Sport Performance Research: Sexy, Underfunded, and With Underutilized Impact Potential

_LJSPP_ promotes research in sport physiology and related disciplines with practical application to enhance sport performance, promote recovery of athletes, and prevent decrements in performance. Huge audiences that are regularly attracted by an enormous variety of sporting events at regional to international level reflect a high general interest in sport and performance, with substantial economic impact. The current growth of our journal indicates comparably strong interest in sport and performance research. Nevertheless, sport and performance research funding is difficult to obtain.

Big players in high-performance sports, often with annual budgets of over $100 million, do not seem to pay much attention to financial or practical involvement with sport science research. In terms of a short-term investment strategy this seems reasonable because an ongoing sport science research project is unlikely to provide an immediate performance benefit, fix acute problems, or offer other forms of short-term revenue. However, big players now invest in sport science support and the practical application of knowledge about how performance enhancement and management work on athletes ad hoc without any prospective research question. Unfortunately they often ignore the notion that best-practice sport science support in top-performance athletes requires corresponding sport science research. Research-funding bodies with a main focus on basic science appear to recognize sport performance as a buzz word or soft option. In many countries, recurrent doping news makes funding bodies, which are generally fond of applied science, less likely to be linked with the label “sport performance” than with _exercise and health_, suggesting a general conflict between high-performance sport and ethical and healthy physical exercise. In recent years the Olympic Games regularly trigger sport performance research initiatives in organizing countries. In 2006, the Applying Fundamental Science and Engineering Research to Elite Sporting Excellence initiative, which had been set up by the Engineering and Physical Research Council and UK Sport, supplied seedcorn funding of £1.5 million. However, 2006 was not only much too late to provide any realistic chance of an impact for the 2012 London Olympics, but the program was also quickly terminated due to financial shortcomings. A state-funded long-term initiative for sport performance research, the German Federal Institute of Sport Science (Bundesinstitut für Sportwissenschaft; Bisp) was founded in 1970. Currently, Bisp is spending approximately €3 million on more than 70 projects per year. Such financial resources compare to the annual salary of a talented young European football player. Given the current economic climate and proposed national research-funding strategies in most countries, substantial increases in sport performance research funding appear unrealistic.

Selected historic top performance highlights may provide ammunition for those who claim that sport performance research may just follow already existing trends and procedures rather than reflect prospective rigorously theory-driven science. For example, Bob Beamon’s remarkable gold-medal-winning long jump at the 1968 Olympics improved the then existing world record by 55 cm to 8.90 m. In 1968, sport science research was still in its infancy, and Beamon’s world record lasted until 1991, surviving several generations of athletes and the corresponding maturation period of sport performance research. Similarly, Richard (Dick) Douglas Fosbury’s revolutionary gold-medal-winning high-jump technique got maximal attention at the 1968 Olympics and made other high-jump techniques almost disappear from world-class events within a decade. However, in 1968 it was not new and no sport scientist had put forward the idea that the advantage of flop-specific running speed might outperform selected other biomechanical advantages of alternative high-jump techniques. The concept of the later named “Fosbury Flop” technique had already been developed and demonstrated by the Austrian waiter and athlete Fritz Pringl in the 1950s.

However, skepticism about the scientific value of sport performance research is clearly countered by objective performance analyses. This work provides strong and scientifically robust evidence that (and to what extent) innovative, rigorous, prospective, and theory-driven research outcomes—for example, generations of skinsuits, klapskates but also skating rink design and required modifications of skating technique, training methods, nutritional programs, and increased professionalism—affected world-class performance within its narrow margins of stress tolerance and adaptive potential. Although the definitive limits of human performance and the limits of physical integrity under competition and training stress are widely unknown, systematic sport performance research has already demonstrated significant transfer potential. Sports science research has laid the foundation and promoted not only interventions in top-performance sport but also for other areas of a physically active life. Performance analyses and training methods initially developed and established with high-performance athletes are the basis of an increasing number of exercise intervention programs for healthy
living. These developments have a widely underutilized potential impact in more severely impaired patients, where improvement of physical performance is essential but limited within narrow margins of disease-specific-impaired stress tolerance and adaptive potential.7

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References