to do ahead of time.

viii. *Players* – It is likely better to present information back to players that is only directly beneficial to them; while we might be excited about sharing information, it is unlikely that they will want too much information, unless they ask. Simplifying a few key points that we learn, especially if they relate to why we are changing or adapting programming that impacts them, or reasons to elevate trust in people or process could be very beneficial. Flooding them with things we did not do well or that are confusing can lead to lowering confidence or increasing confusion, neither of which is helpful.

(b) When it comes to sharing data that could be considered controversial, it would be easy to share too much and overload stakeholders, just as easy as simplifying data to the point that it is not meaningful. Be wary of bold statements that could be taken out of context and be wary of the audience. It is possible that you may have two versions of a report: a one- or two-page summary for coaches, front office and other non-technical experts, and a more in-depth technical report for the performance staff. Share it with some stakeholders for feedback before a wider release. If you choose a wider release,

it may also be beneficial to present it in forums that allow discussion and clarifying questions, to facilitate better context and understanding.

2.1.3. Performance scenario

The ultimate objective for any sports team is to win, and for each athlete to perform at their best level, any given day. Of course, this is easier said than done, but the job of the performance team is to help prepare their players for this and create an environment for them to be successful.

Player 'placeholder' is new to the team and has a one-year deal before being available on the free agent market. As a position player on this professional baseball team, his goal is to play in every game of the 162-game season. With high stakes for a one-year deal, he is very sceptical of the strength and conditioning program, as well as of how workload monitoring would do anything but hurt his chance to play every game. The S&C coach approaches you to help create buy-in for this player to adopt your team's program.

Which option would you propose?

(a) Tell the strength coach that this is beyond your scope, and he should talk with the coaching staff to convey assurances his playing time would not be impacted.

(b) Tell the strength coach that the player is right about our recommendation that he should not be playing all 162 games (in a 185-day window), and that integrating more recovery gives him a better chance of playing at the highest level he is capable of playing.

(c) You agree to help gather the performance team to work with the coaching staff on what some interventions could look like, and present back some potential plans for them and the player to consider.

- Potential outcomes for each of the possible responses

(a) While helping create buy-in for the S&C program may not be written in your job description, supporting the performance staff in articulating how a player's training impacts readiness and performance certainly is. Telling the S&C coach that you cannot help will reduce the trust they have in you, and will not help in developing trust with the player to work with the program. It is unlikely the S&C coach will come to you for help again and refer people to you either. This may go further, damaging your relationship with the coaching staff also. There will be a great series of opportunities for you to collaborate here and help educate staff along the way, in addition to the

player and how each department can support the other with the aim of keeping the player durable and available, for as many games as possible. This does not mean the manager has to select them for each game, but to give the manager the option of his full roster.

(b) At face value, playing 162 games in 185 days may not sound like an optimal schedule. Depending on the position, this is most certainly true. A pitcher would never be expected to do so. In fact, looking at 2019, 2018 and 2017, only 5 position players in all of MLB played an entire 162 games each of those respective seasons, and only 2 in 2021. Statistically, the odds of being able to achieve this outcome are already low. However, there is an assumption at play here that is important to convey in discussion. While it may be true that we could expect higher levels of performance by introducing more recovery and periodised schedule to playing, we cannot be certain that high performance is the only goal being articulated. Durability and availability to play each day may be significant and important to the team, although in this case it may be an assumption from the player and the agent that his ability to actually play 162 games impacts his value as a free agent and ability to make money. Rather than dismissing this outright, you may better ask some of the following questions:

i. what is this player's history for durability, injury risk and past performance?
ii. What assumptions does this player have, and why is it so important to play 162 games?
iii. What assumptions do we have as a staff about what is possible, what is best, what the risks are, and resources needed?
iv. What is the organisational goal for this player and the need for his role?
v. Who are the stakeholders for this conversation?
vi. What are the implications, both positive and negative, that should be shared with the player?

(c) It is important to be careful to acknowledge the assumptions you are making without all the information. Many of these questions are addressed in the potential outcomes for scenario (b). This may not be the time or place to have a long discussion about each aspect of your rationale, but acknowledging assumptions and clarifying the question to check for understanding would be important.

The option of listening, offering support and organising feedback in a timely manner is likely the best scenario. Building trust with the strength coach to ask questions, share his concerns and seek support and feedback is critical to the overall success of the team. Trust is incredibly important, and collaboration and open lines of communication will prove to be helpful regardless of the scenario. Perhaps, the highest leverage conversation with the player, and suggestion to the S&C coach to facilitate a conversation with the player may be something like this:

our goal is to help you be available for as many games as possible, and to be able to play at your very highest level. Monitoring your workload is our way of being able to help adapt your training program to your specific needs. If we consider your daily routine, this is to (1) prepare, (2) compete and (3) recover. As a performance team (includes S&C, nutrition, mental performance and medical disciplines), we would want to work with you and the coaching staff, to adapt your preparation and recovery before we would impact your game time.

If you are willing to explore with us what this might look like, perhaps, we can go through your intake testing, and talk about the training plan we would recommend, and how this might adapt over the season. You can tell us about the things you have done before and how you have experienced your body feel. While needs change, perhaps we can share the approach we have, what our experience tells us, and how we can try to achieve your goals together.

There is no guarantee a conversation like this would result in change; however, the first effort here is to build trust and communication. Be careful not to over promise to be black and white in your conversation since the manager, head coach or others may influence the selection and choices to be made. However, your intent and collaboration with the player would be important factors to articulate. Sometimes, the performance staff can create an unintended consequence of 'us versus them', by saying your contract or whether you play is up to the head coach or front office, if you are putting them in the position of 'bad guy' and yourself in a positive light to gain their trust. While it may be good for you in the short term, you are inadvertently messaging to the player that those stakeholders are not to be trusted, which can create long-term direct and indirect problems.

2.1.4 Development scenario

One of the key functions of the performance staff and an organisation is developing and maximising the potential of an athlete. From a talent management perspective, each player is a valued asset, and the ideal is this asset increases in value over time. Some organisations have even developed an economically viable model for developing young players in an academy setting, and being able to trade, transfer or sell these players at significant profit—allowing them to generate revenue for the organisation and remain competitive without having deep capital of their own. Development is at the heart of coaching, and these opportunities can come across physical, mental and fundamental sport skill domains. However, the interactions can be complex; therefore, organising development can require patience and focus on both individual impact and systematic

programming. Addressing each case with a developmental, individual and systems perspective can be a key aspect of the sports scientist role.

Consider the case of player 'placeholder', an 18-year-old female professional tennis player. In the previous season, she won her first WTA event ($125k second tier series), and reached the third round of two grand slams, achieving a top 50 WTA ranking by the end of the year. She worked harder than ever with her performance team in the off-season, but has started the year poorly. Now 3 months into her second full-time year on the WTA tour, and she is yet to win a round, and her ranking has fallen to 80. Her performance team consists of an athletic trainer who is also a massage therapist. A strength coach, and a mental performance coach.

- The player did her off-season training with you helping support the performance team, and the mental performance coach reaches out to you after their last tournament failure. Her strength numbers and fitness data were higher than ever at the end of the camp, but her performances have been poor. He asks for your help and input.

Do you:

(a) advise them this is a tough result-driven sport, and that we are all accountable to doing our job—and you did yours.

(b) You empathise with the mental coach, and you would like to help support them, but you do not know where to start, so you say you will call the player and ask them directly what they think is happening.

(c) You are curious as to what is going on and offer full support. You suggest getting together with the rest of the performance staff (athletic trainer, massage therapist, strength coach and mental coach), before getting together with the coach and player. You suggest gathering the information together, and then presenting some recommendations and next steps once this is done.

(d) Provide your own recommendations based on what sport science data you have.

- Potential outcomes for each of the possible responses

(a) While all sports are result driven at some point, this approach may likely distance the staff from you and reduce trust. True or not, there is the potential for a lot of assumptions, a lack of understanding and reduced likelihood of them communicating things back to you or anyone on staff.

(b) The mental coach may well appreciate and receive the empathy and offer for support well, increasing trust. However, there might be additional questions to pose here about the mental coach's insight, as to pros and cons of talking with the player directly about it. There would seem to be benefits to gathering information from the rest of the performance staff and the coach, before exploring things with the player. Not going in blind to a discussion with the player so that there is more context, both in terms of results and the narrative, but also in terms of relationship and trust with members of the team.

Siloed discussions can sometimes result in 'he said, she said' conversations that can create more misunderstanding and biases. However, consideration can equally be given to simply listening to the player and hearing their perspective, without offering solutions or jumping into conclusions. Just because a player shares an insight, it does not make their perspective true, other than the way they currently feel. One should be careful about the fact that we do not validate their statements as true, without more objective and subjective feedback; however, their opinions and feelings are 100 % valid and that will be helpful to convey, increasing trust and quality of communication.

The player's input and involvement in this discussion is an extremely important part of the process, and acknowledge every situation is different. However, it would generally be our recommendation that you try to gather more information first, and to get a general perspective including guiding questions like (i) results and opponents; (ii) medical and physical data, or reports over this time; (iii) history of these tournaments or previous tournaments at this stage of season; (iv) query any unique conditions worth considering, e.g. altitude, conditions, travel, quality of opposition, and (v) query other lifestyle or factors that may have overlapped (e.g. family stress or distractions).

(c) As described in the previous example, the opportunity to gather more intelligence from stakeholders is going to add context and information. There is also the opportunity to cross-reference insights from the rest of the performance team, to explore and triangulate different potential factors influencing the outcomes. While it may be beneficial to avoid 'group think', or other group induced biases, the benefit of interdisciplinary information gathering and discussion can perhaps allow more candid exchange than with the coach and player present in the first interaction.

Discussion on who should facilitate and present this might also be the subject of such a discussion. Context, as to how the player and coach may receive points and recommendations, may require deeper sensitivity and discussion. For example, if the player is very defensive and sensitive to (i) mental skills and ability to perform under pressure as a primary reason for failure, it may require different tact than (ii) a technical barrier to their serve being effective and losing a high percentage of their service games. There could be fruitful discussion and challenge between staff, if there is sensitivity

between the S&C coach and medical staff that (iii) there is not enough attention to the player's lack of T-spine rotation, and that this is causing restrictions for her serve effectiveness, or (iv) if she is doing too much conditioning work, and she is not physically recovering well enough. None of these factors are in isolation, and why interdisciplinary discussion and discovery are important, especially if objective data and testing can support context, and that assessment and diagnosis of the issues happening can take place.

If there is disagreement over what these things are, the messaging to the player and coach could be rather messy. Getting facts straight, and presenting open discussion and potential recommendations ahead of time, might be helpful in presenting more succinct options and a process to follow.

2.1.5 Acquisition scenario

Different sports have different ways in acquiring athletes. For professional sports in North America like the NFL, MLB, NBA, NHL and MLS, there are amateur draft systems that take the best prospects from high School and/or college systems through a highly governed and systematic process of team picks. There are also ways for teams to trade players, in addition to international scouting and signing, as well as windows of free agency where players can seek contracts negotiated on their behalf by agents. Each of these methods present different challenges and opportunities, and organisations are in the business of trying to identify value and gather intelligence across experts to evaluate the costs, benefits and risks of signing a player to fit the needs of the organisation. The sports scientist role is instrumental in being able to collect, analyse, interpret information, and communicate recommendations. Communicating these in a way that aids an organisation in being able to take appropriate risks with investment are complex, but extremely valuable.

Take the case of player 'placeholder': he is a 16-year-old hockey player from Toronto, Canada, and he has been scouted for years in the Canadian youth hockey system. An NHL team is consulting with you based on your expertise in sport science, to offer your perspective on his draft value. Scout's project is he could be a potential NHL star based on his skilful skating and fast hands and stick work, but there are concerns that, at 5'6" tall and 130lbs, he may be too small as a forward. They have the opportunity for scouts to gather more information from him at his local club, as well as the NHL combine, but they are not sure what to collect, or how confident they can be on projecting his future growth and potential.

- What information would you like to gather on Sergio, and how would you get insight from the performance team experts to provide a recommendation?

- Potential approach
    - Clarify what information has been collected, and how reliable and valid this information is.
    - Clarify with R&D and scouting departments what is known about successful modelling for AHL/NHL success and the development profiles of forwards and other positions, and if there is data to support the pathway and profiles of what does not project well.
    - Clarify what the specific questions are about Sergio's projection and potential, and what questions there might be as a player, and what the specific concerns are. The more context provided, the more helpful and specific feedback and recommendations there can be.
    - Acknowledge and identify the limitations and constraints of these recommendations, and, in a perfect world, determine what sources of information you would want to close this gap and increase your confidence in projecting potential.
    - Consider interdisciplinary discussion and resources to define what the scope and questions might be, and if this already exists. For example:

- *Medical risk assessment* – How are factors considered around profiling risk, and the process of gathering injury history and other physical testing.
- *Physical capacity and athletic potential* – Defining the scope of factors that contribute to athleticism and what is most applicable to hockey, universal, and position specific, as well as the most effective and efficient methods to collect these.
- *Psychological makeup and learning potential* – Defining the scope of factors that can contribute to the mental and emotional makeup of a player, and how this might impact their ability to learn and grow, given their status and how they may develop in your system and resources they may need to thrive.
- *Overall recommendation* – Rather than pure silos of information, providing context and how factors may inter-relate toward the main scouting questions is beneficial. Highlighting what additional information would be helpful, and flag potential mitigating factors that could impact recommendations and conclusions. For example, given that there is no peak height velocity (PHV) with regular intervals, or massive variance and error of official height measurement, knowing where a player is at within their growth spurts is a significant limitation, but knowing more about the birth parents, the player's training history, environment including access to healthy nutrition and other factors,

may provide other signals around potential for growth and factors that may limit additional growth projection.

- Potential outcomes for each of the possible responses

  - There are no 'perfect' measures, and it is likely each measure will have costs and benefits, but your ability to articulate those things will be significant. The utility of being able to go to the player's environment in a small window of time, and conduct a test at lower reliability and validity may be more beneficial than any other option. However, you may need to be cautious and explicit at the recommendation of the measures when providing recommendations to others (e.g. medical staff).

  - Getting comparisons from R&D may be one aspect of predicting player success; however, medical or S&C staff in particular may be able to help provide context and data of players, making successful transition in other sports or environments that can provide a more complete picture—especially where there are complex or rare conditions and very small sample sizes.

  - Clarifying assumptions and checking for understanding is important regardless of whether this is the scouting director, or any member of staff. Greater awareness and stating of these things is typically always going to help alignment and blind spots. In many cases, these may also reveal unconscious biases and assumptions that can open people up to different ways of thinking and more solutions than previously thought.

  - Who facilitates and is the voice of interdisciplinary discussion is a relevant consideration. It would be very rare to have someone who is fully proficient in all domains; however, providing a platform for each expertise to be expressed and the inter-related effects of this can be helpful.

- *Medical risk assessment* – Being cautious of the quality of information is key. There may be imaging available on one player with a moderate risk, but not another who ends up being a higher risk. However, it is hard to mitigate against the unknown. Having a consistent process to navigate unequal data, as well as a cross section of opinions, is an important framework to spend time developing.

- *Physical capacity and athletic potential* – By making sure there is alignment between strength and conditioning, nutrition and medical staff will likely help the common language and discussion between body composition, movement, athleticism and the impact on medical risk. If these are completely disjointed disciplines, it will be hard to come to agreement on recommendations and on how programs would be set up, or the implications should the team select for this player. Ideally, the framework between

selection and development would be the same to allow continuity throughout the system.

- *Psychological makeup and learning potential* – While psychological factors have been significant aspects for both success and failure of players, drawing absolute conclusions and predictions of player's responses, in a new environment, is incredibly hard. Whatever the context of coaching and team environment is, or the impact of immediate wealth and status, predicting factors here can be influenced by an incredible array of variables. Drawing conclusions in isolation should be done with caution; however, it can provide rich insight with the conviction others may estimate a player's growth potential.

- *Overall recommendation* – As previously stated, it is the combination of information and factors, and how those are presented, that can have most value and efficacy. Putting planning, thought and discussion into how that should be facilitated or put together is important. For example, is this information brought together in a dashboard report, with additional interdisciplinary summaries, or is this facilitated in a discussion of experts in oral form, or combination of. Much depends on the context and process of decision making, but, of course, the difference between theory and practice means that using processes like human-centered design may allow some pilot testing and feedback to create the most optimal process.