What can medical educators learn from the Rio 2016 Olympic Games?

Abstract
Medical Educators face an ongoing challenge in optimising preparedness for practice for newly qualified doctors. Junior doctors have highlighted specific areas in which they do not feel adequately equipped to undertake their duties, including managing the acutely unwell patient. In these highly stressful, time-critical scenarios it might be assumed that a lack of knowledge underpins these feelings of apprehension from junior medics; however, having studied, trained and passed examinations to demonstrate such knowledge, perhaps other factors should be considered. The recent Olympic Games in Rio demonstrated the impact of sport psychology techniques in allowing athletes to achieve their optimum performance in the face of adversity. The use of mental and behavioural strategies to control feelings of anxiety and low self-efficacy are pivotal for athletes to deliver their best performance under extreme pressure. We consider whether such techniques could improve the preparedness of the newest recruits to the healthcare system, and the impact this could have on patient care. Finally, suggestions for potential research directions within this area are offered to stimulate interest amongst the research community.

Text
The Rio 2016 Olympics allowed athletes across a range of different sports to deliver once in a lifetime individual and team Gold Medal winning performances, and demonstrated new levels of competitive expertise through setting new World Records. It seemed that such individuals and team members overcame the pressure of performing on the biggest stage and in the most stressful of environments in order to achieve their ultimate prizes. Two consistent themes across most, if not all of the interviews given by athletes in the moments after their successes centred around expert coaching and a huge amount of preparation. Over the last decade, coaching by experts of elite athletes to improve performance has been increasingly informed by insights from the discipline of sports psychology. A major aspect of applied sports psychology involves helping athletes to mentally prepare for, and perform sporting feats under extreme pressure in the face of intense competition (Mesagno and Mullane-Grant 2010). Individuals must develop a frame of mind which is focused on persistence, resilience and perseverance whilst also managing any anxiety triggered by the situation as they prepare to compete with others around them. Just prior to a race or competition, the ability to control and regulate one's emotions in order to main focus and optimise performance is essential, especially with the added pressure of millions of people watching and scrutinizing one's every move.
Pre-performance routines (PPR), which have their origins in sports psychology, have long been used by expert coaches for supporting elite athletes in the control and regulation of emotions maintain focus on the task at hand (Gallucci 2013). There are a range of PPR and these fall into two main inter-related categories which act to optimise performance through different strategies. The first category of PPRs are concerned with reducing the mental and physical components of anxiety: These include positive self-talk and mental and physical relaxation through mindful respiration and muscle relaxation, respectively. The second category of PPR aim to maintain a clear focus on the intended performance: These include mental rehearsal and visual imagery of the performance, setting clear goals related to the essential processes in the performance and blocking distractions, especially from the surrounding environment. In relation to the Olympic games, observing the focussed concentration on the faces of athletes preparing for the 100 metres sprint final readily identifies those individuals who employ PPRs prior to their efforts to deliver their best performance.

PPRs are commonplace across various skills with a defined beginning and end ("closed-skills"), such as sprinting and long-jump. However, the use of PPRs as an intervention for improving the performance of individuals engaged in open-skill team performance, where play is more dynamic and fluid, such as soccer, is increasing. Traditional methods of coaching for these skilled performance have been mainly prescriptive, with the development of deliberate practice and mastery learning for the athlete. More recently there has been a growing interest for using individually tailored approaches that enhance PPR. In particular, these approaches share a commonality which fundamental relate to the development of metacognitive and self-regulation skills in the athlete. In many of these sports activities, both individual and team, there is now greater emphasis on developing individuals who can dynamically adapt their strategies to the evolving situation at a given point in time, (MacIntyre et al. 2014) such changing a particular style of play in response to a change in momentum within the game. An example would be to develop rowers who are able to negotiate the threat from crewing in boats who sprint off soon after the start of the race, but also keep enough energy in reserve for increasing their stroke rate to fend off any late challenges by others towards the end of the race.

As medical educators interested in supporting junior doctors to enhance performance within the highly pressured environment of a busy clinical workplace, we have become increasingly interested in applying insights from sport psychology into the educational approaches used across the post-graduate curriculum. There have been concerns about the preparedness of junior doctors for real-life practice, especially in the management of the acutely ill patient (Carling 2010). Strategies are not usually addressed in junior doctors' training to enable them to deliver their best clinical performance in the complex environment of the wards, where distractions, lack of confidence and anxieties can impact negatively on the individual's ability to access their knowledge and skills. There are close parallels between the performance of junior doctors in acute care management and athletes engaged in competitive open-skill performances. In both disciplines, individuals are required to perform at the highest level in a highly pressured environment, with a constantly evolving series of tasks but a clear ultimate goal. In both of these circumstances, whilst the individual may be a member of a team, at any given moment in time the focus and responsibility rests on the quality of the individual effective performance. Despite these similarities, we have been surprised by the little attention to given to PPR within medical education beyond simple descriptions such as the 'diagnostic pause' described by Atkinson (2011) who encouraged General Practitioner trainees to take a moment to review the progress of the consultation during natural intermissions in proceedings, e.g. during hand-washing.

If PPR can enable elite athletes to achieve improved performance in highly pressured environments, can PPR also offer doctors the same benefits? This is a broad question that we are sharing with other medical educators with an intention to stimulate research in this new exciting and innovative approach to supporting medical trainees to increase their preparedness for practice, improve their clinical performance and ultimately to have an impact on their care of acutely ill patients. There are a number of potential research areas associated with how PPR have been used in sport that can be considered in the context of medical education. These include the identification of the current use of PPR in junior doctors, the use of PPR across different areas of clinical performance, the use of PPR in simulated performance compared with performance in real-life clinical situations, the contribution of metacognition and self-regulation skills in adapting PPR during an evolving clinical situation and the nature of an effective coaching approach for the application of PPR. The application of sports psychology is an exciting opportunity to afford junior doctors, and indeed other healthcare professionals, the coping strategies to empower individuals to function at their highest ability despite external pressures. This in turn could have influential

consequences on preparedness for practice and most importantly, patient care, particularly in the most acute situations.

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