

Innovating Together: Collaborating to Impact Performance

Sport scientists can impact sporting performance in several ways, through implementation of our research and when applying evidence-based practice in direct work with athletes. The impact of research is typically achieved through “slow and deliberate” work in the laboratory. In contrast, those operating in the field make their difference through “fast-paced” work in training and competition settings.¹ While on the surface these roles appear dichotomous (ie, different skill sets, work deliverables, and performance expectations), there is great value when they combine. Important insights can be discovered from both the lab and in training and competition settings, and we believe that a “sweet spot of innovation” and collective benefit is achieved when the 2 meet. As an example, the role of lab-based research is to test the efficacy of interventions (eg, optimal methods for physiological adaptation, optimal learning strategies), while coaches and athletes test the intervention’s effectiveness in the real world. Undoubtedly, coaches and athletes benefit from the work of researchers, but there are great benefits to be achieved by working together to bridge the gap from research to practice. We have benefited greatly from the insightful feedback, opinions, and shared experiences of expert coaches and athletes. These insights have aided our understanding of contemporary training practices and provided new ideas for studies conducted in the lab. While it is common as scientists to think and act dichotomously, we believe that this *both/and*² (as opposed to *either/or*) approach to problem solving is where the highest impact to sport performance can be made.

We believe that the pragmatic *both/and* approach is reflected in the mission of the *International Journal of Sports Physiology and Performance (IJSP)*. Contributors are encouraged to provide high-level articles from both controlled experimental and observational research to answer relevant real-world questions. An important feature of manuscripts in *IJSP* is the explicit statement of the practical application of the research. Accordingly, when reading articles, it is beneficial to have an awareness of the context in which the research was conducted. This information is critical, as it assists proper interpretation and application of a paper’s findings. Several authors have described the challenges of directly transferring research findings to a sporting environment and promote the need for a link between these 2 domains.^{3,4} Casadio et al³ reported that while guidelines for athletes’ heat acclimation are well established, expertise from practitioners is still required to apply them effectively within the constraints of the athlete’s existing training program and resources. Along a similar theme, Carling et al⁴ provided commentary on the limitations of implementing the recommendations from current research to evaluate readiness to play based on experiences of practitioners working in professional football. Both these papers emphasize the power of combining the collective knowledge and skills from a range of expert practitioners to deliver effective performance interventions for athletes and to drive our research frontiers. To provide context for the differing ways in which our work can affect sport performance, we present the “sport-science impact matrix” (Figure 1).

The sport-science impact matrix is defined by continuums of expertise and the environment in which scientists work. It also

identifies zones of impact. The expertise continuum (*x*-axis) represents how a scientist’s knowledge can range from sport specific (ie, where a sport is understood in intricate detail), to discipline specific (ie, where the individual may be focused on a particular subdiscipline within sport science, such as physiology, skill acquisition, nutrition, biomedicine, biomechanics, or data science). The environment continuum (*y*-axis) represents the setting in which an individual affects sporting performance. This continuum can range from direct support where scientists are in the training environment through to researchers in either an applied or a laboratory setting.

The matrix can also be divided into three zones. In the embedded zone, practitioners implement evidence-informed practice using existing systems and protocols to collect data and use established training methods. At the upper end of the impact continuum is the research zone, where scientific method is used to innovate and design experiments to better understand human performance. This knowledge can then be used to inform future practice. Initially, practitioners will interpret the collective findings of several studies centered on the same topic to determine how to best transfer the knowledge into a field setting. Once our general understanding of the application of a training modality or intervention becomes well established in the field, it becomes part of the practitioner’s tool kit, is taught in coaching and university courses, is included in textbooks, and is widely used by athletes.

The high-impact zone represents a blend of research and direct support where performance scientists conduct fast-paced interventions and use their intuition to guide decision making to provide a competitive edge. In this zone a unique skill set is required to tackle an array of contrasting challenges such as being an early adopter of new technology while also ensuring methodologically robust solutions (eg, assessing proof of concept, validity and reliability), gaining respect and the buy-in of athletes and coaches when challenging current practices, being creative and inquisitive while also maintaining strong scientific rigor and ethical practice, and pushing boundaries while acknowledging the limitations of the working environment. To be successful within the complexity of high-performance sport, a *both/and* way of thinking can provide balance and context to these challenges, creating an environment where practitioners can have a profound impact on performance. It is important to highlight that the high-impact zone would not exist without the work completed in the embedded and research zones. In other words, it is not *either/or* when it comes to where you sit within the matrix. All parties have a valuable role to play. Moreover, from our experience, sport science is a dynamic field and individuals rarely sit perfectly in one of these areas. These roles often vary throughout a career or even within the same job. Also of note is that the matrix presents one way to conceptually visualize how sport scientists, as practitioners and researchers, work across each continuum.

Where does your work sit within the matrix? Understanding how your studies contribute to improving sport performance can help readers understand your perspective and aid their

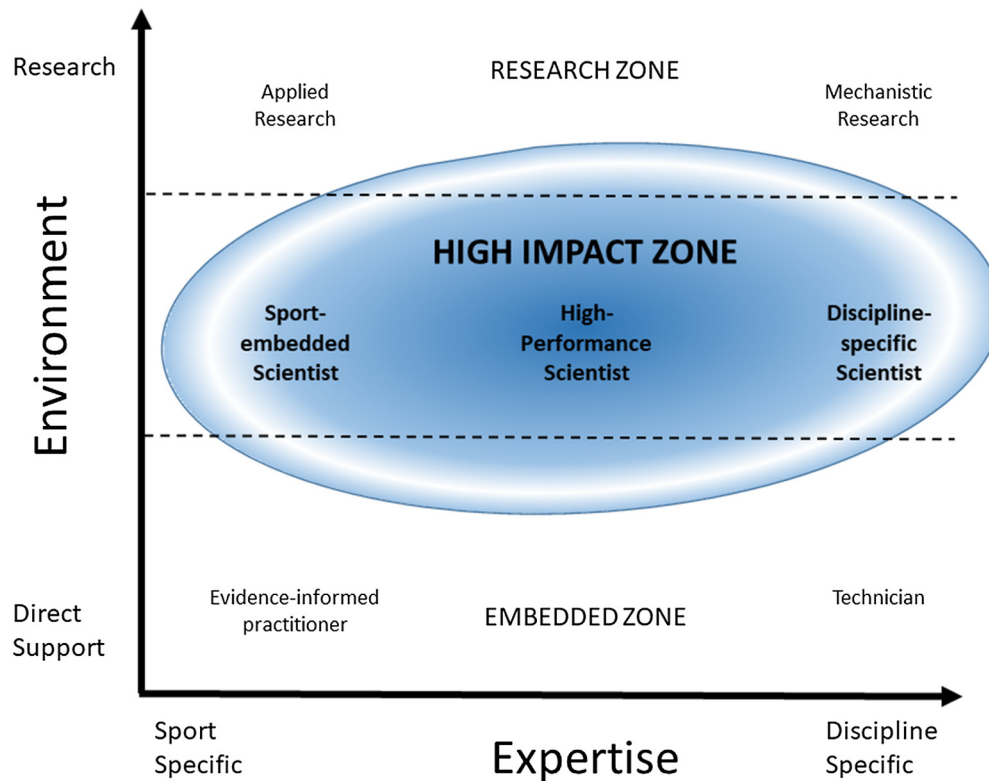


Figure 1 — The sport-science impact matrix.

interpretation and application of your study's findings. When writing an article for *IJSPP*, it is important that authors clearly describe the environment in which the research was conducted and describe how the findings can be applied to their area of practice. Providing clear information on the context will help our research more effectively transfer to practice, and also allow practice to better inform research.

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