


The Rio Tinto Sports Innovation Challenge

About the challenge

The Rio Tinto Sports Innovation Challenge is a partnership between Rio Tinto and Imperial College London. It aims to stimulate students to design and build new types of sporting equipment for people with disabilities. The five-year programme harnesses the creativity of Imperial's students in order to make sports more accessible to people with disabilities and to improve the sporting and training equipment available to them.

The Rio Tinto Sports Innovation Challenge helps students make the link between innovation in sport and innovation in a different domain – the minerals industry.



“Murr-ma”, created to give amputees the ability to transition effortlessly from beach to surf, and take part in lifesaving activities.



"Ghost", training aid for visually impaired athletes

Hands on studying

The Rio Tinto Sports Innovation Challenge has been integrated into the existing curriculum for engineering students, from 2nd year design courses through to final year and MSc course projects. Project topics are offered to students which have a Paralympic theme and which receive additional support through the initiative. Lectures and workshops are organised each year with external speakers including elite athletes, sports technicians and industry professionals. Project development also continues during the summer months for students who opt to take part in the UROP (Undergraduate Research Opportunities Programme) scheme.

The Rio Tinto Sports Innovation Challenge is a cross-departmental program within the Faculty of Engineering involving the departments of Bioengineering, Mechanical, Aeronautics, Civil, and Electrical & Electronic Engineering. The Innovation Design Engineering course (jointly run by the Royal College of Art and Imperial College Mechanical Engineering Department) also run an intensive 6 week design project as part of the Challenge culminating in an exhibition.

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Handlebar attachment to enable standing starts for Paralympic cyclists

Case Studies

Previous projects run as part of the Rio Tinto Sports Innovation Challenge include:

A handlebar attachment to enable standing starts for Paralympic silver medal winning cyclist Jon-Allan Butterworth. This 2nd year undergraduate group project involved the design and development of a prototype system to allow the quick transfer from a standing start to an aerodynamic position. It is believed that the concept could lead to an improvement in Jon-Allan's performance by as much as 1-2 seconds, which could be the difference between silver and gold.

Ghost: a training aid for visually impaired athletes to imitate and refine muscular movements as part of a training program to develop technique in sports such as swimming and tennis.

Murr-Ma: an amphibious prosthetic for below-knee amputees. This IDE project enables the user to transition from uneven beach surfaces to water with ease and to generate thrust when swimming.