Institution: University of Kent

Unit of Assessment: 26 - Sport and Exercise Sciences, Leisure and Tourism

a. Context

The School has taken a positive attitude and a proactive approach to research impact, engaging with a range of stakeholders to translate our research into real-world contexts such as sport performance, clinical practice and public debate. Our ability to rapidly convert research produced by a new department into impact case studies objectively indicates that the context, approach, strategy and plans described in this impact template are working effectively.

Main non-academic user groups

The School has two research groups that seek to apply their work with different target populations. For the **Endurance Research Group** these are: athletes, coaches and applied sport scientists involved with sports in which endurance is an important component (see, for example, 'Enhancing Training and Performance in Elite Cycling' case study); people using endurance exercise to improve their health and fitness; armed forces personnel involved in fatiguing military operations and any other group in which resistance to physical and/or mental fatigue is important.

For the **Sports Therapy, Physical Activity and Health Research Group** these are: people suffering from cancer, chronic kidney disease, arthritis, cardiorespiratory diseases (including exercise-induced asthma), and people referred for surgery; clinicians and other health professionals involved in the care of patients listed above; sports therapists and other health professionals involved in prevention, treatment and rehabilitation of athletes and physically active people; sport managers, sport-governing bodies, health professionals, local government and policy makers involved in the promotion of sport and physical activity (see, for example, 'Informing Public Debate and Policy Makers on the Olympic Games Legacy' case study); editor and journalists covering Paralympic sports and other sports for disabled people.

Types of impact

Our endurance research has directly **changed the practices and perspectives of athletes, coaches and applied sport scientists** in the UK and abroad, as well as **helping companies develop and test their products**. For example, our cycling case study provides detailed evidence of changing elite cyclists' training and racing strategy as a result of our work, and of how our research has been used in developing a new design of cycle ergometer (the Wattbike) that is now sold worldwide. We work with the Defence Science and Technology Laboratory (DSTL) on the development of a new training method to enhance the awareness of soldiers on foot to the cues associated with Improvised Explosive Devices (IEDs). Our psychobiological research has also been translated into new forms of testing, training, and race preparation for endurance athletes.

The research undertaken by the Sports Therapy, Physical Activity and Health Research Group has **informed clinical practice** of rehabilitation professionals (e.g., Chester Knee Clinic rehabilitation guide for femoral and tibial articular cartilage repair) and it has been included in **guidelines** for professionals involved in the design and management of clinical trials (e.g., research nurses) (Mithofer et al. Cartilage 2011;2:100-121). Our research on the impact of the 2004 Olympic Games on sport participation in Greece has **stimulated and informed public debate** amongst politicians, the medical community, and sport management professionals on the long-term legacy of London 2012 and other sporting mega-events (see Olympic case study for detailed evidence).

b. Approach to impact

During the REF 2014 period, the School and University established specific activities and systems to facilitate the translation of our research to non-academic impact. These are detailed below.

Approaches to user engagement

Our commitment to engage the local community with our research is exemplified by the strategic decision (accompanied by a £3,000,000 investment) to **locate our main research labs in the local sport centre** (Medway Park) rather than Medway campus. In addition to various research labs (see REF5), at Medway Park we engage directly with various user groups by applying our research in three commercial sport clinics. The **Sports Therapy Clinic** provides athletes and physically active people with sports injury treatment, massage and sport-specific rehabilitation programs.

The **Respiratory Clinic** provides diagnosis and treatment for athletes with exercise induced asthma and dysfunctional breathing. The **Sport Science Support Clinic** provides physiological testing and advice on training, nutrition and psychological skills to athletes in a variety of sports. In addition to our own clinics, we engage directly with health professionals and various patient groups by **collaborative clinical research** and the **Cardio-Pulmonary Exercise Testing (CPET) services** we developed in collaboration with two local Hospitals (Medway Maritime, Gillingham, and William Harvey Hospital, Ashford). These services provide CPET as a diagnostic tool for surgeons and anaesthetists to improve pre-operative screening and decision making for post-operative care. Engagement with the local community and various patient groups is also achieved through our strong **collaboration with Medway Council** to guide and evaluate its initiatives to improve physical activity in the local area. These include guidance on promoting physical activity in the area, Phase IV Cardiac Rehabilitation programs, and an innovative Cancer Rehabilitation program (in collaboration with MacMillan Cancer Support) provided in the Medway towns.

Supported by a Corporate Communications Officer dedicated to our School, our academics are encouraged to **cooperate with the press, radio and television** to engage the general public and a variety of user groups with our research. Examples of our staff engagement with the media include many articles in specialized magazines (e.g., "How to build mental muscle" article in Runner's World, circulation of 660,000) as well as mainstream newspapers (e.g., page D6 of the March 10, 2009 print edition of The New York Times, circulation of 2,322,429), citations in non-academic books (e.g., *Iron War* by Matt Fitzgerald) and participation to radio and television programmes like "All in the Mind" (BBC Radio 4), ITV News and Sky News. Our academics also engage with users through **new media** like Facebook, Twitter, online forums and blogs. For example, Dr Karen Hambly is a regular contributor to KNEEguru, an internet forum that she has used for her online survey research on knee patients. This example demonstrates that new media can facilitate a mutually beneficial communication between researchers and user groups. More traditionally, we **organize and/or speak at lectures/symposia open to the general public** like our first Endurance Research Symposium (attended by 123 scientists, athletes and coaches) or Cutting Edge 2012, a *Research Councils UK* and *Royal Institution* initiative aimed at engaging the public with world-class researchers and top Team GB stars in six locations across the UK (video summary of the "Behind Cycling" event featuring Professor Louis Passfield).

Our academics engage with sport organizations and industry by providing **consultancy** or **commercial research services**. We also engage with the Ministry of Defence (MOD) and DSTL by **submitting proposals to the Centre for Defence Enterprise** (CDE), the first point of contact for anyone with an innovation with potential defence application, and by answering specific calls.

School support for staff to enable impact

The Director of Research and Enterprise, currently Professor Samuele Marcora, is responsible for impact. Together with other senior academics with extensive experience in working outside academia (Professor Passfield and Dr Hambly), he provides leadership and support to staff on all matters related to impact through **ad-hoc consultations**. The Director of Research and Enterprise also provides support through the formal annual **Individual Research Plan meetings** during which impact over the previous year is reviewed and strategies to increase impact during the next year are discussed. Impact-related activities are included in our **work allocation model**, and they are eligible for competitive **funding** at both School and Faculty level. For example, Dr Hambly received £3,790 from the Sciences Faculty to buy the software licence needed to develop a web-based clinical decision support system (CDSS) to guide rehabilitation professionals working with people who have undergone articular cartilage repair. Like other four members of staff over the REF 2014 period, she has also benefitted from a **sabbatical leave** that included impact-related activities as well as research.

Institutional support

The University of Kent's Innovation and Enterprise Office provides a variety of services including **Enterprise and Impact Training** to help staff to engage with a range of knowledge exchange activities, to demonstrate economic impact, and to increase their profile and research income through enterprise projects. The Innovation and Enterprise Office also provides **assistance with the financial and legal aspects** of impact-related activities with government and industry.

For example, Prof Marcora received training and was assisted by the Innovation and Enterprise Office to secure and manage MOD funding (£246,669) for the development of a new training method to increase resistance to cognitive fatigue in foot soldiers. The University offers a number of schemes to support impact including Time Out for Reach Out, Innovation Fund, Ideas Factory pump priming, a Patent and Commercialisation Fund as well as SME Innovation Vouchers. During the REF 2014 period, our School received **three Ideas Factory Grants** and **one SME Innovation Voucher** for a total of £88,089.

c. Strategy and plans

Our strategy for 2014-2018 is to use the effective approach to impact outlined above to achieve the following specific and measurable goals:

Continue and expand our collaboration with DSTL/MOD by allowing time to Professor Marcora to work on the translation of his research into the training of British soldiers, and by encouraging and mentoring new applications to CDE by other members of staff.

Organize free workshops for sport journalists to facilitate the impact of our research into media coverage of disability sport on their professional practice by making sport journalists aware of the biases and stereotypes found in reports of disabled athletes life and their sporting achievements.

Develop, publish and promote web-based clinical decision support systems (CDSS) that utilise our research to help sport therapists and other health professionals manage their clients. Sponsorship by DJO Global Inc. (a leading global provider of high-quality orthopedic devices) has already been obtained to further develop and promote a CDSS to guide rehabilitation professionals working with people who have undergone articular cartilage repair.

Seek further collaborations with the motorbike industry to provide commercial research services aimed at developing and testing motorbike gear based on a lab simulation of the physiological, psychological and environmental conditions measured during Prof Marcora's motorbike expedition supported by Globebusters and BMW Motorrad UK.

Establish further collaborations with British Cycling, the English Institute of Sport and similar organizations to translate our innovative endurance research into a competitive advantage for elite British athletes in RIO 2016 and beyond.

Develop and commercialize a web-based service to provide Brain Endurance Training to athletes and other populations in which resistance to mental fatigue is important. Income generated by this commercial service will be used for further research into Brain Endurance Training and other innovative interventions to improve endurance performance.

From a more generic perspective, we aim to **improve the way we track and measure impact**. This aim will be achieved by developing an **extension of the Kent Academic Repository** so that it can be used to store information about impact, and by promoting its use among our staff. We will also support **new research that includes assessment of the impact of our previous research**. Specifically, we will support research on "The effects of a CDSS on the practice of rehabilitation professionals working with people who have undergone articular cartilage repair" and research on "The effects of workshops on media coverage of disability sport on the implicit and explicit attitudes of sport journalists towards disabled athletes".

d. Relationship to case studies

The success of our approach to impact is illustrated in the rapid conversion of our research in the two case studies submitted. For example, the impact of Prof Passfield's research on British cyclists' performance at the 2008 Olympics in Beijing was facilitated by the School's decision to allow him time to continue his collaboration with British Cycling until the end of the Games. Similarly, Dr Sakis Pappous benefited from time allocated to him to deal with the media before and after the London 2012 Olympic Games, and to attend numerous foreign conferences of sport managers and policy makers to inform, as an invited speaker, their debate on the legacy of sporting mega-events like the Olympic Games. Dr Pappous also benefitted from the enterprise and impact training received as a part of his staff development activities, and from the assistance of the Corporate Communications Officer dedicated to our School.