

<b>Institution: The University of Edinburgh</b>
<b>Unit of Assessment: 26 Sport and Exercise Sciences, Leisure and Tourism</b>
<p><b>a. Overview</b></p> <p>This submission consists of 26 staff (23.8 FTE) from the Institute of Sport, Physical Education and Health Sciences (ISPEHS) located within the Moray House School of Education (MHSE), and also research collaborators from the University of Edinburgh's College of Medicine and Veterinary Medicine (MVM) and elsewhere in the MHSE. MHSE sits within the College of Humanities and Social Science (CHSS). ISPEHS benefits from its location with the University's Centre for Sport and Exercise and its Olympic-standard facilities and offers an attractive research environment with excellent facilities, supporting a vibrant array of research activities and engaged with world class researchers both across and external to the University.</p> <p>The research mission is to advance, explore and enable research in Sport, Physical Education and Health Science. The three research themes of: <b>Physical Activity for Health; Sport, Society and Policy and Human Performance and Aquatics</b> have helped ISPEHS and its UoE collaborators strengthen their international research position.</p>
<p><b>b. Research strategy</b></p> <p>15 ISPEHS staff were submitted to RAE2008 through Unit of Assessment 46 (Education). The submission to UoA46 secured the second highest funded award for Education in the UK and allowed £1.5m of RAE funding p.a. to be invested in Sport and Education. An additional £6m has been invested in sports facilities and scholarships since 2008. We have continued to improve the scale and quality of our research. One measure of progress is the presentation of this submission as a freestanding research unit (as in 2001) within UoA 26. Another measure of progress has been substantial increase in research quality and volume with more than 70 outputs per annum during this assessment period including: 13 research based books; 80 chapters; 44 research reports and more than 280 peer reviewed journal articles. Significant investment in facilities, volume of researchers and leadership has enhanced research quality and output. Our research expertise has been recognised by national and international organisations. This builds upon our 2008 strategy to:</p> <ul style="list-style-type: none"> <li>• <b>Attract and retain new staff.</b> New appointments – which have been at all levels – have balanced attracting internationally recognized researchers to Chairs in Physical Activity for Health (<b>Mutrie</b>), Sport (<b>Jarvie</b>), promotions to Personal Chairs in Stroke and Elderly Care Medicine (<b>Mead</b>) and Senior Research Fellows (<b>Jepson</b>) with attracting a new generation of scholars (<b>Baker, Fitzsimons, Fawkner, Kelly, Lee, McDowell, Niven, Such</b>).</li> <li>• <b>Increase the number of post-doctoral research fellows, doctoral and postgraduate research students.</b> This has been achieved through: the establishment of a Graduate School; the expansion of taught post-graduate and research student numbers; streamlined recruitment procedures; CHSS and MHSE-based professional support. These measures enabled an increase in PhD recruitment to 93.44 FTEs see <b>c.ii</b>); the expansion of ESRC-recognized research training and the appointment of two Chancellor's Fellows (internationally advertised tenure-track fellowships leading to open-ended appointments as lecturers). The initial focus is on the establishment of their independent research programmes. For <b>Fitzsimons</b>, this involves research on the development of interventions to limit sedentary time, and for <b>Baker</b> research promoting walking in ethnic minority populations.</li> <li>• <b>Promote research synergies, support and leadership, maintaining existing research strengths and nurturing new areas of research.</b> Synergies have been developed by encouraging staff from within ISPEHS and from across the Colleges of the University of Edinburgh to align with three major research themes: <b>Physical Activity for Health; Sport, Society and Policy; and Human Performance and Aquatics</b>. Each theme has a designated leader and goals to encourage interaction between doctoral students, early career researchers and established members of staff. The themes enable the development of research ideas, collaborative grant writing, and outputs in internationally recognized outlets. They enable ISPEHS to work with Edinburgh's Global Academies on Health, Development, and Justice.</li> </ul> <p>The appointment of senior colleagues internationally recognized for research in their field (<b>Jarvie and Mutrie</b>), and new collaborations with colleagues from the College of Medicine and Veterinary</p>

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Medicine (MVM, **Mead** and **Jepson**) have provided leadership and experience of interdisciplinary approaches. Existing research strengths in human performance science, sport and society and physical and outdoor education pedagogy have been maintained, while new areas relating to physical activity for health and sport society and policy have been significantly strengthened.

**Current Strategy**

Building upon plans set out in RAE2008, ISPEHS research is focused on the three themes described below. These themes are permeable, and encourage internal collaboration as well as national/international research collaborations. **Mutrie** directs the research plan for ISPEHS. Interdisciplinary themes are explored through our ISPEHS research seminar programme, attendance at which is mandatory for PhD students. We also encourage seminars and journal clubs specific to each research theme. This allows for the development of individual research excellence while fostering critical mass, teamwork and networks. All themes involve research students, early career researchers and professorial research leadership.

**Theme 1: Physical Activity for Health (N=14):** Baker, Craig, Fawkner, Fitzsimons, Jepson, Jess, Maclean, Mead, Mutrie, Niven, Saunders, Sproule, Such and Thorburn. Led by **Mutrie** this theme benefits from being designated as a University of Edinburgh Research Centre. We aim to provide systematic reviews in relevant areas, to develop and test interventions aimed at encouraging all segments of the population to 'sit less and walk more' and to investigate the role of Physical Education in the development of Health and Well Being. Specific research interests include: reducing sedentary time; monitoring national and international physical activity levels; physical activity and mental health; physical education policy; pedagogical approaches in physical education; and the promotion of physical activity for specific medical conditions such as stroke, cancer and diabetes. Research benefits from expertise in psychological, physiological, developmental, medical and educational aspects of promoting physical activity for health. Selected outcomes include:

- The establishment of the Physical Activity for Health Research Centre launched in January 2013 to an audience of over 100 people by Professor Fiona Bull, the key author of the Toronto Charter for Physical Activity;
- Research undertaken by the Child and Adolescent Health Research Unit (CAHRU) revealed low levels of physical activity in children across Europe and North America. The findings have informed international [World Health Organisation and UNICEF] strategies to address the physical inactivity and inequalities concerns in youth;
- Large collaborative research grants such as the European FP7 5 year research award (total value €6m from November 2013) in partnership with the University of Glasgow, researching the promotion of physical activity to European football fans (**Mutrie**) and a Medical Research Council Grant of £1.3m from October 2013 with **Mead, Fitzsimons and Mutrie** as co-Investigators researching physical activity and sedentary behaviour in older people;
- The invitation of members to lead research networks including National Institute of Health Research Age and Ageing (**Mead** lead in Scotland); Scottish Physical Activity Research Collaboration (SPARCOLL, **Mutrie**).

**Theme 2: Sport, Society and Policy (N=12):** Allison, Higgins, Gray, Jarvie, Kelly, Lee, MacLean, McDowell, Nicol, Kelly, Reid, and Such. Led by **Jarvie** we aim to advance research, advocacy and scholarship in the area of sport, society and policy. Research includes investigations into: sports policy and issues in different societies; solving contemporary sporting problems; environmental learning through outdoor adventure sport; the role of sport in international development and public diplomacy; governance in sport; sport and the family; traditions and values associated with sport in different cultures; sport and social inequality; and sport, faith and religions. Research benefits from our expertise in historical, sociological, philosophical, educational and political aspects of sport, society and policy. Selected outcomes include:

- United Nations endorsement as a European Regional Centre for Education and Sustainable Development (Outdoor and Adventure Sports) and leadership of the UK National Commission for UNESCO on Education for Sustainable Development Policy;
- University of Toronto and Edinburgh research forums funded by Scottish Development International that examined the current research evidence and rationale for supporting

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successful city bids for major sporting events (Glasgow 2014 Commonwealth Games and Toronto 2015 Pan-American Games);

- **Kelly's** research on the interface between sport and religion that has opened up collaboration with the University's School of Divinity. The publication of *Bigotry, Football and Scotland* has made a valuable contribution to public and parliamentary debates about football and religion, led to a joint ISPEHS and School of Divinity research seminar (2012) and a European Science Foundation Grant application.

**Theme 3: Human Performance and Aquatics (N=9):** Coleman, McCabe, Martindale, Nash, Sanders, Saunders, Sproule, Turner, and Verheul. Led by **Turner** and including the Centre for Aquatics Research and Education (CARE), we aim to advance understanding and education in human performance and aquatics. Research interests include investigations into: the development of skill and the optimization of aquatics performance; scientific strategies to enhance, maintain or restore performance; science and education in sports coaching and dance. The focus is not solely on high performance research. A health-related focus provides for research synergies with *Physical Activity for Health and Sport, Society and Policy* in areas such as ageing, injury, well-being and social policy. CARE benefits from having high quality technology that provides three-dimensional analyses to explore both performance and education in relation to swimming. The research expertise draws upon biomechanical, physiological, psychological, and cross-disciplinary aspects of human performance and aquatics research. Selected outcomes include:

- 3D analysis of swimming techniques which has informed improvements in Scottish national team swimming performances;
- the development of Glidecoach software that has enabled coaches to improve the turn techniques of elite swimmers;
- endorsement by Sir Chris Hoy who said his understanding of sports science, gained at Edinburgh, assisted his successful quest for further Olympic Gold Medals. Edinburgh University graduates won more Olympic Gold Medals at London 2012 than any other UK University;
- two patents that provide biofeedback to classical ballet dancers – this resulted from an ISPEHS-led European funded collaborative research project into robotics;

**Building for the future:** These three research themes have secured in excess of £2.7m of external research funding during the current assessment period (see **d**). In the next assessment period we aim to increase this income by mentoring our Chancellor's Fellows (**Baker** and **Fitzsimons**) and early career researchers to become Principal Investigators. We will continue to move beyond traditional disciplinary strengths and seek out complementary knowledge and expertise in other fields, notably in Geriatric Medicine (where **Mead** is our link), with the Scottish Centre for Public Health Research (where **Jepson** is our link) and with a planned cross-University Centre for Cultural Relations (where **Jarvie** is our link). The strategy of working with strong research partners within, and external to, the University will continue to be a key aspect of future plans. We will grow further critical mass and around strategic research themes. **Mutrie** will direct ISPEHS research and ensure that all themes have a forward plan, and that all staff have an agreed set of targets for publications and funding proposals and an appropriate mentor. We will support, mentor, fund and provide opportunities for early career researchers and new research leaders (e.g. **Such, Kelly, Fawkner**). We will continue to advance, explore, build and sustain leadership, innovation and excellence in sport, physical activity/education and health science.

Our vision by 2020 is further international recognition for excellence in sport, physical activity and health science research, and we aim to inspire our university community and nation to achieve higher levels of engagement in healthy physical activity and sport. In order to achieve this we have the following plans and priorities:

**Theme 1: Physical Activity for Health.** RAE2008 noted that too few institutions were focussing on this area and the University of Edinburgh responded to the gap in provision by creating the Physical Activity for Health Research Centre (PAHRC). PAHRC offers membership to the University of Edinburgh community and to external partners ([www.ed.ac.uk/education/pahrc](http://www.ed.ac.uk/education/pahrc)). We will increase our research collaborations with our medical school (MVM) including research-led teaching innovations within the internationally recognised University of Edinburgh postgraduate

courses in global and public health. Partner organisations such as Paths for All, Sustrans, Living Streets, the Ramblers, local council sport and leisure providers, and national NHS Health Scotland officers are actively encouraged to become stakeholders on research bids.

**Theme 2: Sport, Society and Policy.** We will continue to increase the numbers and intensity of research collaborations with, for example, the Global Academies, the School of Divinity, the Academy of Government and the University of Toronto, with whom we are hosting a joint research forum on the Commonwealth Games in 2014, also involving the developing University Centre for Cultural Relations. Research will continue to investigate, evidence and advance an understanding of the role of sport in relation to some of the key problems and issues of our time: health, socio-economic and geo-political inequalities, religion, foreign policy and the use of sport as soft power, the environment, education and land reform. We will maximise our strategic position with partners such as the Commonwealth Ministers Advisory Board for Sport.

**Theme 3: Human Performance and Aquatics.** We will continue to grow research collaboration and capacity around Human Performance Sciences. A particular strength is the association with the Dance Science programme that involves artists and performers who investigate the science of dance performance, and allows a natural relationship with colleagues in Edinburgh College of Art. The provision of high quality technology for 3D analysis of underwater movements will ensure that aquatics research will continue to be a main theme. Human performance researchers are working not just within the field of sport but also the areas of decision-making and fitness demands in key services such as the police and the army.

#### Specific Targets:

- Achieve a target of 1.25 new PhD students per member of academic staff enrolled during the next REF period;
- Increase the level of research awards to £1m per year by 2018;
- Increase the number of formal research centres where these are the appropriate structures to support intensified research activity;
- Make new appointments in Human Performance Science;
- Make appointments that could contribute across all three research themes, such as those with measurement, methodology, statistical or economics expertise;
- Maximizing the global impact of Edinburgh sport through capturing the collective impact of the Centre for Sport and Exercise and ISPEHS (See sections **b** above and **d**).

#### c. People, including:

##### i. Staffing strategy and staff development

ISPEHS works to maintain a sustainable and inclusive research culture. The period has been one of expansion: **Physical Activity for Health:** 2 Chairs (Mutrie, Mead); 2 Senior Lecturers (Fawkner, Niven); 2 Chancellor's Fellows (Baker, Fitzsimons); 2 Bicentennial Education Fellows (Craig and MacIassac); 1 Senior Research Fellow (Jepson); **Sport, Society and Policy** - 3 Chairs (Jarvie, Higgins and Aitchison until May 2012) 4 lecturers (Lee, McDowell, Kelly, Such); **Human Performance and Aquatics** - 2 lecturers (McCabe, Nash). Staff turnover has stabilized, with departing staff moving on to promoted posts, for example, **Aitchison** to the Vice-Chancellor post at the University of St Mark and St John; **Sanders** to the Head of School of Sport and Exercise Sciences at the University of Sydney; and **Horne** to a Professorial post at the University of Central Lancashire. New appointments at all levels have resulted in a net gain of 7 staff.

**Staff Development** Policies support research activity for all colleagues, including protected time for research and developing the system of annual review which includes dedicated reflection on colleagues' research achievements and plans, while identifying training or developmental support needs. Staff development opportunities are informed by both this annual review process and by the annual MHSE Plan that sets out priorities and actions for the development of its staff and students. ISPEHS holds a staff development budget that entitles each member of academic staff to apply for £800 per annum for external staff development. This budget is supplemented by funds administered by the MHSE Research and Knowledge Exchange Office including the School Conference Travel Fund of £20k and the Seed Corn Research Fund of up to £2k for any individual

project approved. All staff are supported by a research mentor.

**Additional Staff Development for Research Staff** ISPEHS is well aware of its duty towards contract research staff. It takes its lead from the wider University which was awarded the HR Excellence in Research Award in 2010 for its work in implementing the principles of the Research Concordat. Edinburgh Research and Innovation (ERI) organises an extensive programme of staff development sessions. Additional research degree supervision training is provided by the Institute for Academic Development (IAD) and supported at the School level through monthly training sessions, the pairing of more and less experienced supervisors and the inclusion of research staff in all MHSE communications. Research staff and students host an **annual research conference** that brings together the research work across the MHSE. The 2013 conference supported 20 different research streams including those in sport, physical activity and health science.

**Support for Early Career Researchers** IAD provides tailored support for all research staff, especially early career colleagues. This includes offering specific induction and mentoring support. Colleagues are supported by an extended and enhanced induction programme organised both at School and Institute level for all new full- and part-time staff. All new staff have their workload reduced by about 0.67 FTE *pro rata* for their first year and are allocated a Research Mentor who works closely with them to ensure their integration into the wider ISPEHS, MHSE and University research networks. Staff are encouraged to attend meetings and development sessions of the Early Career Researchers' Network. New academic staff are required to attend an orientation course and two further courses as part of the PG Certificate in Academic Practice, a University-wide programme managed by MHSE and IAD. The PGCert is aligned with the ethos of a research-led University in that courses support the development of research as well as teaching. Further research related courses are run by IAD and are open to research students, researchers and academic staff at all levels.

**Research Leave** All Institute staff benefit from an internally funded sabbatical programme to which they can apply for a semester-long period of research leave every three years. Sabbatical programmes must include the development of funded research proposals and are targeted at areas of strategic priority. In addition, funding is available to support shorter periods of leave to complete the writing of high impact publications. Staff have benefitted from research leave during this REF period which has enabled us to foster closer research collaboration with, for example McGill and Toronto Universities in Canada.

**Career Progression** The key policies and procedures for promotion for all academic staff are managed at CHSS level except for grade 10 (Professorial), which are managed at a University level. The promotion process is transparent and evidence-based drawing on independent external assessors. Policies and procedures relating to promotions are communicated on a regular basis to all members of MHSE (along with information on applications for increments and lump sum awards in recognition of 'sustained excellence'). A senior member of MHSE is a member of the CHSS Promotion and Awards Committee and provides guidance to staff on the criteria for promotion, the crafting of quality applications, and the timing and process of applications.

**Equality of Opportunity** The Annual Review process provides a mechanism for identifying development needs, with workloads, timetables and equipment modified accordingly. ISPEHS has extensive experience in managing workloads and supporting the development of research careers for staff taking parental leave or returning (often on a fractional basis) from maternity leave. Similarly, flexible timetabling enables staff with childcare commitments to balance research and family needs or to take unpaid leave. For example, the Institute supported a member of staff to take unpaid leave (2011-2013) to accompany a partner working overseas. The University is a member of Athena SWAN Charter, which recognizes and celebrates good employment practice for women working in STEMM in higher education and research. In addition to this ISPEHS (led by **Fawkner**) is progressing a specific application for Athena SWAN accreditation in 2013.

**Quality Assurance and Research Governance** Quality is assured through detailed scrutiny of research proposals against a comprehensive checklist by a designated Research Administrator based in the MHSE Research Office and trained in both research finance and research ethics. All research grant applications are peer reviewed. All financial aspects are double-checked by designated staff in ERI and all issues relating to research ethics are further scrutinised by the

MHSE Research Ethics Committee. Research ethics policy and procedures are designed to minimise burden and delay for low risk projects while ensuring scrutiny of projects such as those involving research with children and vulnerable adults or invasive procedures. Only when approved by the Research Office, ERI and the Research Ethics Committee are finalised proposals put forward to the Head of School who provides the final sign off. A number of operational and managerial mechanisms will continue to be enhanced in order to help the Institute achieve future research objectives. These include the appointment of a senior researcher (**Mutrie**) to the role of Institute Director of Research, annual development review of all staff, the monitoring of research outputs, centres and teams, allocation of sabbatical research leave and monitoring of take up/ outputs, a revised work-load planning model and the pump-priming of strategic research projects.

## ii. Research students

ISPEHS strives to foster a research culture where staff and postgraduates can interact on an equal footing. Research seminars, research readings, attendance at conferences and other Research Centre and team activities provide forums. We aim to develop excellent individual projects while helping to support career progression. As mentioned above, ISPEHS contributes to the annual PhD and staff conference that showcases the research of students and staff. It is compulsory for research students to present with their supervisors. In 2013 the Scottish Government Cabinet Secretary for Education opened this event. ISPEHS supports Research Councils UK statement on the expectations of research organisation, the training environment, students, and collaborative working. Students take responsibility for shaping, managing and directing their research projects, training, and taking advice from their supervisors.

**Recruitment** 93.44 (FTE) PhD students have been recruited over this REF period. Research students are members of the MHSE Graduate School as well as the Scottish Graduate School of Social Sciences. Students access the ESRC's Scottish Doctoral Training Centre (DTC). This is the largest of the ESRC's UK Training Centres. ISPEHS has held funded studentships from the ESRC, Sportscotland and SPARCOLL as well as endowed scholarships, competitive Principal's Career Development Scholarships and 11 ESRC-equivalent PGR bursaries funded by the School.

**Monitoring and Support** Research students benefit from quality research council recognized training and development, including from staff who are pioneering research methods and methodologies. Through MHSE, ISPEHS is recognized in terms of ESRC 1+3 training. This has located ISPEHS firmly within a wider strategic framework for social science research. A major strength of the ESRC DTC is its advanced quantitative methods training, and the MHSE has played a major role in this development and the associated multi-million pound Applied Quantitative Methods Network (AQMeN) supported by the ESRC. AQMeN has supported targeted large-scale survey workshops that have helped ISPEHS research students and staff to analyse data sets and surveys.

PhD applications are screened at School level and only admitted if a proposal is well structured and plausible. All PhD students have two trained supervisors, undergo a formal first year review and supervisors and students jointly present progress reports in each subsequent year. Training in research methods is incorporated into programmes. Many PhD students benefit from access to courses run by the University's IAD on areas such as research management, professional development and IT. IAD provides workshops, extensive online sources and advice covering all areas of the Vitae Researcher Development Framework. Funding is available for doctoral students and /or research staff to support professional and career development needs.

## d. Income, infrastructure and facilities

**Research Income** The UoA has secured awards in excess of £2.7m over the assessment period. All research themes secured external research income. 55% of staff have had their research funded from external sources during this REF period. Support for research grant applications draws upon specialist input from ISPEHS, the MHSE Research and Knowledge Exchange Office (3.6 FTE), the CHSS Research Office and/or the University's research grants service Edinburgh Research and Innovation (ERI). Within ISPEHS, colleagues are informed of and supported to engage with specific research calls and programmes through targeted emails, individual and group meetings and shared experiences of successful grant writing. For new ideas and innovations, especially those that are interdisciplinary in character, MHSE and CHSS offer seed corn funding

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and help develop new projects and grant applications. For example, PAHRC had seed corn funding of £1k to write the bid to host ISBNPA 2015 and £5k funding for KE. Further support from CHSS KE officers led to the hosting of one international scholar and one NHS KE fellow. The CHSS Knowledge Exchange Office together with ERI – a company working exclusively for the University to provide a comprehensive system of support for grant proposals and research development – provides both support and a high quality professional service.

We have diversified our sources of funding with support from RCUK (ESRC, EPSRC, MRC, British Academy), research charities (Esmee Fairbairn Foundation), EU (European Commission), Government (DEFRA, NHS Health Scotland, National Institute for Health Research, Sportscotland, Chief Scientist's Office), Industry (Cameron Communications, Renewable Energy Systems Ltd., Pennant Walters Ltd.) and other charities (Ataxia UK, FIA Institute for Motor Sport Safety and Sustainability, Paths for All).

**Infrastructure and Facilities** ISPEHS benefits from (i) its own dedicated research facilities within the St Leonard's Land building on the University's Holyrood Campus; (ii) the world class infrastructure provided by the University and city of Edinburgh environment, professional research services and facilities; (iii) extremely close proximity to national research archives, records and the Scottish Parliament; (iv) investment in the Centre for Sport and Exercise (CSE) with its Olympic standard facilities; and (v) specialist research equipment and facilities within ISPEHS itself, such as a fully equipped human performance laboratory and 3D biomechanical video analysis equipment that can be used for aquatic activities.

ISPEHS is within a short walking distance of the Scottish Parliament, the National Library of Scotland, and National Records of Scotland. This is particularly relevant given the strong emphasis on humanities and social science research within ISPEHS. The University of Edinburgh has rich holdings in manuscript, print and digital access and is one of the largest research libraries in the UK. Resources include over c3.5million printed items, c46k unique journal titles, mostly received as e-journals, and c0.5m e-books. All electronic resources are made accessible from anywhere, anytime, on any screen in a coherent and integrated manner.

A total of £6m has been invested in CSE since 2008. New facility and infrastructure investment has included the Eric Liddell High Performance Sports Scholarships, the Katherine Grainger Scholarship and Olympic rowing facility. The opening of the facility in November 2012 helped to mark the successful completion of the £350m University of Edinburgh fund raising Campaign. ISPEHS works closely with CSE. Both Sir Chris Hoy MBE (sports science graduate) and Dr Katherine Grainger MBE credit the support they received from the University and ISPEHS with helping them win eight Olympic medals.

Dedicated sport and exercise science laboratories are provided for each discipline while there is an additional inter-disciplinary research laboratory. There is also a 25m six-lane research and teaching swimming pool equipped with specialist underwater cameras within the Institute. This has helped facilitate the research of CARE and its impact upon swimming performance. It is the only research facility of its kind in the UK and supplements the facilities at the 50m, eight-lane refurbished Royal Commonwealth Pool, located less than half a mile from ISPEHS.

PhD Research students also benefit from dedicated facilities including a postgraduate common room; computer room; computer user support, access to photocopier and printers; a shared office and access to broader Graduate Schools.

**e. Collaboration or contribution to the discipline or research base**

Beyond the University, we have collaborative research links with:

- Networks such as SPARCOLL which we lead;
- International organisations such as the United Nations that have formally recognized our research in Outdoor Adventure Sports and Learning);
- World-leading research intensive universities such as the University of Toronto and the University of Oxford (see for example the Kenyan running research returned in ref 2);
- National sports organisations and governments such as Sportscotland and The Scottish Government where staff hold ministerial appointments to the Sportscotland board and the

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Scottish Government ministerial oversight group for sport and physical activity.

Examples of this external research collaboration include:

- **Jarvie and Sikes'** (University of Oxford) studies of Kenyan women runners were amongst the first to outline the political economy of Kenyan women runners and one of these studies was the first study on sport published in African Review of Political Economy (See REF2);
- **Mutrie's** study of physical activity amongst European Football Fans involves research co-operation across Spain, Portugal, Norway, Netherlands, England and Scotland. It is funded under the social innovation call (FP7) and seeks to spread the success of the previously funded Scottish Football Fans in Training research project;
- **Higgins and Wattcow's** (University of Monash) study of perceptions of river journeys used an innovative multi methods approach to research outdoor adventure sports (See REF 3b);
- **Jess and Penny's** (University of Waikato/Monash) current research on physical education and lifelong physical activity.

Since 2008, staff have contributed to their respective disciplines and the research base in many ways. This has included publication of articles, research reports, chapters and books, 83 invited keynote addresses; 132 conference papers; external examination of 29 PHD's; acting as externals on 22 professorial appointments, organizing 15 conferences and seminars; serving as reviewers on behalf of the ESRC Peer Review College (**Higgins, Mutrie**) and reviewing research grants for a wide range of funders including ESRC; UK Medical Research Council; National Health and Medical Research Council Australia; the British Academy; The Arts and Humanities Research Council (AHRC); Chief Scientist Office Scotland; Wellcome Trust; New Zealand Health Services Research Council; Irish Health Board; Swiss Health Promotions Agency; NHS National Co-ordinating Centre for Research, and Hong Kong Public Health Department. Over this REF period staff have:

- Given 62 international plenary or keynote talks, including in Berlin; Chicago; Estoril; Gdansk; Hong Kong; Kuala Lumpur; Limerick; Madeira; Monaco; Niigata; Otago; Paris; Pennsylvania; Prague; Singapore; Sydney; Taipei; Tehran; Tokyo; Toronto; and Warsaw;
- Been active in hosting and organizing conferences including: 2008 British Geriatric Society Scientific Forum; Health Enhancing Physical Activity Annual Conference; 5<sup>th</sup> International Scientific Conference on Kinesiology; 2009, Holyrood Commonwealth Games Conference; 2010, Biomechanics and Medicine in Swimming; 2011 Office of National Statistics: National Well Being Colloquium; and 2012 Leisure Studies Association Conference, FINA Conference. In 2015 Edinburgh (ISPEHS) has been awarded and will host the International Society of Behaviour in Nutrition and Physical Activity [ISBNPA] conference;
- Taken on roles within professional bodies, research councils, government bodies and learned societies including European Academy of Medicine of Ageing, National Institute of Health and Clinical Excellence, UK National Commission for UNESCO on Education and Sustainable Development, ESRC Peer Review College, UK Chief Medical Officer's Review Group for Physical Activity, The British Society of Sports History, and NICE Programme Advisory Groups;
- Served on the editorial boards of more than 30 journals including: Cochrane Stroke Group, British Journal of Sport History, Leisure Studies, Annals of Leisure Research, Cambridge Journal of Education, Journal of Youth Studies, Youth and Society, Quest, Qualitative Research, Journal of Sports Sciences International Reviews in Sport and Exercise Psychology, Journal of Royal College of Physicians of Edinburgh, Journal of Risks and Governance and the International Review for the Sociology of Sport;
- Been recognized through (i) a number of visiting research professorships with University of Toronto, Republic Polytechnic in Singapore, Universities of Ulster, Glasgow, Minnesota; (ii) awards and prizes including Honorary Doctoral Degree (**Jarvie from National Taiwan University**), Honorary Member of Physical Education Association (**Jess**), Stephenson Award (Young Explorers Trust) for 'outstanding service to youth expeditions' (**Allison**);
- Been committed to and regularly asked to provide research informed expert commentary to the broader international media and other cultural outlets (see 3a).