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in university research and teaching

Olympic Impact

How are universities contributing to the success of the London 2012 Olympics?



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The UK's universities are playing a crucial role in preparations for the 2012 Olympic Games. Our universities are central to supporting Olympic organisers, athletes, communities and industry in driving progress and delivering success. Our academics are delivering cutting edge research that will have a major impact at the games and maximise the positive economic, social and sporting legacy for the UK.

This report showcases how the UK's universities are:

- > Developing cutting edge training, competition strategies and athletic performance.
- > Progressing innovative sports technologies to boost athletes' chances of success.
- > Hosting and supporting Olympic and Paralympic teams in the build up to the games.
- > Helping to keep the games safe through research into security dynamics of sports mega-events.
- > Ensuring a positive Olympic legacy for local communities.
- > Supporting urban planning and regeneration in and around the Olympic sites.

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Photography

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> Team GB and Team Japan preparation camps

Loughborough University

“We’re confident Loughborough’s excellence in the field of sport will be of huge benefit to Team GB’s aspiration of securing fourth place in the London 2012 medal table.”

Andy Hunt, Chief Executive, British Olympic Association

In April 2010, Loughborough was selected by the British Olympic Association (BOA) as the Official Preparation Camp Headquarters for Team GB prior to the London 2012 Olympic Games. The University has been the base for the preparation of around 170 British Olympians over the past 30 years, and many of the country’s 2012 contenders are already using our state-of-the-art facilities. The agreement means that many of Team GB’s sports disciplines will now use Loughborough’s facilities for their pre-Games training.

The university will also be hosting the Japanese Olympic team. The agreement between the Japanese Olympic committee and Loughborough University will see a wide ranging benefit for both parties with exchange of research, personnel, teaching programmes, cultural ideals and the fostering of business links.

The British and Japanese Olympic Associations chose Loughborough University for its world-leading state of the art sports and research facilities. The co-location of two major teams will create a unique environment, with Loughborough likely to have the highest concentration of Olympic activity outside the capital.

Working with the East Midlands Development Agency and local councils, Loughborough University will aim to maximise the positive economic and sporting impact on the wider region. The local community is likely to benefit from the increased number of visitors and media to the area and the camps will be open to visits from the public, local schools and athletics clubs.

Improving elite training and competition strategies

University of Essex

Scientists at the University of Essex are working with elite athletes to design a cutting edge device which will help Britain's medal quest in the build-up to the 2012 Olympics. The team, from the Department of Biological Sciences, is developing novel ways of measuring oxygen use in muscles, enabling athletes to optimize their training schedules and racing strategies. Design and testing involves working closely with tri-athletes and their coaches, through the University's elite triathlon coach. The aim is to design a non-invasive, lightweight, portable device that can be worn comfortably in training and feed information wirelessly in real time to the coach. This will assist the athlete and coach hugely as training can be accurately tailored allowing for substantial improvements in performance.

The Medical Optics Group are making extensive use of a technique called Near Infrared Spectroscopy (NIRS) to shine light on the muscle to see how much oxygen is present. This technology will allow athletes to see how much oxygen is being delivered to their muscles and by analysing this tailor their training appropriately. At present, monitoring the efficiency of exercise training must be done invasively through blood sampling for lactic acid. The development of a non invasive

measure of muscle oxygenation will be a helpful development for elite athletes training for the 2012 Olympics. The project is funded by the Engineering and Physical Sciences Research Council (EPSRC) in collaboration with UK Sport. This kind of research is being funded with 2012 in mind however such advancement are likely to have an impact in the field for years to come. Innovative applications of science will often have other uses across society, having a significant impact

By looking into the metabolic profile researchers are having a major impact on training and competition strategies. Also at the University of Essex, researchers are working with the national Army Boxing team at the neighbouring Colchester Garrison. By analysing the metabolic profile of the sport, they are supporting leading athletes to fine-tune their approach to competition and their training to help achieve the best results. This will be of particular support to those training to compete in boxing at the 2012 Olympics because of the recent rules changes to the number of and duration of rounds which could change performance demands substantially. The researchers work is supporting two budding British Olympic boxing hopefuls at the University's Human Performance Unit.





> Improving security at sporting mega-events

Durham University

Leading researchers at Durham University have been conducting a study into security policy at sports mega events. In the post-9/11 context, security issues have become increasingly central to the hosting of large sporting events. The security budget of the 2012 Olympics will likely run into billions of pounds.

Academics at the university's Institute of Hazard, Risk and Resilience were part of only a handful of foreign academics invited to observe security at the 2010 Winter Olympics in Vancouver, the largest security operation in Canadian history. After investigating security preparations, issues and processes at different sport mega-events from the 2006 FIFA World Cup in Germany, the 2008 Beijing Games, and the 2008 European Football Championships in Switzerland/Austria the team will publish their research in time to inform the security preparations for the 2012 Olympics.

The research focuses on the sociological impact of sports security policy, recognising that security issues have a wider impact on communities and can impact on national legislation, regional urban planning and throw up challenging civil liberties issues. The research is interdisciplinary but also seeks to establish a collective methodology on researching sporting mega-event security. The 2012 Olympics will see further security legacies in technological terms and the team at the University of Durham will make important contributions to further study in this area.

An important paper due for publication this year will draw on many key points that will have implications on the organisation and objectives of security at London 2012 that could provide value advice for the government and the police. The authors hope that their research will go some way to creating a 'security legacy' in the wake of the London 2012 games.

Sprinting to success

Loughborough University

“The Institute’s track record of design-led innovation and accelerating novel concepts from initial stages through to commercialisation is unparalleled.”

UK Sport commenting on Loughborough’s Sports Technology Institute.

In athletics tenths of seconds and millimetres can decide everything – and could be the difference between winning Silver or Gold. A partnership between the Loughborough University, leading sports shoe manufacturer New Balance and UK sport has developed the next generation of sprint spikes tailored to meet the exact needs of elite athletes and boost their performance that could be the key to medal-winning success at the London 2012 Olympics.

By customising the sole units of sprint spikes to match the characteristics of individual athletes, researchers at Loughborough have been able to maximise the performance of elite runners – doubling the amount of mechanical energy that they generated at the ankle in a sprint related task. By precisely match the power and physical characteristics of individual athletes, the athlete’s explosive power can be maximized – a critical factor for sprinters and jumpers.

Loughborough University Sports Technology Institute is a £15M initiative in partnership with the East Midlands Development Agency to boost enterprise in the sport and leisure sector and develop cutting-edge technology to support future British champions.

The Institute is home to the world’s largest university-based sports technology research group, partnering leading brands for over 20 years. Part of the Wolfson School of Mechanical and Manufacturing Engineering, the research team studies the engineering of a vast range of equipment, footwear and apparel in a wide range of sports under play and simulation conditions. It is one of only a handful of organisations to have gained Innovation Partner status in order to work with UK Sport to ensure innovation in athletic equipment, apparel and coaching feedback technologies.



Team GB Paralympics

University of Bath

“Bath stood out not just because of the facilities on offer at the Sports Training Village, but also because of their desire to partner with us across a wide range of our operations from Talent Identification, Sports Science and Medicine and Coaching. That work will begin right now and we believe will carry on post 2012 leaving a lasting legacy for Paralympic sport.”

Penny Briscoe, Performance Director of ParalympicsGB

ParalympicsGB have selected the University of Bath as the key training base for the British team for a series of preparation camps in the lead up to the 2012 London Paralympic Games. The University will then become the main springboard for British athletes in their final preparation weeks for 2012 and up to the move into the Games Village.

The University of Bath was chosen to host the preparation camps after a competitive process judged on sports facilities, ancillary sports support areas, accommodation and catering. Bath University's world-class facilities, compact site and sports technical expertise were the deciding factors.

In choosing Bath as its training base for the 2012 Olympics the British Paralympic association has also agreed to a partnership with the university across a range of operations such as sports science, medicine, coaching and talent identification. The university will strive to ensure that their selection to host the British team will leave a lasting legacy for disability sport in the area.

Creating an artistic and community legacy

Goldsmiths, University of London and the University of Reading

The eyes of the world will be on London for a month when the Olympic and Paralympic Games are hosted. However, significant efforts are being made to ensure that the impact of the Games goes well beyond 2012, to create a legacy that will make a difference to the lives of the communities living near the Olympic site, around London and across the country.

The Centre for Urban and Community Research at Goldsmiths is one of London's foremost inter-disciplinary centres for urban research. Academics at Goldsmiths have been working together with the Legacy Company, the body charged with ensuring a successful Olympic legacy to provide input and ideas to start debate the Olympic plans and their legacy on the culture and community of East London. This has included bringing together senior representatives from the arts, representatives from the Olympic committee and leading academics to analysing and discussing how to ensure a positive long term cultural impact from the London 2012 Olympic Games.

The publication of *Thinking the Olympics: the Classical Tradition and the Modern Games* will contribute to the intellectual and cultural impact of the Games. Academics at Goldsmiths and the University of Reading are co-editing and contributing to a collection of essays on the ancient and modern Olympic Games.

The focus of the volume is on the theatrical and amphitheatrical power of the Olympics. It reassesses the role of the classical tradition in the modern, post-classical Olympic games. The collection is coordinated round two opposing themes which recur and collide ritually on the occasion of the Games: on the one hand, the Games are presented as an ideal enactment of pure, intrinsic Olympic values, such as peace through sport; on the other hand, the Games appear as a messy performance of extrinsic investments by diverse audiences that intercept that pure enactment with their own interests, political as well as commercial. The notion of performance in the volume is linked to the frequent incidents where participants, whether athletes or audience, depart spectacularly from the ideal official script.



> Improving and measuring performance

University of Surrey

Sports performance professionals are collaborating with medical and clinical research experts from the University of Surrey, in a partnership which will enable Olympic athletes to measure and improve their performance.

This April the University opened the doors to its new £36 million Surrey Sports Park: one of the most advanced, hi-tech and sophisticated sports parks in the world and a LOCOG (London Organising Committee of the Olympic Games) approved training and preparation venue for the 2012 Olympic and Paralympics Games.

The facility is the standout facility in the County of Surrey's portfolio of approved training venues and is one of the facilities which the South East have highlighted as world class to potential countries who may use the region prior to the Games. Surrey Sports Park has also hosted a large number of countries in recent months who are interested in using the park during 20102 and beyond including both some of the major Olympic nations and some smaller ones.

A key part of the offering Surrey Sports Park makes to its elite athletes is the newly established Surrey Human Performance Institute, a centre of excellence in human performance testing. SHPI is working with elite and Olympic athletes to provide a range of the most sophisticated heart, lung and cellular function tests, together with strength, power and flexibility assessments.

For the Olympians using the facilities at Surrey Sports Park this means that they can combine a training session with a range of performance tests, without having to leave the site. The tests will highlight areas of weakness and strength, leading to improved results – so maybe even a gold medal or two – from a more targeted fitness regime.

Community participation in the shaping of East London 2012 and beyond

Queen Mary, University of London

A lasting social and economic regeneration of East London was a central part of the London's winning Olympic bid and will be an important measurement in the event's success. A mixture of public and private investment will provide backing for the development of the Olympic area after the games.

The City Centre at Queen Mary has been exploring the legacy aims of the Olympics and its potential to transform London's East End. Drawing on previous regeneration initiatives such as the London Docklands regeneration the centre is investigating how the 2012 Olympics can set a new standard in social, economic and political legacies.

As part of the research, the City Centre has hosted major debates involving student's community groups, local leaders, national experts on urban planning and the Olympic Park Legacy Company to discuss how to secure a positive Olympic legacy. Queen Mary is also holding a series of key Olympics Lectures which will take place at the College during the run-up to London 2012. The lectures will explore themes in the history of the Olympics including recurrent challenges to the Games (the weight of history, impact on the built environment), as well as unique configurations (boycotts, natural disasters).



> The Olympic city course

Birkbeck, University of London

Birkbeck, University of London has responded to public interest in the 2012 Olympics by offering a course which can be taken as a single module or as part of a larger course. This module examines the cultural, economic, physical, social and political processes and impacts of the London 2012 Olympics. The course is interdisciplinary in its exploration of the grand narratives of the Olympic movement and its smaller, localised stories. It looks at the London Olympics in a historical and global context, exploring the mutation of Olympian ideals and the utopian impulse that drives them. It concentrates on exploring the legacy of the Games for London's future.

The course provides a unique opportunity for students to meet creative practitioners, theorists and policymakers, and includes visit the Olympic locality, exhibitions and events. The course takes place at UEL, Stratford campus which is a stones throw away from Olympic site. Our universities have a capacity to respond to national and local needs by offering timely,

well designed courses that can supplement the knowledge of all across many sectors. The 'Olympic City' module is designed so that it can be taken by anybody working on the Olympic project and is a fine example of how our universities can inform the public creatively for the benefit of a large-scale national project.

The 1994 Group

The 1994 Group was established to promote excellence in university research and teaching. It represents 19 of the UK's leading research-intensive, student focused universities. Around half of the top 20 universities in UK national league tables are members of the group.

Each member institution delivers an extremely high standard of education, demonstrating excellence in research, teaching and academic support, and provides learning in a research-rich community.

1994 Group Universities achieved outstanding results in the Research assessment exercise (RAE) 2008. 1994 Group members are the UK leaders in seventeen major subject areas, achieving 1st place in their field. 57% of the 1994 Group's research is rated 4* world-leading or 3* internationally excellent.

The 1994 Group represents:

University of Bath, Birkbeck University of London, Durham University, University of East Anglia, University of Essex, University of Exeter, Goldsmiths University of London, Institute of Education University of London, Royal Holloway University of London, Lancaster University, University of Leicester, Loughborough University, Queen Mary University of London, University of Reading, University of St Andrews, School of Oriental and African Studies, University of Surrey, University of Sussex, University of York.

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Established to promote excellence in research and teaching. To enhance student and staff experience within our universities and to set the agenda for higher education.

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