

Robots may dominate rugby by 2050

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Elite athletes with bionic implants, built-in chips to monitor their performance and shirts embedded with nanotechnology medicines to heal minor injuries could be taking the field for the 2051 Rugby World Cup.

They'll be refereed by robots and watched by spectators lounging in the comfort of a luxury hotel bedroom overlooking the pitch.

That's the prediction of Victoria University Associate Professor Dr Ian Yeoman, who has been examining how New Zealand will dominate the world of rugby in another four decades.

It may sound like [science fiction](#), but Dr Yeoman says many of the technologies needed to turn his vision into reality already exist or are being developed.

Take the prospect of elite, cyborg-style [professional athletes](#)—beings that are half human and half robot. Dr Yeoman says genetic engineering has given us the means to create designer babies and the technology is already widely used in sports such as horse racing.

He says [implants](#) are becoming more common for organs, bones and limbs and are increasingly accepted in the field of professional sport. He cites, for example, South African double amputee Oscar Pistorius qualifying to compete in the 2012 London Olympics using carbon fibre prosthetic running blades.

"We're also developing the means to create highly advanced nanobots (microscopic robots) capable of entering the bloodstream to feed cells and extract waste. Humans who have been injected with these nanobots will evolve into cyborgs and would make outstanding athletes," says Dr Yeoman.

The significant advances taking place in nanotechnology are likely to lead to development of fabric that can destroy airborne germs and pollutants according to Dr Yeoman.

"We are already using antimicrobial technology in shoes to keep them clean and prevent athlete's foot."

He says some sports consultants are predicting that injuries could eventually become almost non-existent due to advances in gene therapy and the ability to use sensor technology to predict an injury before it occurs.

Advances in nutrition and other areas of science will also impact on player health and performance. "New therapies will cut recovery times from injury by up to 300 percent and we can look forward to individualised pre-match drinks and non-invasive injections to optimise energy levels."

One change predicted by Dr Yeoman that is likely to receive widespread welcome is the introduction of rugby balls with radio frequency identification chips and [robot](#) linesmen and light-emitting systems to identify where fouls have occurred. "There'll be no more blaming the ref," he says.

The way we watch rugby is also likely to be radically different in the future. "TV viewers will enjoy lifelike 3D images in their indoor or outdoor home theatre while for really dedicated fans, the ultimate

experience will be staying at a hotel that's part of the stadium complex.”

Dr Yeoman says the Marriott Hotel at England's Twickenham rugby ground already includes six suites that overlook the [pitch](#).

In answer to rugby fans who think a game dominated by technology would lose its edge, Dr Yeoman points to the exponential growth in gaming. "We're already playing games ranging from chess to rugby and football on computers."

Dr Yeoman's thoughts on the future of professional rugby form part of a book to be published in the United Kingdom early next year called 2050 Tomorrow's Tourism.

While his research focuses on what is possible, rather than what is desirable, Dr Yeoman points out that ethics are constantly changing.

"Things that seem abhorrent now might be widely accepted in 20 years time."

And delving into how rugby might look 40 years on hasn't dampened Dr Yeoman's enthusiasm for the way the game is played in 2011. He is a Scotland fan and has tickets to watch Scotland play Argentina in a [Rugby](#) World Cup fixture in Wellington on 26 September.

"I'm also hoping Scotland will beat the All Blacks in the final in Auckland—but that's a wish rather than a prediction!"

Provided by Victoria University

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