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**Coopetition: cooperation among competitors to enhance applied research and drive
innovation in elite sport**

Running head: Coopetition for enhancing applied research and innovation in elite sport

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INTRODUCTION

The essence of competition is often understood as a situation of mutually exclusive goal attainment, where one side succeeds only if another does not. However, and as studied by the game theory, this standard view may be too narrow and simplistic when trying to understand complex interactions.[1] Researchers in business and management have expanded on this and explored cases of simultaneous cooperation and competition (*i.e. coopetition*) as the most complex but advantageous relationship among competitors and as an effective strategy to drive innovation.[2]

Scientific innovation can be crucial for maximising athletes' health and performance, which has resulted in a growing interest in sports science and medicine (SSM). Innovation through research helps develop training models, medical treatments and recovery methods[3] but the practical relevance of some fundamental studies is often hindered by their poor ecological validity. Tightly controlled conditions can create an artificial sample of athletes and circumstances which are not truly representative of daily practice, allowing for the gap between research and practice to persist. Applied research aims to bridge that gap by developing ecologically valid evidence and can be further enhanced by embedding 'off-field' academic brains into sporting organisations.[4] However, the quality of research outputs can be limited by small sample sizes and restricted access to resources and specialised instrumentation. Merging performance data from different teams has been suggested as a solution; however, practitioners from professional organisations may be reluctant to share such data and resources between them. In this editorial, we aim to (i) alert the sports medicine/science community to the concept of *coopetition* and its relevance to our field, and (ii) propose a conceptual framework for its use to enhance the methods and quality of applied research and drive innovation.

TO COOPERATE AND COMPETE SIMULTANEOUSLY?

Relationships between rival companies have been long studied as a means of innovation[5] alongside the influence of *coopetition* on the strategic operations of the involved firms (e.g., research and development, innovation, product manufacturing).[2,5] Within *coopetition*, organisations can compete due to conflicting interests, and at the same time, cooperate due to a common interest in developing specific knowledge. Different cases of success have been reported in the business literature[2] (e.g. joint development of LCD panels between Sony and Samsung; joint development of eco-friendly vehicles between Toyota and General Motors), and it is conceivable then that practice of *coopetition* could be adopted by applied research in SSM. National squads or elite teams rival each other during competitions but often face similar challenges and share common goals (e.g. safe enhancement of athletic development, reduction in injury risk). However, to date, *coopetition* has received limited attention in SSM (e.g. [6,7]), although some cases exist in the field of sports management.[8] In SSM, the operational relationships among the contending sides have not yet been explored. To our knowledge, no conscious efforts have been made to propose a framework for enhancing applied research through *coopetition* in elite sport.

COOPETITION MANAGEMENT, A FRAMEWORK AND THE THIRD-PARTY

The coexistence of cooperation and competition can be a challenging situation as it involves sources of conflict due to the complex nature of the relationship. Thereby, the involvement of a third-party is required to carefully manage fructuous *coopetition* relationships, and we believe that an associated university would be the most suitable for that role. By doing so, organisations benefit from access to ‘off-field brains’, specialised instrumentation, operating systems, and the prospect to publish selected findings in scientific journals.[4] As illustrated in Figure 1, and adapted from an available nine-step applied research model,[4] the university would be

expected to (1) mediate between the organisations to identify common challenges and develop appropriate co-constructed research questions; (2) seek ethical approval; (3) design and implement agreed standardised, valid and reliable data collection protocols; (4) pool, anonymise and analyse the collected data; (5) disseminate results back to the organisations without compromising anonymity; (6) write the relevant research paper(s); and (7) facilitate the integration of the newly acquired knowledge into practice. In this way, any risk of potential leaks of sensitive information between rivals is addressed, while the involved organisations are still able to benefit from the pooled data, the results and the subsequent new knowledge. Fundamentally, the third-party acts as a provider of academic expertise, a neutral authority in decision-making and as a trustee of sensitive information within the *coopetition* relationship.

PLEASE INSERT FIGURE 1 NEAR HERE

SUMMARY

Research in business and management has shown that the coexistence of cooperation and competition among companies can have a positive influence on the development of knowledge and success measures. The same principle may apply to the fields of SSM, where multiple factors restrict the quality of applied research outputs. The inclusion of a neutral third party (i.e. a university) into *coopetition* relationships would likely benefit all stakeholders.

COMPETING INTERESTS

None

CONTRIBUTORSHIP

CR adapted the theory and developed the framework. KT, AB, MB, JP, SB, PG, CL and BJ made substantial contributions by discussing, challenging and further developing the original ideas. All authors critically revised the manuscript for important intellectual content.

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FIGURE CAPTIONS

Figure 1 Illustrated conceptual framework for sports science and medicine *coopetition* relationships between elite sporting organisations with the inclusion of a third party.