

# The challenge of knowledge translation: some personal reflections on the process of putting science into practice

Prof Barry Drust FBASES reflects on the challenges and potential solutions to knowledge translation issues developed through working as an academic and practical sport scientist.

## Introduction

There are a lot of us who grow up wanting to be a sports person. This was certainly my ambition when I was a child. I guess as I grew, I started to realise that this was unlikely and my ambitions changed to a desire to work in sport somehow. The completion of a sports related course along with some A levels provided a basis to go to university to study sport science. The jobs that now exist for people in performance support in elite sport were not as available then but taking this route seemed the best way to go to create future opportunities.

I loved university and so when an opportunity came up to do a PhD I jumped at the chance. The skills and understanding of my specific topic (the physiology of football) new seemed certain to give me the platform to finally get close to sport and to try and impact the performances of individuals. It seemed a very simple process in my head as to how “experts” (though I thought this at the time I do now realise how I’d over-estimated the level of my knowledge) like me could use their theoretical understanding to help players and coaches solve their performance problems.

I got given the opportunity to try this theory in my first full-time position. This job was a split appointment between a university and a football team. Trying to work with the players and coaches very quickly showed me that I was very wrong about my ideas about impact. While we undoubtedly created some changes through the application of sport science knowledge our ideas certainly weren’t taken on completely. Over time I started to wonder if this type of role was actually for me. As I became increasingly frustrated there seemed to be only one choice and that was to leave and get another job.

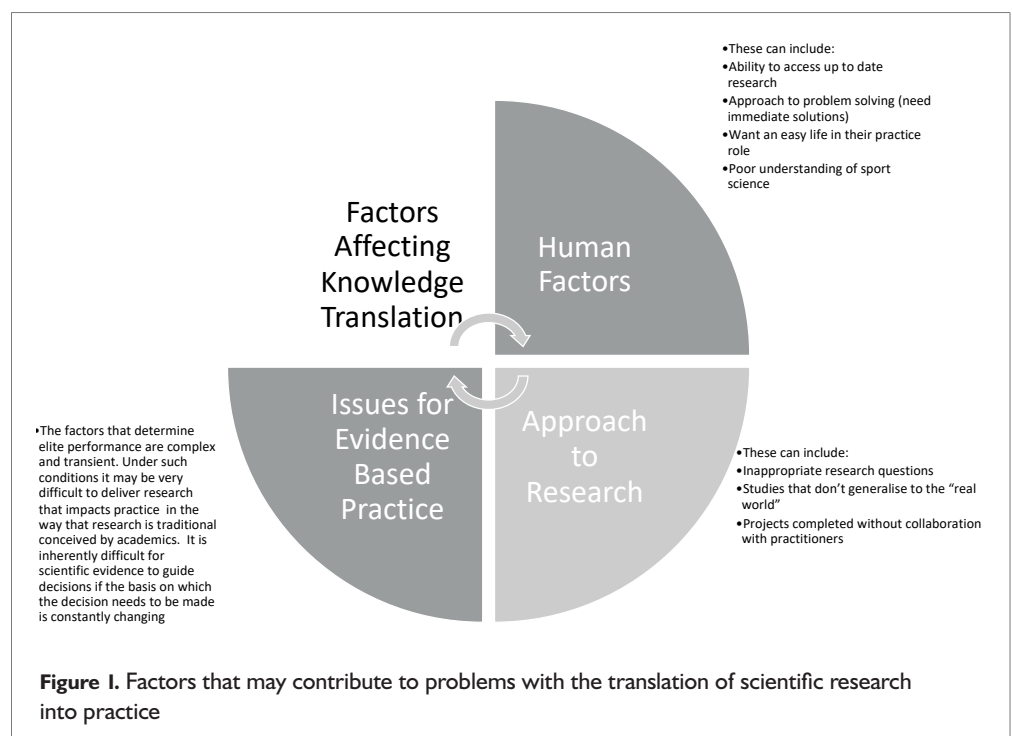
## The challenge of translating knowledge into practice

My early experience of trying to translate knowledge into practice isn’t one that is unique. When I look back and reflect on this early phase of my career, I realise how ill prepared I was for the role that I was given. Despite these personal limitations such difficulties around the translation of science into practice are well recognised. As both the discipline of sport science and elite sport has developed there are clearly many positive examples of how scientific knowledge has contributed to successful performances. We could assume that there is now a much easier progression from high-quality evidence to day-to-day activities in the field. Barriers to knowledge translation do still however remain an issue.

## Some personal reflections on why translating knowledge is hard

I have been lucky to undertake several applied research projects with/for sports organisations over a number of years. I have also been able to spend time around elite teams and those who work in these environments full time. Combining these experiences has given me the opportunity to develop some ideas as to how we can think about the research we do, how we do this research and then finally how we can try and facilitate the translation process. Some of these ideas will be presented below.

It is important first though to attempt to consider the potential factors that may be responsible for making the translation process difficult. These are presented in Figure 1. Ultimately translating science into effective practice will require a behaviour change at some level by either an individual or a number of individuals. Changing behaviour is incredibly difficult as we all know and the ideas, I present below are in no way a full representation of the complexity of this process. They are simply a bit of “checklist” developed from my reflections that may be useful to consider when we are doing sport science research and want to get the process of translation moving a little more smoothly.



## Ways to think about developing the translation of research

There are clearly negative consequences for those involved in sport at all levels if the available knowledge is not applied. These consequences can range from simply putting a specific individual off participating in an activity/sport to prematurely ending an athlete's career through misinformed practice. Such things, at any level, are detrimental to the individual concerned experience. It is therefore important that we should all work harder in our attempts to use the available knowledge to impact practice.

Like most complex problems the potential solutions to knowledge translation are probably multifactorial, context dependent and fluid (i.e., what needs to be done at one specific point in time may not be what is needed at another moment). Effective strategies are therefore likely to be complex and may require new ways of thinking and a variety of additional skills. It seems certain that improvements in translation won't just happen and will require those interested to commit substantial effort, and the associated time, into proactively trying to address the issue.

the translation of data into practice. This open dialogue between scientists and practitioner's is not always common for those conducting scientific studies. In fact, strategies to help facilitate the collaboration between the scientist and the practitioner throughout the delivery of the research project would seem to be a key prerequisite to developing projects that have relevance and therefore potential to be translated. Improving communication provides a good example of how changing the approach to how the research project is conducted could be a helpful strategy in improving translation.

## “ Integrating the end user into decisions about what research questions to ask also seems to be a great strategy to facilitate the translation of data into practice. ”

In my view the process of knowledge translation should be associated with the delivery of the research project not something that is only considered at the end. Changing how we think about and complete the research may possibly create opportunities to develop the implementation of the insights created (see Table 1). The research question is a prominent feature of the research process and may therefore play an important role in determining the extent of translation. While there is clearly a important role for conceptual research that challenges paradigms and our theoretical understanding there is a need for projects that attempt to directly address applied real-world issues. These types of questions may not generate data of high scientific impact but will be incredibly valuable to those in the field. Unfortunately, the principles that govern the development of academic careers do not always value this type of research. As such academics are often caught between “doing the research that they want to do with doing the research that they are rewarded for doing”. In other situations, the understanding of the “actual” problems faced in elite sport are different to those considered as important by academics who do not have a connection to the field. Research that is incorrectly targeted at irrelevant applied problems will lack real world practical relevance. Thinking carefully about the research that we do by reflecting on its potential usefulness at the project's conception may then be a way to improve the applicability of the data somewhere down the line. Questions that are related to the implementation of sports science processes specifically seem particularly relevant to consider here. For example, our understanding of how we embed an athlete monitoring system to ensure compliance from athletes and coaches as well as provide effective feedback that can impact decision making is very limited. These types of projects would seem to have potential to be translated more directly than more traditional technically focussed research.

Integrating the end user into decisions about what research questions to ask also seems to be a great strategy to facilitate

Other novel approaches such as understanding how to do research in more natural ecologically valid situations that are complex and non-linear may also provide a basis to change the potential for research to be applied. Completing research under these conditions is not always considered in more traditional scientific research training. This can make doing research under such conditions difficult for some individuals. Under these types of circumstances there may be an artificial restriction of the potential approaches that are used by researchers. This can result in a loss of relevance through overly rigid and very structured controlled processes. Deliberating on other research paradigms that may better reflect the real world, such as systems thinking, may also generate research that is more in tune with how practitioners think about performance problems. This again could lead to increased levels of relevance and an increased likelihood of translation. Creating different ways that research can be thought about and delivered may therefore be another key step in helping develop knowledge translation. Care should be taken that these adaptations to process do not negatively impact the required rigour associated with good research. Researchers should instead seek to integrate the things that may facilitate collaboration and encourage progressive research designs (e.g., natural experiments) with more traditional elements of research.

The solutions suggested above point to a change in how we do research as a potential contributing factor in improving knowledge translation. These ideas are more likely to have relevance to the development of the next generation of sport scientists. While traditional models of research training (of which the PhD is the best example) will always be key it may be important to consider a diversification in doctoral training models. Such developments can already be observed with the development of professional doctorates and the continued use of the embedded PhD model. Some of the ideas relevant to these are discussed in Bartlett and Drust (2021). Such approaches are also driving the development of sport focussed graduate schools that are holistically creating more applied learning experiences for individuals. These educational approaches may in time lead to the traditional distinctions and skill sets that are seen in scientists and practitioners becoming increasingly blurred and then in time obsolete. This may mean that we are creating new types of people that can in themselves embed their own research into their own practice. In such circumstances the limitations to the translation of research may be well on their way to getting removed forever. ■

**Table 1.** Potential ways to reconsider the research process to develop projects that may improve knowledge translation.

Changing the research process to try and facilitate knowledge translation
<ul style="list-style-type: none"> <li>• Consider the research question: Does it have “real” applied world relevance to “actual” problems faced by the sport?</li> <li>• Foster communication and collaboration with other key stakeholders (and others who don't seem as important to your project) in the sports organisations</li> <li>• Develop a broader range of research skills to enable you to different types of projects</li> <li>• Explore different theoretical paradigms to see if these better fit the projects you may need to do</li> <li>• Think about how the project can benefit everyone not just your research publication count: Have a wider perspective on how it may be a benefit to you</li> </ul>



Prof Barry Drust FBASES

Barry is the Head of the Graduate School of Sport and Professional Practice at The university of Birmingham and a Fellow of BASES.

### References:

**Bartlett, J.D. & Drust, B. (2021).** A framework for effective knowledge translation and performance delivery of Sport Scientists in professional sport. *European Journal of Sports Sciences*, 21(11), 1579-1587.