

<p>Institution: University of Cumbria</p>
<p>Unit of Assessment: 26 Sport, and Exercise Sciences, Leisure and Tourism</p>
<p>a. Overview</p> <p>The University of Cumbria was formed on the 1st August 2007, through the amalgamation of St Martin's College, Cumbria Institute of the Arts, and the Cumbrian campuses of the University of Central Lancashire. The former School of Sport & Outdoor Studies within St Martin's College emerged as a substantial discipline within the Faculty of Business, Social Science and Sport, and which subsequently moved into the Faculty of Health and Wellbeing in 2010. The area provides academic programmes in Sport & Exercise Science, Sport Rehabilitation, Physical Education, and Coaching & Sport Development. These programmes are delivered across two major campuses by the newly created Department of Medical & Sport Sciences. Throughout these institutional developments, an interdisciplinary Sport & Physical Activity research group has flourished and promoted a group of active researchers. Whilst the group is comparatively new, it has a strong profile in publication and other forms of dissemination which has already been established. Since 2008 research and broader scholarly activity has gathered momentum. Within this short timeframe in which research activity has been established, output has not only been achieved, but has also been diverse in type.</p> <p>Through its legacy institutions, the unit has a track record in practice-based research and scholarship, and developments in applied and advance practitioner research. Staff work in partnership with employers, research students, research fellows, other University staff, and members of stakeholder organisations, specialising in applied research, scholarship and knowledge transfer. Our strong professional focus ensures close alignment of research and teaching with staff at the forefront of their particular fields. Staff research and PhD students are monitored and administrated through the central University Research Office and Graduate School, however, this is supported for the unit by the Faculty Research Coordinator who advises, monitors, and supports research activity for both staff and PhD students.</p>
<p>b. Research strategy</p> <p>Within the period, the strategy of the unit has been affected by the evolution of research and practice into the new University context, following the formation of the University in August 2007. Capacity building and research development have been important factors within these changes, and have underpinned and driven the research strategy. Changes have particularly affected this unit, as a number of established and recognised researchers in Sport have retired or left the University, which has impacted on the number of established research active staff, although all new academic appointments incorporate an expectation of active engagement with research.</p> <p>A change of particular note within the unit is in terms of the focus of the research. The original research focus was on the historical and cultural aspects of sport, as reflected in the RAE2008 submission of two of the key researchers (who have since left the University) to the History unit of assessment. Effectively, the unit has established new research areas within the past five years, and so can be considered as a developing and emerging area. The unit is characterised primarily by Early Career Researchers who are establishing novel research themes.</p> <p>The Faculty recognises research and scholarship as fundamental parts of academic life and fosters a culture of success in developing new knowledge and its application to all the University's internal and external activities. The Faculty strategy sets the framework for development of research and scholarship within the unit and is designed to:</p> <ol style="list-style-type: none"> 1. Enable and promote the development of a research culture which is driven by the need to inform, enhance and advance evidence-based practice and content across and outside of the institution. 2. Give a framework to nurture talent, develop and build research capacity and capability for

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the advancement of research areas within the University.

3. Promote and enhance the role of the University as a source of knowledge and expertise through collaboration and partnerships with employers, organisations, and individuals.
4. Provide a forum for knowledge exchange between academic, professional and social communities to add value to service delivery.

Over the assessment period, the Faculty has focussed activity in areas where development and growth was already underway. The emphasis has been on enhancing existing areas of research excellence and establishing new areas of further research and scholarly activity. This has been achieved by establishing personal research goals to enable all academic staff to become effective scholars contributing through measurable outcomes of benefit to the academic reputation of the University. The influence and impact of any research activity now forms part of personal development discussions and planning, with a view to development towards REF 2020, acknowledging our position as a young and emerging institution, and sport as a relatively new research area for the University.

The strategic direction since 2008 has been to:

- Recruit and develop early career and research orientated staff, and develop research capacity within core sport subject areas. This has also involved increasing the research capacity of existing staff within the unit.
- To identify new priority research areas within the unit. These include a focus on research related to coaching and sporting practice.
- To increase the quantity and quality of research outputs being produced by the unit. This has been supported within the group through a strategy to undertake projects collaboratively with 2-3 members of staff working and co-writing together.
- To increase monitoring and support for research at all stages within the unit, from bidding to completion and dissemination. One notable success in this area is the increasing development of larger projects and identification of external funding streams, such as the Leverhulme Trust.

Specifically, within the period, research from the sport and physical activity group encompassed the fields of Physiology (SMALL, DEWHURST); Biomechanics (BAMPOURAS); Sociology, Sociolinguistics and gender in sport; Cognitive and Social Psychology and Philosophy (MILLER) in addition to more conventionally applied, sport-specific areas such as coaching practice, coach education (MILLER, CRONIN) and physical activity and health (DEWHURST, ELLIOTT).

There has also been a focus on developing strategic and synergistic partnerships with key stakeholders to help to shape the research agenda, such as local and regional sports clubs (such as Carlisle Leisure), national teams (e.g. the GB Olympic diving team) and locally through our engagement as a key partner for Active Cumbria (CRONIN), the local County Sports Partnership, which is dedicated to delivering sport and physical activity in Cumbria. Future engagement with stakeholder organisations will be driven through increasing cooperation, and will include the development of collaborative research programmes.

Another notable element of progress is the recent establishment of the Active Ageing Research Group (AARG), which brings together a number of elements of the unit's research into a single theme. This aims to enhance the quality of the work, bringing a valuable perspective to national and international priorities related to health and ageing populations through application of sports science to issues of age related morbidity, mobility and fitness. AARG primarily examines the effect of various physical activity interventions on a range of physical parameters in older individuals, and the impact of interventions on the functional ability of individuals, seen through the work of BAMPOURAS and DEWHURST. Current projects include:

- The effect of Scottish country dancing on functional ability, postural balance and social wellbeing of older females;
- The effect of daily activities on balance of older females;
- Effect of gardening activities on health and wellbeing of older individuals;
- Evaluation of exercise and physical activity projects;
- Evaluation of functional performance tests assessing older individuals.

These projects involve collaboration across different health and sport professions, as well as being academically interdisciplinary. AARG actively collaborates outside the unit with colleagues in the Rehabilitation group submitted in UoA3 (such as COX).

The objectives for the next assessment period include:

- To capitalise on staff development already undertaken, driving forward post-doctoral work and further defining research themes within the unit.
- To develop thematic work through AARG.
- To identify further relevant sources of external funding, and increase the amount of funding gained by the unit.
- To utilise increasing supervisory capacity to extend the PhD programme, increasing the number of students supported by the unit.
- To establish further priority research themes to drive substantial research programmes. This will take the form of establishing further groups, and is likely to be based on the application of muscle function and assessment to social and coaching contexts.
- To identify key sources of research funding to support the development of research themes.
- To develop the unit into a mature research area for the University.
- To work towards the establishment of a specific sport and physical activity Research Centre.

As this is an emerging research group the strengths of the unit are likely to be more visible in REF2020, although progress is already visible through outputs, including increased citations both within and beyond academia for the applied and practitioner orientated research being undertaken.

c. People, including:

i. Staffing strategy and staff development

As emphasised in section b, staffing and staff development is particularly important for this unit. The University is committed to supporting the research development of all its staff and fully endorses the Concordat to Support the Career Development of Researchers. Whilst the University does not currently have a large number of dedicated research staff (i.e. research only posts), we are committed to providing development and training opportunities to strengthen research capabilities. A high proportion of our work is in practitioner based disciplines, with many of our academic staff coming into Higher Education from professions; therefore providing opportunities for staff to gain skills in research is fundamental to maintaining and developing our research capabilities, capacities and culture. We are currently undertaking a benchmarking exercise against the principles of the concordat, and are planning to submit an application for the HR Excellence in Research award in 2014.

Within the unit, a number of staff have professional coaching experience, and are working to gain higher degrees and establish themselves as researchers. As several staff are undertaking doctorates or have recently been awarded, doctoral and post-doctoral work is in progress and therefore any visible output, influence and impact of the work is likely to not be seen for 3-4 years. However, the research output in the last 2-3 years has included presentation at national and international conferences; the leading of national seminars; peer reviewed journal articles; the publication of articles in sport technical journals; the editing of journals; the reviewing of books and the contribution of chapters to edited volumes, and is showing a steady increase year on year.

The staffing strategy is largely determined centrally by Human Resources. Frequently, academic staff are appointed on the basis of their practitioner expertise rather than prior research experience, qualifications or publications. However, the Faculty has increasingly focussed specifically on recruitment of staff with doctorates or those nearing completion so they can enhance the supervisory capacity and further the research profile of the group. The unit does not use short term or fixed term contracts.

Leadership for research within the unit is provided by the Faculty Executive Dean and Associate Deans working in partnership with the Professorial level Research Coordinator (COX), Director of Sport and unit research lead (MILLER), linking to the Vice Chancellor, Pro Vice Chancellors and the Director of Research and Graduate Studies. These individuals provide leadership and mentorship, including in terms of maintaining the quality and integrity of research. The latter is also guided by engagement with the University Ethics Panel.

Our commitment to researcher development is fixed in the University's goal to achieve Research Degree Awarding Powers as stated in the strategic aims on the creation of the University. It is reflected through our engagement with the pilot for the Researcher Development Framework (RDF), which the University subsequently intends to schedule for roll-out to all academic staff. This will be an additional element to help tailor our support mechanisms to the needs of individuals. It will be integrated into the research and scholarly planning, which takes place as part of the annual review process. Staff also benefit from a fixed annual allocation of 25 days Scholarly and Research Activity (SARA) time and access to the Epigeum research skills package, Sabbatical Leave funding and Research and Scholarly Development Fund (RSDF). As part of our commitment to developing Early Career Researchers, we also provide fee waivers and additional support mechanisms for staff members developing their research capabilities following a professional career. Within the unit, the Research Coordinator works directly with individuals and their line managers to develop specific post-doctoral plans (such as ELLIOTT) to increase the number of recognised and established researchers within the University.

The University has a comprehensive Equality, Diversity and Inclusion strategy and a set of related policies and procedures that help to ensure equity of opportunity for all students and staff. This includes positive engagement with stakeholder groups external to the University, particularly with creating access for local community and under-represented groups. Specifically in relation to research activity, the procedures allow monitoring of equality, diversity and inclusion across research student recruitment, progression and completion. The policy is also applied to research staff appointment, promotion and support and where appropriate equality impact assessments are completed to evaluate the potential impact of new policy or procedures. The quality of research is maintained on a day to day basis by a Faculty Research Coordinator, who deals with bidding and quality across the unit.

This will be the first national assessment exercise submission for the Sport and Physical Activity unit, and there are a number of Early Career Researchers in the group. However, since 2008 the number of national and international conference papers and conference presentations and published peer review articles has significantly increased. In addition a greater number of staff are involved in organising internal and external conferences, and are active with subject or area associations, research societies and relevant bodies as described in section e. The unit also has two Honorary Research Fellows, contributing to research related to pain and physical exercise and in sport philosophy and policy.

ii. Research students

The University of Cumbria is currently working towards acquiring Research Degree Awarding Powers (RDAP) and there are strategies and policies in place to achieve this, coordinated by a cross-institutional RDAP Steering Group. Research degrees are currently validated by Lancaster University, however, the management, administration and delivery of the postgraduate research programme is entirely managed by Cumbria. The University registers post graduate research students, provides supervision and research training, and manages quality and progression through the Cumbria Research Office and Graduate School

The unit is expanding its PhD student base and, within the assessment period, has begun to increase its registrations, which include jointly supervised musculo-skeletal based studies of Physiotherapists (n=2, plus an additional student on course within the assessment period) as well as sport specific registrations (n=1). This demonstrates interconnectivity of the Sport and Physical Activity unit with the wider health and social care aspects of the Faculty. The sport-specific post graduate research students on course over the assessment period are as follows:

Academic year	FTE of PGR in sport and exercise sciences
2008/09	0.2
2009/10	0.5
2010/11	0.3
2011/12	0.8
2012/13	1

Research students at the University have historically been part-time students studying whilst continuing in employment, however, over the last 3 years the Faculty as a whole has begun registering more full time students. This has been supported through University studentships or external funding through other sources such as government funding (Isle of Man). The group have made good use of internships to engage undergraduate and postgraduate taught students in small scale research projects to further embed research into the culture of the unit. This is exemplified through co-authoring activities, including the publication of journal articles based on student dissertations, and the presentation of dissertation projects at the British Association of Sport and Exercise Sciences (BASES) national student conference. This building of research capacity and experience through student engagement with research is beginning to generate results in terms of several of these students now applying for PhD study at the University. The commitment to further development of PGR numbers is also demonstrated through provision of specific schemes to support progression into doctoral study, such as provision of research internships within the unit for high performing graduates with first class sports degrees. The success of this initiative is exemplified by one such student successfully developing a research proposal within the assessment period, who is due to register for PhD on 1 October 2013 funded through a Cumbria studentship. There has been a steady increase in the number of applications of international students. In addition, a number of staff are registered for their PhD within the University or elsewhere: this supports the policy of the University and Faculty to enhance the overall capacity and capability of its staff.

The training and supervision of research students is monitored through the Graduate School and coordinated by the Research Coordinator. The university has a well-established bi-monthly programme of support and training seminars, an annual research conference and specific Doctoral Colloquium, as well as a 2 week PhD summer school. All of these training activities are cross-disciplinary and provide a rich student culture. The University uses a team approach to supervision whereby the research student is supported by a main supervisor and 1 or 2 additional supervisors. This approach to supervision also offers opportunity for Early Career Researchers to be part of supervisory teams and allow mentorship to build knowledge and experience in PhD supervision.

d. Income, infrastructure and facilities

Income

Income for research is currently derived from a number of sources. Much of the practitioner based research is funded through successful internal research grants and awards, contract research and commissioned evaluations. The amount of externally funded research applied for has increased substantially: very little bidding for external funding was taking place at the beginning of the assessment period, however, this was identified as strategically important for development of the group, and development of funding streams to support research activity will continue to be a key element of the research strategy for the unit, as cited in section b.

Infrastructure

To support a culture of scholarship and research excellence the Faculty provides a robust infrastructure which includes the establishment of the roles of the Research Coordinator from 2010 and the use of the Research posts within the University staff structures to support key elements of research activity, such as Readers, Professors and Honorary Research Fellows.

Facilities

The Faculty of Health and Wellbeing is based at two of the university's campuses; Lancaster (Bowerham Road) and Carlisle (Fusehill St), with specialist sports facilities at each site. The Human Performance Laboratory is based in Lancaster, and contains a range of relevant sports science equipment for the clinical study of exercise physiology and biomechanics. Facilities include specialist equipment, such as:

- Ergometry (Lode Excalibur Sport Cycle, with bilateral force measuring capabilities; Monark Cycle; Concept II Rowing; HP Cosmos Treadmill, with a top speed of 44 km/h; two Woodway treadmills; TechnoGym Spintrainer, for cyclists to mount their own bikes on; Weba Sport Kayak).
- Gas analysis (Medical Graphics CPX-D Online Gas Analysis System; Hitech Gas Analysis System; Cortex MetaMax portable gas analyser; Servomex analysers; Douglas Bags)
- Capillary blood parameters (Lactate Pro; Accutrend, HemoCue and Lactate Pro as portable systems; Analox and Hawksley as laboratory-based systems)
- Body composition (Harpenden skinfold calliper; BodyStat 1500)
- Heart rate (Polar Accusport heart rate monitors; Hosand or Suunto)
- Muscular performance (Bertec force platform, Globus Twin Plates; Myotest Pro wireless accelerometer; EMG system)
- Motion analysis (high speed cameras, Dartfish software)

There is also a Physiotherapy and Sport Laboratory based in Carlisle. Equipment includes:

- A CSMI Norm Isokinetic testing station for testing the function of mainly the larger peripheral joints.
- Biodex treadmill with offloading gantry used to look at gait in those with and without major locomotor problems.
- Biodex balance system for testing and training of some parameters of balance.
- Moven Xsens 3D motion analysis system with a telemetered link of 50m to the base data capture computer. It's primarily used in CGI situations but we use it to look at biomechanics of motion.
- Biometrics E-Link System (various biofeedback sensors) used for standardised evaluation of upper and lower limbs with reporting facility and computerized graded activity.

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- Biopac MP150 system with analogue and digital interfaces, assorted sensors, for goniometry, EMG and ECG, respiratory excursion and stimulator.
- Noldus Observer Video Pro XT software for use in behavioural research to capture and log user defined events on a timeline with the possibility complex analysis of identified behaviours.
- iView X HED head mounted eye tracking system. This can be used in various settings to aid in the study or research of ergonomics, or teaching and learning situations that require the use of the eyes to interpret data.

e. Collaboration or contribution to the discipline or research base

The unit undertakes a wide range of practitioner based research related to physical activity and health with a number of NHS partners, community groups and sports associations, including Active Cumbria.

Staff members throughout the group have a wide range of memberships within relevant academic and practitioner level bodies and associations. However, a number have also undertaken a variety of active roles in such organisations, including a position on the Executive Editorial Board for the *Serbian Journal of Sport Sciences*; Executive Committee Member for the British Philosophy of Sport Association; European Sport Development Network Committee Member; roles in accreditation for postgraduate sport provision and sport admissions committee position for the British Psychological Society; membership of a working group on Clinical Exercise Physiology for the British Association of Sport and Exercise Sciences (BASES) and undertaking an organisational role in the annual BASES conference. A member of staff has also been a reviewer for SportscoachUK Higher Education Coaching Advisory Group research projects.

The unit has also undertaken collaborative research with Manchester Metropolitan University; Cardiff Metropolitan University; University of Bolton; University of Bath; Edge Hill University; Victoria University, Melbourne, Australia; Manchester Metropolitan University; University of Hull and Stirling University, including the production of a range of co-authored journal articles.