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| <b>Institution:</b> University of Worcester   |
| <b>Unit of Assessment:</b> 26 - Sport & Exercise Science, Leisure & Tourism   |
| <p><b>a. Overview</b></p> <p>The submitting unit is located within the Institute of Sport &amp; Exercise Science (ISES), one of six academic Institutes at the University of Worcester (UW). Five Research Groups are identified within the unit: Physical Education; Physical Activity, Health and Well-being; Regulation of Performance; Socio-cultural Studies of Sport, Exercise &amp; the Body; Sports Performance.</p> <p>A research coordinator (Martin) has responsibility for managing research within the unit and reports to the ISES Senior Management team. She chairs the ISES Research Committee which consists of senior researchers from each Research Group (Simon Bicknell, Peters, Rhoden, Molnar, Andrea Faull) and the research ethics coordinator (Molnar). The committee meets four times a year and has responsibility for the development and implementation of strategy in ISES. Committee members represent the Institute on University research committees: Research &amp; Knowledge Transfer (Martin), Ethics &amp; Research Governance (Molnar), Research Degree Board (Molnar and Rhoden) and the Graduate Research School Steering Group (Peters). The research coordinator also authors an annual report on research activity which is presented to the University's Research &amp; Knowledge Transfer Committee.</p>   |
| <p><b>b. Research strategy</b></p> <p>The University developed a 5-year Research and Knowledge Transfer Strategy in 2009 establishing an overarching framework for driving forward the research agenda and informing strategy at the Institute level. The strategy has two key aims: to increase research activity across all areas of the University (specifically to ensure that all academic staff should be making an effectively shared contribution to research, KT and/or advanced scholarship by 2013), and to develop internationally significant research centres and groups by focusing resources on existing and potential areas of research excellence. The submitting unit's strategy has fed out of this University strategy but has also been informed by national and international priorities.</p> <p>The unit's strategy identified a primary focus on applied research. It articulated 4 areas of focus:</p> <ul style="list-style-type: none"> <li>(i) Enriching the research culture</li> <li>(ii) Establishing research groups</li> <li>(iii) Developing strategic partnerships for research</li> <li>(iv) Enhancing the research student body</li> </ul> <p>(i) <i>Enriching the research culture</i></p> <p>A number of processes and mechanisms have been put in place at Institute and University level to promote and support research:</p> <ul style="list-style-type: none"> <li>• <b>4-year research plan:</b> all staff are expected to produce a 4-year research plan as part of the annual appraisal process: identifying development needs, outlining planned conference presentations and publications, targeting funding applications, etc.</li> <li>• <b>University Repository Mandate:</b> all staff are required to upload outputs from research on to <a href="#">WRaP (Worcester Research and Publications)</a>, the University's research repository. Any outputs not uploaded will not be taken into account at, for example, appraisal. By July 31<sup>st</sup> 2013, staff in ISES had uploaded 225 outputs.</li> <li>• <b>Research Studentship Competition:</b> the scheme fully funds (i.e. stipend, fees and research expenses) a 3-year full time PhD project or, where a case is made, a 5-year part time PhD project. The scheme encourages staff to seek matched or co-funding from other organisations, whether another HEI, the public sector or a private sector organisation. The scheme has supported 43 studentships during the period. Three fully funded studentships have been awarded to staff in the unit following successful bids to this scheme (Faulkner, Moscaviute, Routen), and one collaborative studentship with Coventry University (Douglas) which is in addition supported by British Eventing and Polar Electro Europe Fleurier Branch.</li> <li>• <b>Research and Project Leave Scheme:</b> the scheme provides staff with full or partial</li> </ul> |

remission from teaching and/or other duties for a period of up to two semesters (8 months) in order to undertake a project with a clear set of outcomes. Most commonly the scheme has been used by staff to complete work on a contracted book or a number of journal articles, although the scheme also supports other activities, e.g. field work, bid writing. A number of staff from the submitting unit have successfully applied for research and project leave in the REF period, for example: Molnar to complete a contracted book (Routledge) on the sociology of sport; Mark Corbett to research the biomechanics of bike fitting.

- **Vacation Research Assistantship Scheme (VRAS):** the scheme, introduced in 2011, funds an undergraduate student to act as a research assistant on a discrete or on-going staff research project for a period of up to 3 months over the summer vacation. The VRA undertakes activities appropriate to the project providing hands-on experience of research and valuable support for the project lead. UW has funded 32 VRAs over the period. During 2011 and 2012 three research teams have successfully bid for a bursary to support on-going research in the areas of pacing (Renfree), barefoot running (Griffiths and Eastough) and the evaluation of a children's physical activity scheme (Griffiths). The VRA from 2011/12 has progressed to an MSc course at Loughborough and a paper has been submitted for publication evidencing real benefits to all parties.
- **Support for dissemination:** the University hosts a themed Research Focus Conference twice a year at which staff/research students may present their work; ISES holds an annual "research summit"; it also runs a pre-conference presentation programme at which staff/research students may trial papers to be presented at external events - staff are able to bid to a staff development budget to fund conference attendance and presentation (spending to this budget was £23,844 in 2012/13 and on average 18 staff a year are funded to present at national and international events); ISES has hosted significant international conferences such as the *World Congress of Performance Analysis of Sport IX* in 2012.

#### (ii) *Establishing research groups*

A number of thematic research interest groups have been established (each with an applied focus in keeping with the unit's overall vision) in part evolving from existing subject groups (e.g. physiology of sport, sport psychology, etc.) but also reflecting the research focus of new staff appointments. Five groups have emerged, each led by senior researchers: Physical Education; Physical Activity, Health and Well-being; Regulation of Performance; Socio-cultural Studies of Sport, Exercise & the Body; Sports Performance. As well as being a focus for publication, funding bids and, in some instances, for research students, these groups also support new researchers by giving them the opportunity to work alongside established researchers in order to develop their skills and experience. Two groups, in particular, have been particularly effective in driving forward research - Regulation of Performance and Socio-cultural Studies of Sport, Exercise & the Body – and this is reflected in the staff submitted.

#### (iii) *Developing strategic partnerships*

A number of partnerships have been developed regionally, nationally and internationally which have led to significant new research initiatives. Partnerships with:

- Worcestershire Acute Hospitals NHS Trust – this has led to a project to develop lifestyle change for prostate cancer survivors (Jarrett).
- Hereford and Worcester and Shropshire Fire and Rescue Services – this has led to a funded project to assess the health and fitness of fire-fighters (Griffiths)
- Fédération Internationale de Basketball (FIBA) – Worcester is the UK partner in FIBA Europe's Centre for Basketball Research. The Centre's aim is to bring together researchers and coaches to engage in performance relevant research. A dedicated journal *Basketball Research* (edited by Peters) was launched simultaneously as a platform for this research. The international focus of the Centre is reflected by the appointment of Professor Mindaugas Balciunas (Lithuanian Sports University and member of the FIBA Europe Board) to an Honorary Professorship and of Dr Alejandro Vaquera (University of Leon, Spain) as a

Visiting Fellow.

*(iv) Enhancing the research student body*

The focus has been on: increasing supervisory capacity in the submitting unit through development of existing staff and appointment of new staff with a strong supervisory track-record or potential; strategic bidding to UW's Research Studentship Competition; developing Masters by Research programmes as a pathway to doctoral study. There has been a 20% increase in ISES staff on the University's Register of Approved Supervisors over the period. As noted above, ISES staff have been successful in winning 4 funded studentships. An MRes in Socio-cultural Studies of Sport has been validated and is running for the first time in September 2013.

The current strategy has proved successful in growing overall research capacity, reflected in the first instance by this submission itself: the first time ISES has submitted to a research assessment. The annual reporting process also reveals that there has been a year on year increase in research activity with approximately 70% of academic staff recording either a publication or conference presentation during the 2011/12 academic year compared to just over 50% in 2008/9.

**Strategy for the next 5 years**

The previous research strategy has thus provided a strong base from which the submitting unit expects further growth. One of the priority areas for development identified in the new University Strategic Plan (2013-18) is Physical Activity, Health and Well-being with Disability Sport as a key theme within this.

Strategic partnerships, both external and internal, are central to meeting this priority. In particular, collaboration with the NHS and medical charities is vital. Such collaborative activity has already begun on lifestyle programmes to augment breast cancer recovery with Worcestershire Acute Hospitals NHS Trust (Jarrett); and on a wellness programme for Multiple Sclerosis in partnership with the MS Society (Griffiths). Partnerships with sport technology companies will also be important: for example, Dan Eastough is currently in the planning phase of a project with an international company (Medi) to investigate their valgus knee brace; as will partnerships with other universities: for example, Eastough is also working with colleagues at the University of the West of England and a private hospital in Bristol to research gait analysis following ankle replacement/reconstructive surgery. Internally, staff from the submitting unit will work closely with colleagues from the Institute of Health and Society: for example, early stage collaboration with researchers in Dementia Studies is expected to lead to research into the impact of physical activity on the well-being of people living with dementia.

New professorial appointments are also an important element of the new strategy. It is intended to appoint a Professor in the area of Disability Sport. He/she will be expected to expand and develop existing work in sports coaching, adapted physical education and socio-cultural studies as part of the growth of the University's national and international reputation in the area of disability sport. This will complement the achievement of the University in developing the Worcester Arena (see section d) which has been built to accommodate athletes with disability, especially those who use wheelchairs. Staff in the submitting unit have regional, national and international reputations for their professional practice in wheelchair basketball (Glynn Harding), and blind football (David Mycock) and it is expected that the Professor in Disability Sport will provide research leadership in these areas. Two further professorial appointments are anticipated in the areas of sport science and sport pedagogy.

Further growth of the postgraduate student body is planned. An important part of the strategy in this respect is growing the number of PhD studentships funded through larger research projects, through the University's studentship scheme and through finding matched funding from the private sector and sports organisations. Further, whilst there has, as noted above, been an increase in supervisory capacity over the REF period, supervisory experience need further strengthening and the unit will use the University's supervisory team mentor scheme to provide structured support and guidance to less experienced teams. It is also anticipated that the new Professorial appointments will contribute to this growth and provide sustainability to a larger postgraduate student community.

A critical component of the on-going strategy is to increase external funding. Important steps have already occurred at University level through the establishment of a Research Office (see below). Additionally, the submitting unit has an experienced funding consultant who is currently working on proposals to expand the facilities for disability sport provision and it is planned that, in future, she will also support research applications. The unit has also recently been approved to tender for Sport England research, and monitoring and evaluation projects. These developments will strengthen the ability to secure external funding.

### **c. People, including:**

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

##### ***Staffing strategy***

There are 41 academic staff in the submitting unit. This represents a more than 50% rise in staffing over the REF period. Of these staff, all but one is full time; 17 are women, 24 men (approx.40%-60%); 16 are ECRs (approx.40%); two staff are on fixed term contracts. The University's Equality Framework 2013-18 restates its commitment to ensure that its recruitment policy encourages applications from people with as wide a range of backgrounds, skills and experiences as possible and to maintain policies and procedures to ensure staff have equal opportunities to develop and progress. Of staff submitted to this UoA, there is a greater proportion of women (57%) and of ECRs (50%) than the overall figures for the unit.

There has been a significant focus over the period on appointing staff at the beginning of their academic careers but with clear potential as researchers. 16 of 25 staff appointed are ECRs; of these, 10 were appointed with doctorates or doctorates in progress; 7 are returned here. This strategy has brought a vitality to the unit reflected in increased staff engagement with research supervisor training, research supervision, the university's research support schemes (see (b) above) and collaborations both internal and external (see (e) below). Another significant aspect of the staffing strategy has been the appointments in the area of the sociology of sport (Edwards, Kohe, Molnar, Purdy) which has enabled the establishment of a vibrant research group in Socio-cultural Studies of Sport, Exercise & the Body. There have been a small number of significant departures, notably in Physical Education which has had some impact on the progress of research in this area.

Another key aspect of the strategy has been the use of visiting professors as a driver for research. Professor Ken Hardman held such a role from 2003-2009 (subsequently Emeritus Professor) and Professor Alan St Clair Gibson from 2009-2013. Each has played a significant role in mentoring staff (particularly focusing on staff development), developing research groups, publishing with staff, co-supervising and facilitating external collaborations. Derek Peters, promoted to Professor in 2011, has also played a key role in staff development. As noted above, the strategy going forward will focus on targeted professorial appointments to promote research in key areas.

##### ***Staff development***

The staff development strategy has focused particularly on the needs of ECRs. The 4 year research plans (see above) explicitly identify development needs, which feed into the University's research training programme but also ISES-specific training (e.g. research funding (April 2011), ethics (September 2012), project management (March 2010)). ISES has also hosted research retreats to provide dedicated time for research planning and writing. In addition, staff may bid to a budget to undertake external training where necessary. This budget also supports staff to undertake doctorates.

The strategy also meets the needs of research staff. The University has implemented the *Concordat to Support the Career Development of Researchers*. It undertook a gap analysis against the Concordat in 2009/10 and developed an action plan for development. It revisited this analysis in 2011/12 and developed a new action plan. Key aspects include the development of a bespoke training programme for research staff; the establishment of a research staff forum; the development of training for principal investigators around the commitments of the Concordat; tracking of its research staffs' careers after leaving Worcester.

The Institute and UW have worked diligently to develop knowledge and competencies regarding

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ethics and research integrity and to enhance public engagement reflecting the commitment to the *Concordat to Support Research Integrity* and the *Concordat for Engaging the Public with Research*. As Chair of the University Ethics Committee, Peters has had significant input into the most recent University Ethics Policy (2013) and its implementation across the University. Molnar chairs the ISES Ethics committee which meets frequently to review all staff and postgraduate research proposals. Ethics training is provided on a regular basis at both Institute and University level and staff are required to update their training.

## ii. Research students

Table 1 shows the number of registered doctoral students across the assessment period. It has remained fairly static, reflecting the supervisory capacity of the submitting unit. As indicated above, the submitting unit has plans to increase this capacity and to grow the research student body.

|          | 08/09 | 09/10 | 10/11 | 11/12 | 12/13 |
|----------|-------|-------|-------|-------|-------|
| PhD (FT) | 3     | 3     | 4     | 3     | 1     |
| PhD (PT) | 8     | 9     | 6     | 5     | 7     |
| FTE      | 7     | 7.5   | 7     | 5.5   | 4.5   |

*Table 1: Registered doctoral students during the assessment period*

Since 2008, seven students have completed their PhD within the unit. Of these, two (Routen, Wright) now have postdoctoral research positions at the Universities of Durham and Birmingham respectively, one has an academic post at the University of Wolverhampton, two are University of Worcester staff, two are employed outside the academic/research sector.

The University's Graduate Research School (GRS) is responsible for the management of all Research Degree Programmes (RDPs) from recruitment to examination, for monitoring student progression, for the coordination of the research student training programme, for training and supporting supervisors, and for the day-to-day support of Worcester's research students. IHS works closely with the GRS through a dedicated Research Degree Coordinator to ensure that only excellent students are accepted on to RDPs and that all supervisory teams have the requisite expertise and experience. Teams consist, as a minimum, of a lead supervisor (Director of Studies), who is normally the expert in the field and a second internal supervisor, who, where the lead supervisor has little or no experience of supervision, will be an experienced supervisor who can act as a mentor for his/her colleague. Many teams also draw on external supervisors when particular expertise is required (e.g. from the Universities of Aberystwyth, Birmingham, Coventry). The GRS maintains a register of approved supervisors which identifies the expertise and experience of supervisors. This register is reviewed annually to ensure that its supervisors are research active and up-to-date with training – the GRS offers a range of supervisor training workshops.

All students on RDPs are required to undertake an associated training programme. The student completes an initial training needs analysis (utilising Vitae's Researcher Development Framework and associated Planner) and agrees a programme of development in consultation with the supervisory team. The GRS runs a full training programme including a series of generic research training modules ('Processes & Skills, Management & Methods', 'Publication, Dissemination, Engagement & Impact', 'Supporting Student Learning in HE') and workshops (such as 'Preparing for the Viva', 'Time Management', 'Drafting Your Thesis', 'Writing a Journal Article', 'Data Management', 'CV Clinic', 'Research Ethics'). ISES offers subject-specific training modules, workshops and mentor support. Much of the material on these programmes is available online. These programmes are constantly being developed in direct response to individual student needs identified through the training needs analysis process and through student evaluation of workshops. The submitting unit's research students also have access to external training at: the University of Birmingham's ESRC Doctoral Training Centre; Coventry University; University of Gloucestershire. They can also access a small grants fund to support them to attend external training events, conferences, etc.

ISES works with the GRS to nurture a strong, interdisciplinary and cross-disciplinary research culture among its research student body. This is achieved through the full training programme but also through student-led conferences and seminar series. GRS facilitates both an Annual Research Student Conference and a Postgraduate Work-in-Progress seminar series which are

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both student-led. ISES expects its research students to attend and present at Institute seminars and conferences – in fact a research student (Douglas) organised the ISES research summit in 2012 - as well as at external seminars/conferences. They are encouraged to publish their work in progress (and to upload this work to WRaP): for example, students have recently published in *Soccer and Society*, *Journal of Sport Sciences*, *Comparative Exercise Physiology*. There is research student representation on ISES Research Committee (as well as GRS committees and University-level research committees) which ensures the student voice is fed into not only the development of RDPs but also the development of research strategy at Institute and University level.

**d. Income, infrastructure and facilities****Income**

The primary sources of external research income over the period have been local authorities and regional health bodies in the area of physical activity, health and well-being. A number of grants have been won in competitive tender, in the majority of cases in collaboration with colleagues from UW's Institute of Health & Society or Institute of Science and Environment. These include: A *Regional Evaluation of Weight Management Programmes for Children and Adults* commissioned by the Department of Health West Midlands, 2009-10; *An Evaluation of Patient Preferences for Cardiac Rehabilitation*, commissioned by Heart of Birmingham Teaching Primary Care Trust, 2010-12; *The effectiveness of physical activity interventions in primary school children: Does 'Wolfie's Workouts' work-out?* commissioned by the Wolves Community Trust (managed by the Wolverhampton Primary Care Trust), 2012-13; *Evaluation of the Physical Activity Network for the West Midlands*, commissioned by Physical Activity Network for the West Midlands & the Department of Health, 2010; *Evaluation of Dudley's 'Let's Go Outside' Healthy Towns Programme* commissioned by Dudley Borough Council & Dudley Primary Care Trust.

**Infrastructure and Facilities**

Researchers in the submitting unit have access to high quality research facilities. The Motion and Performance Centre (MPC) provides a facility for 3D motion capture and gait analysis. MPC is supported by two full-time engineers who provide specialist support for equipment, and data collection, processing and analysis. Provision for sports performance research includes two further laboratories supported by a specialist technician. Two performance analysis suites with extensive video camera and tripod equipment and specialist software have been developed over the period, whilst successful bids to the University's capital bids scheme have funded specialist equipment for specific research, for example: a portable EMG for pacing research (Renfree); a Tacyx ergometer for research looking at the impact of topographical variation on pacing (Colin Hill). The University's McClelland Centre for Health and Well-Being provides therapy and fitness testing rooms which staff are able to utilise for research (e.g. Griffiths' fitness evaluations for fire-fighters). Researchers from the submitting unit also have access to an environmental test chamber capable of recreating most climate types and environmental conditions worldwide, which forms part of the Darwin Building science facilities.

In April 2013, the £15 million Sports Arena opened. Specifically designed to cater for disabled athletes, it provides first class facilities to support research relating to performance analysis of basketball, netball and disability sport during national and international tournaments (e.g. Standard Life Men's and Women's Wheelchair Basketball Tournaments June 2013).

The University has invested substantially in its overarching research infrastructure in the REF period. Notably, it has established a Research Office, led by a Director of Research Development (appointed 2010) and supported by a Research Funding Officer (appointed 2013). The primary role of this office is to support staff in the process of bidding for research funding. The Research Office is also responsible, however, for coordinating the development and implementation of research governance systems to ensure the quality and integrity of the University's research. In particular, it has established a clear set of policies and guidelines around ethics and research integrity that meet with the commitments of the *Concordat for Supporting Research Integrity* and comply with relevant professional and ethical frameworks and codes of practice. The University has continued to invest in its long established Graduate Research School which manages its research degree programmes, and supports its research students and supervisors, both in terms of its staffing and

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its physical resources.

In 2012, the £60 million University & County library *The Hive* opened providing extensive facilities including an archive of journals, computer facilities, microfiche catalogues. The librarian for Sport provides dedicated support for learning and research resources and liaises with ISES through attendance at committees and through the library liaison officer (Kohe). 51% of the library budget is discretionary and aimed at broadening the collections in sport and is directed by the requirements of researchers.

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

In addition to the strategic collaborative partnerships with University of Birmingham and University of Coventry previously mentioned, a number of staff are involved in national and international collaborative research. Researchers in the Socio-cultural Studies of Sport, Exercise and the Body research group (Molnar, Kohe, Purdy, Edwards) are collaborating with colleagues internationally in Fiji (athlete migration), Taiwan (critical Olympic literacy), Czech republic (corporeal philosophy, body politics, sexualisation, sport & the media); and nationally with Lord Faulkner (evolution and consequences of The Football Trust), Professor John Hughson (Sport Media & theory), Professor Robyn Jones and Dr Paul Potrac (coachology) and Dr David Tod (Muscle Dysmorphia). In Physical Education, Professor Hardman's research and work with UNESCO and ENSEE has resulted in the University being named as the UNESCO PE Monitoring Advisory Centre to receive and co-ordinate annual and five year international survey data. Additionally, the group are collaborating with Professor Sue Capel to investigate values and beliefs of PE students at a number of HEIs across the UK, as well as writing chapters, underpinned by pedagogical research, for Professor Capel's latest book *Learning to Teach PE in Secondary Schools*. Renfree and Martin (Regulation of Performance RIG) have collaborated nationally with Dr Dominic Micklewright (role of decision making in pacing) and Renfree has also collaborated internationally on pacing research with Sabine Skorski (Universitat des Saarlands). Successful international collaboration has been established via Peter's Visiting Professor roles at the University of Agder, Norway and the Lithuanian Sports University leading to publications on social loafing, health and well-being, and the supervision of PhD students.

In July 2012, Professor Peters organised the World Congress of Performance Analysis of Sport IX which featured keynotes from world leading researchers alongside 90 podium and 110 poster presentations. In June 2013, Molnar was an organiser of the Fijian Rugby conference, a key part of the centennial Fijian rugby celebrations, attracting 25 global speakers and 200 delegates. Peters and Hardman, and Molnar and Purdy have established and undertaken editorial roles for the Graduate Journal of Sport, Exercise & Physical Education Research. The journal aims to disseminate student led research globally and provides a stepping stone for students to publish and develop skills and awareness of the peer review process. Additionally, Peters is on the Editorial Advisory Boards of International Journal of Performance Analysis in Sport, Journal of Human Sport & Exercise, Journal of Hospitality, Leisure, Sport & Tourism Education; whilst 8 staff have acted as peer reviewers in a range of journals including British Journal of Sports Medicine, Tourism Management, International Journal of Sports Nutrition & Exercise Metabolism; Journal of Sport Sciences; International Journal of Physiology and Sports Performance; Health Education Research; Applied Psychophysiology & Biofeedback; Applied Sport Psychology; International Review for the Sociology of Sport; International Journal of Sports Science & Coaching; Sport in Society; and International Journal of the History of Sport.

Staff have received recognition by their peers through appointment in notable positions and receipt of awards. In addition to Peter's Visiting Professor posts, Hardman received the International FIEP Cross of Honour: Gold Cross for his contribution to physical education in 2008. Edwards received the British Psychological Society award for best student dissertation (2008), whilst Rhoden, West and Peters received the Best Oral Presentation at World Congress of Performance Analysis of Sport IX (2013). Finally, Peters is Treasurer of ISPAS; Hardman is International President for PE and Sport in School (since 2008), and V. Jones is FIEP Regional Representative.