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## Behind the podium and the glory

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## **Title: Behind the podium and the glory: The IOC Olympian Health Cohort**

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Taking part in sport and exercise confers a number of health benefits helping people live longer and healthier lives. However, sport participation – particularly at the elite level – is also associated with an increased risk of musculoskeletal injury and, in some cases, illnesses. Sport injury and illness prevention and the protection of athlete health have long been key mandates for the International Olympic Committee (IOC) and since 2008 organisations such as the IOC and other international sport federations have regularly conducted in-Games surveillance studies. Hence, much is known about the occurrence and nature of elite athlete injuries and illnesses during major sporting events such as the Olympics and Paralympics; the football, rugby, and skiing/snowboarding World Cups; and the athletics and swimming World Championships; to name a few. Across multiple Olympic Games over the last 12 years (between Beijing 2008 and Tokyo 2020), reported injury incidences have ranged between 9% to 14% of all athletes and illness rates between 4% to 9% of all athletes.[1]

Similarly, there is a growing body of knowledge on what happens to elite athletes when they retire from sport. In a recent retired Olympian study, 63% of Olympians reported having had at least one significant injury at some point during their career.[2] Significant joint injury is a known risk factor for the development of osteoarthritis (OA), and in retired athletes there is evidence of an association between joint injury and ongoing pain, and the development and progression of OA.[3-5]. The rates of pain and post-traumatic OA are also reported to be higher for retired athletes when compared with the general population. Despite this, retired athletes appear to have better self-reported general health in later life.[6]

### **Limitations to current knowledge**

In-Games surveillance studies continue to provide important ongoing information, helping to inform event and team medical provision, course design and injury and illness prevention strategies. However, these studies are limited to data capture during a 3 week window, once every 4 years for summer and winter sports athletes.[1] While retired athlete studies offer insights covering longer periods of time these are often cross-sectional, and there are limitations in terms of recall bias due to the retrospective nature of injury history questions.[3-5] Some national sport bodies monitor injury longitudinally but these season-based studies are few and far between. [7,8]

Hence, while all these studies provide important new knowledge there are significant gaps in our understanding of Olympian health. In particular, what happens to these athletes between injuries and

illnesses captured during the Olympic Games (reported injury rates 9-14%; using an broad 'medical attention' injury definition) and information gathered when they retire (reported career injury rate 63%; utilising a narrower 'significant injury' definition)?[1,2]

In addition to athlete physical health a number of other important health and well-being issues have emerged over the last few years; for example, sport-related concussion, harassment and abuse in high performance sport, and elite athlete mental health.[9-10] Early detection of and intervention for many of these issues are key to helping mitigate progression of more serious disease outcomes.

### **Next steps – introducing the IOC Olympian Health Cohort**

In order to i) better understand the magnitude of sports injury and illness alongside other athlete health and wellbeing issues; ii) further elucidate other health and wellbeing issues and their interaction with physical health, and iii) allow identification of new and emerging issues in a more timely manner, we must follow Olympians prospectively throughout their competitive careers. Not just during the Olympic Games, a season, or in retirement.

With help from and in collaboration with National Olympic Committees our aim with the IOC Olympian Health Cohort is to recruit and establish a cohort of current Olympians competing in the summer and winter Olympic Games in order to prospectively survey and monitor them on a range of health and wellbeing issues, throughout their Olympic careers and into retirement. The prospective design helps eliminate many of the methodological issues associated with retrospective and cross-sectional studies and will enable researchers, coaching and support staff, sport federations, other stakeholders – and, importantly, the athletes themselves – to understand in more detail what happens across their careers. In turn, these insights will help inform evidence-based targeted interventions to mitigate some of the negative health outcomes associated with elite sport participation, while also making it possible to monitor changes over time to assess the effectiveness of those risk reduction strategies. The ultimate goal is to improve the health of all Olympians, both during their careers and after their retirement from competitive sport.

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