



PROTECTING Paralympians

Paralympians ‘push the envelope’ as hard as any elite athlete, but they have additional medical challenges that Stellenbosch University researchers are helping them overcome.

The Institute of Sport and Exercise Medicine (ISEM) at the Faculty of Medicine and Health Sciences is involved in several studies investigating injury and illness in Paralympic athletes. ISEM’s director, Professor Wayne Derman, has served as an official doctor for the South African Paralympic team, so is well placed to discuss some of the issues and the range of solutions that his team is developing.

“How is the quintessential Olympic athlete – Usain Bolt – different to a Paralympic star like sprinter Jonnie Peacock?” asks Prof. Derman. “Both are exercising at peak performance, under extreme cardiovascular stress. But there’s another layer of complexity for para-athletes that may not be immediately apparent.”

People with disabilities are, in general, at higher risk for health problems. For instance, common conditions such as cardiovascular disease, diabetes, cancer and chronic pulmonary disease are more prevalent among wheelchair users, who are forced to be sedentary. There may be additional medical issues; people with spinal cord injuries, for example, are prone to urinary tract and skin infections, possibly due to altered immune function. Not surprisingly, more injuries and illnesses are reported during the Paralympic Games than the Olympics.

Doctors face this extra complexity when approaching diagnosis in the young field of disability sports medicine.

“For instance, how do you apply standard tests to tell if someone in a wheelchair has suffered a concussion? You can’t use the standing balance test. In the case of a runner with a prosthesis, how do you compare the different sides? We have to adapt, to understand that the sound leg takes an extra load, so that’s where problems are likely to occur.”

Prof. Derman and his colleagues have put together a web-based solution to monitor injuries and illnesses during the Games. This allows doctors to input data in real time, forming a picture of where the issues lie. Once problems are identified, the researchers determine the cause and mechanism of the injury, using tools such as video and biomechanical analysis.

Preventative measures are put in place and evaluated with follow-up studies. Sometimes problems are fairly easily rectified. “For instance, we were seeing horrendous knee injuries in ice-sledge hockey,” Prof. Derman recalls. “After analysing the video footage, the medical team recommended adding rails to the sleds – and the knee injuries went away. In five-a-side football, blind players are meant to shout ‘Voy!’ (‘I’m going!’) as they run towards the ball. But they often don’t, preferring stealth, which can lead to concussions. We’re hoping to see this risk addressed through better rule adherence and protective headgear at the 2020 Tokyo Summer Paralympics.”

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