Putting data into play

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Author: Maryanne Blacker
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Video:

Catapult has grown from a modest Australian startup into a global leader in athlete analytics. Its technology is powering sports superstars and elite teams around the world, improving performance and preventing injuries before they happen.

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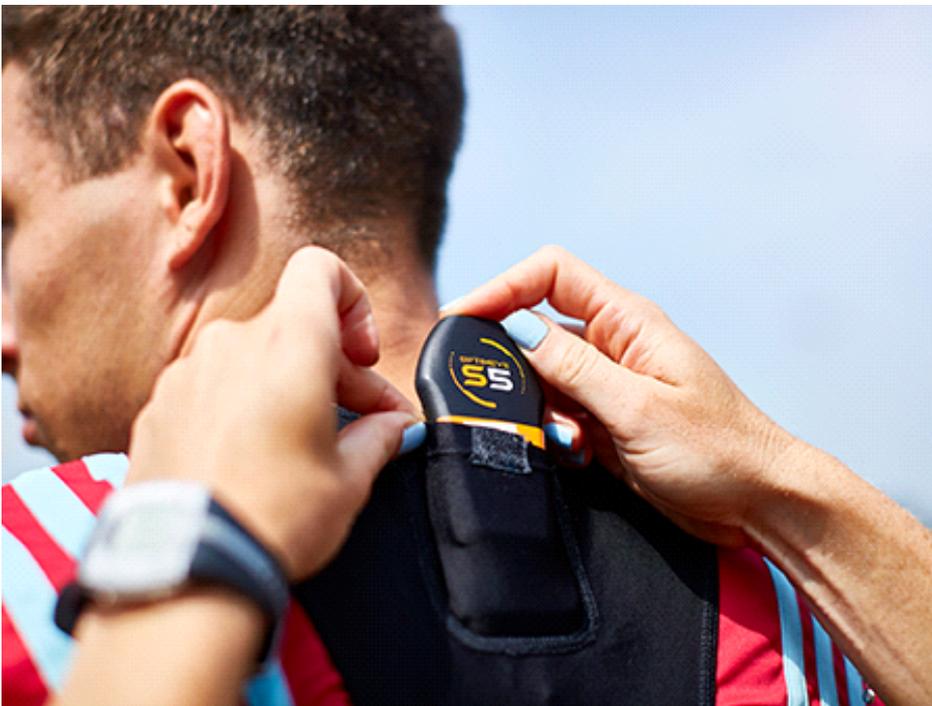Australia
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When rugby players from Fiji and Canada, netballers from England and hockey players from Australia and New Zealand took to the field during the 2018 Commonwealth Games on Queensland's Gold Coast, they carried more than just the weight of their nations with them.

Tucked inside their jerseys, just between their shoulder blades, was a small device designed to track every move they made. The goal? To optimise performance and reduce injuries.

The technology, developed by Australian company Catapult, powers sports stars around the globe, building and improving both individual and team performances by measuring distances players cover, accelerations, decelerations, scrum analysis, the force of collisions and more. Player data is streamed live or post-game to a Catapult platform for detailed analysis.

American Football teams such as the Dallas Cowboys, Green Bay Packers and Atlanta Falcons, European soccer giants Chelsea FC, Bayern Munich and Borussia Dortmund, Australian Rules, Super Rugby and Australian rugby league clubs are fans. In fact, Catapult now has more than 1500 elite teams on its books.

"Our technology solution is a combination and integration of hardware, firmware and software," Barry McNeill, CEO of Catapult Elite for Europe, Middle East, Africa and Asia Pacific, explains.

"Although our hardware (including a GPS antenna and numerous inertial sensors to measure micro movements and an athlete's load) is common across all the customers and all sports; we do provide customisation by adapting the firmware and the software layers," he says.

Tailormade tracking

"We've developed bespoke solutions for rowers, goalkeepers, ice hockey players, linesmen in American Football and baseball pitchers – all of which have very specific performance questions driving how we've relayed live metrics from the device into our software and applied artificial intelligence (AI) and data science techniques to help answer those sports specific questions with objective analytics."

Machine learning algorithms developed by the Catapult team transform data from products such as ClearSky T6 and OptimEye S5 into sport-specific insights. Ice hockey coaches can, for example, access more than 40 on-ice metrics that visualise the load placed on each side of the skater's body and 'red flag' groin overuse through biomechanical inefficiencies. In cricket, Catapult's award-winning fast bowling algorithm quantifies run-up speed, rotation speed and the PlayerLoad placed on bowlers during each delivery, while OptimEye G5 transforms goalkeeper training by delivering position-specific metrics to inform performance across training and matches.

Engineers Shaun Holthouse and Igor van de Griendt founded Catapult after working together for many years on a program with the Australian Institute of Sport (AIS) to develop micro-technology for athletes. Early research relied mostly on athletes using gym equipment, and while it was useful it provided no indication of how athletes would perform during actual competition. This led to the creation of a sensor that athletes could wear on the field; a technology that was used to great success by the Australian team leading up to the 2004 Olympic Games in Athens.

Leading the world in analytics

Since its formation in 2006, Catapult has grown organically and through acquisitions from a small Australian startup into a world leader in athlete analytics, and now has a team of more than 300 worldwide.

"Our people are key to this success, as they bring knowledge and credibility to each of our local markets (and sports), which allows us to genuinely appreciate and understand the performance needs of each sport, whilst also leveraging the commonalities from sharing the wider group intelligence," McNeil says.

While Catapult is a global player, its Australian heritage remains key.

"Innovation through sports technologies is rightly associated with the pioneering work undertaken around the AIS formation and a number of research initiatives which run deep in our own DNA," McNeil says.

"The willingness to challenge status quo, conduct applied research, and apply new technologies into elite sport is such a way of life in Australia across all stakeholders and I genuinely believe it's one of the best places to witness how academia, high performance sports and commerce interconnect.

"I think this culture of openness, curiosity and demand for change is the Australian heart of our plans to change the world of elite sports."

Maximum performance, minimum risk

McNeill readily admits that sport is one of the single biggest industries in the world and the asset value of an athlete's wellbeing is priceless. Both athlete salaries and the pressure to win is high. Catapult, he insists, is committed to helping minimise risk of injuries and ensure athletes are performing optimally – physically, technically, tactically and psychologically.

"The perpetual modernisation of elite sport is a continual arms race for competitive advantages," he says "and I'd propose the future will be bright for those that find congruence across technology (digital software, cloud analytics, smart wearables, VR/AI/AR etc), disruption (pursuit for continual improvement, curiosity, player power, millennial characteristics to want more), and datafication (big data contextualisation).

"These are all here to stay, they are perpetual. They have already changed the way we do things, whether you realise it or not. I'd propose each of these phenomena occur when humans and technologies interconnect."

Find out more about Catapult.